



## PLANT DISEASES

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### Spruce Needle Cast

One of the most common diseases of spruce in the landscape is caused by a fungus, *Rhizosphaera kalkhoffii*. The disease is Rhizosphaera needle cast. Blue spruce is most often infected; and Norway spruces are resistant to this fungus. Infection is prevalent in wet, springtime weather. By fall or the next spring, 1-year-old needles are reddish brown or yellow. The newest needles remain green. Although infection starts near the bottom of the tree, infected branches can be scattered throughout the tree.

Many other noninfectious problems can mimic this disease: for example, 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 of the 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 nice rows on the needles. They do not easily rub off the needles because they are embedded in the tissue.

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. If that is the case and you control *Rhizosphaera*, the growth problem will persist. Investigate soil type, drainage, injuries to the trunk, compaction possibilities, root injury, etc., so that stress factors can be identified and alleviated.

Fungicides may be used to help fight *Rhizosphaera* needle cast. Once the disease has been identified, the focus lies on protecting the new growth. Two sprays are recommended—one when the bud cap has fallen off and another about 2 or 3 weeks later. Chemical options for commercial growers include Daconil, Kocide, Manicure, PathGuard, Protect T/O, Spectro,

Thalonil, and TwoSome. Home growers can choose from Bonide Fung-onil, Dragon Daconil, and Ortho Daconil. Rake and remove fallen needles if that is possible. Remove dead wood and prune surrounding plant material to allow better air movement in the area. Water trees in periods of extended drought.

A University of Illinois *Report on Plant Disease (RPD)* discussing *Rhizosphaera* needle cast is under development. For photographs of this disease, consult The Ohio State University fact sheet found on the Internet at <http://ohioline.osu.edu/hyg-fact/3000/3059.html>. (Nancy Pataky)

### Anthracnose on Trees

Trees commonly infected with anthracnose in Illinois include sycamore, ash, maple, oak, birch, dogwood, and walnut. Other species are affected less frequently.

Each spring, we see spotting and blighting of the leaves, buds, and sometimes stems of these trees. The severity of infection is directly related to weather conditions as leaves emerge. This disease is anthracnose, caused by one of many fungi present in cool, wet conditions as tender leaves are first developing from the bud. The disease is most prevalent in the spring because the cool, wet conditions that prevail then are conducive to fungal development, while slowing plant tissue development. Leaves that emerge in warmer, drier conditions usually escape the disease. The exact temperature and moisture conditions necessary for infection vary with the host and the fungus. Still, in most cases, the critical period for primary infection is the 2 weeks after bud break. Most of Illinois had cool, wet conditions the last few weeks, so it is not too difficult to predict that we will see some anthracnose.

Unless anthracnose fungi have repeatedly hit a tree in the past or a very young tree is involved, we do not recommend using fungicides. Dogwood anthracnose is another exception for which fungicides are recommended. That disease will be discussed in a later issue of this newsletter. In general, anthracnose diseases do not kill trees, but repeated infections can weaken trees to other problems. Some defoliation may occur, but refoilation with healthy leaves follows in warmer weather. Concentrate on boosting tree vitality, which promotes new growth. Prune in and around the tree to

open it to better air movement. Remove dead or dying branches, water in periods of drought, and mark calendars now to fertilize affected trees in the fall. Watering in summer drought is probably the best advice we can give to help infected trees. It is odd how we quickly forget this early season stress once new leaves form. Don't add to the stress by ignoring these trees in drought.

You might confuse anthracnose with late frost damage. Anthracnose generally causes more discrete spotting on the leaf blade. Anthracnose occurs where air movement is slow and relative humidity high, so we see anthracnose most severely near the bottom and inside the canopy. Frost injury is more likely on branch tips or near the canopy top, which is more exposed to weather conditions. For more on anthracnose, consult *Report on Plant Disease (RPD)*, no. 621, "Anthracnose Diseases of Shade Trees," for photos and details to help with disease identification. See the U of I publication site: <http://www.ag.uiuc.edu/~vista/horticult.htm>. (Nancy Pataky)

### Bacterial Blight Caused by *Pseudomonas syringae*

This bacterial disease seems more prevalent in nurseries than in the landscape, but it is still a relatively regular spring inhabitant in gardens. You may be confusing it with frost injury, Botrytis blight, fire blight, or other factors that cause sudden blighting.

Hosts of this disease include (but are not limited to) lilac, magnolia, forsythia, mountain ash, flowering cherry, apricot, Callery pear, flowering dogwood, and even viburnum. Symptoms vary from flower blast or bud death to leaf spots to shoot tip dieback and even cankers. I tend to see it most commonly as a shoot tip dieback resembling frost or fire blight. Often the external tissues are darkened, but inner tissue may still be green. Confirmation in the lab consists of microscopic observation of bacterial streaming and sometimes isolation of the bacterium.

In most plant pathology literature, *Pseudomonas syringae* is considered a weak pathogen. It requires some sort of wound to enter the plant and does most damage to plants under stress. Nevertheless, it can do major damage to a susceptible host in a stressed site or during a stressed season. It has been known to cause severe cankering on some cultivars of Callery pear. Strains of this bacterium can aid in ice formation (ice nucleation) at temperatures just above freezing.

Where does this bacterium come from, and what can we do about it in our landscapes? The bacterium can overwinter on buds, in cankers, as an epiphyte on many plants, as latent infection in plants, and even in

weeds and grasses. Therefore, it seems it is just about anywhere we might grow plants. If you have had problems with bacterial blight in your landscape, there are a few management suggestions that may help prevent its recurrence.

Avoid high-nitrogen applications that produce great quantities of succulent growth in spring or fall. This tissue is most apt to be injured by frost, sudden weather changes, wind, etc; and injured tissue is most susceptible to bacterial infection. Fertilization is good, but it should be balanced (N-P-K) and not excessive.

Some research in nurseries has shown that pruning trees in the fall and early winter increases their subsequent infection by *Pseudomonas syringae*. The suggestion is to prune in January or February.

There is current research with the goal of developing plant cultivars resistant to this bacterial pathogen. Look for mention of such resistance when selecting plants for your landscape. As an example, most cultivars of common lilac are susceptible to infection by *Pseudomonas syringae*. Trials in western Washington are attempting to identify resistant or tolerant lilac species and cultivars.

Fixed-copper fungicides have been tried with varying success in nurseries with production problems caused by *Pseudomonas syringae*. The compounds are used in the fall to kill the overwintering bacterium before winter injury occurs. Homeowner use of such compounds has not yet been advocated.

Keep an eye out for this sudden blight of buds and shoot tips as our cool, wet weather continues. When in doubt, send a sample to the Plant Clinic for confirmation. Details on how to submit a sample can be found in issue no. 1 of this newsletter. (Nancy Pataky)

## WEEDS

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### Looking for Dacthal?

Over the past few years, Dacthal (DCPA) herbicide has become increasingly difficult to find. When its manufacturer, ISK Biotech Products, elected to discontinue production, existing stocks dwindled, and the price reflected the shortage. Last year, production resumed when AMVAC Chemical Corporation obtained this product. However, many home gardeners are still having great difficulty finding Dacthal.

This year, AMVAC introduced a new, 4-pound container. It is possible that many garden centers are not aware of this new size. Home gardeners should simply request this product so garden centers can then order it. A 48-pound box containing two 24-pound bags is available to commercial applicators. Both

products are formulated as Dacthal W75 (75% wettable powder). More information and a product label can be obtained at AMVAC's Web site, <http://www.k-salt.com/>. Customer service may also be reached by phone at (888)462-6822.

Dacthal may be used to provide preemergence control of annual grasses such as crabgrass and certain broadleaf weeds such as chickweed and spurge. It is registered for use on a variety of vegetable crops and ornamentals, as well as turf and strawberries. Please note that turf and ornamental uses are now included in the agricultural label. Also note that Dacthal does NOT control galinsoga, jimsonweed, johnsongrass (from rhizomes), mustards, nutsedge, common ragweed, smartweed, or velvetleaf. Check the product label for more information.

So Dacthal is still available, but it may take some time and effort to find it. Also, be aware of other products that may also disappear. As reported in the *Federal Register* on March 6, 2002, Pursell Industries has requested voluntary cancellation of registrations of their Dacthal-containing products: Vertagreen Professional Use with Dacthal, Garden Weed Preventer (contains Dacthal), Turf Pro Dacthal 5G, and Turf Pro Dacthal 5G Plus. (*Michelle Wiesbrook*)

## INSECTS

### Gypsy Moth: Part One

Gypsy moth, *Lymantria dispar*, eggs have hatched in the northern portion of Illinois, and the caterpillars are active. The gypsy moth is a leaf-feeding insect that is a serious pest to many forest and ornamental trees. Lake and Cook counties in northeastern Illinois contain too many gypsy moths for meaningful eradication. Overwintering egg masses have been found in Winnebago, DuPage, and McHenry counties. The Illinois Department of Agriculture (IDOA) predicts that by 2005 most of Chicago, as well as other surrounding counties, will be quarantined. Gypsy moths migrate at a rate of about 15 miles per year. Because gypsy moth is emerging as an important pest in northeastern Illinois, we will have several articles on it as it develops this year.

Gypsy moth undergoes four developmental life stages: the egg, larva (caterpillar), pupa, and adult. Gypsy moth females lay between 500 and 1,000 eggs in sheltered areas, such as underneath the bark of trees. The egg mass, which is about 1 inch long and 1/2 inch wide, is covered with a dense mass of tan or buff-colored hairs. The eggs are the overwintering

stage of the insect. Eggs may be attached to trees, houses, or any outdoor objects. The eggs hatch in spring (April) into caterpillars.

Gypsy moth caterpillars are hairy and easy to identify because they possess characteristics not found in other leaf-feeding caterpillars. They have five pairs of blue dots, followed by six pairs of red dots, lining the back. Young caterpillars, which are 1/4 inch long and blackish, primarily feed at the top of trees during the day, whereas older caterpillars feed at night. The large caterpillars, which are 1 to 1-1/2 inches long, crawl down from the tops of trees during the day to hide in protected places to avoid predators. When present in large numbers, the older caterpillars feed both day and night. A young caterpillar spreads to new locations by crawling to the tops of trees, where it spins a silken thread and is caught on wind currents. Gypsy moth caterpillars do not produce a web, which distinguishes them from web-making caterpillars such as the eastern tent caterpillar and fall webworm. The gypsy moth larval stage lasts about 7 weeks. Male larvae undergo five instars, females six, before pupating.

Treating localized infestations of gypsy moth with an insecticide can slow the spread. However, this only temporarily reduces the number of caterpillars. Pest-control materials are best applied when the caterpillars are small. This enhances the effectiveness of these materials, as they are less effective as caterpillars increase in size. One commonly used pest-control material for managing gypsy moth is the bacterium *Bacillus thuringiensis* (Bt). Bt, sold as Dipel and Thuricide, must be consumed to kill Gypsy moth larvae. The appropriate time to spray with Bt is soon after egg hatch, which is generally when oak leaves are about one-half expanded. The young caterpillars are much more susceptible to Bt than are older, larger caterpillars. Bt is not harmful to beneficial organisms such as honeybees. Additional insecticides effective on the larvae include cyfluthrin (Tempo), diflubenzuron (Dimilin), and tebufenozide (Mimic). Soybean oil (Golden Natur'L Spray Oil) is effective in destroying Gypsy moth egg masses.

For more information, contact your local U of I Extension office or consult the gypsy moth fact sheet (*Entomology Fact Sheet, NHE-153*). (*Raymond Cloyd and Donna Danielson, Morton Arboretum*)

### Sod Webworms

Significant sod webworm damage has been found in McHenry County, south of Crystal Lake in northeastern Illinois. Sod webworm overwinters as partially

grown larvae in the thatch. In the spring, the larvae resume feeding by clipping grass blades off at the base and eating them. Damage appears as indistinct brownish areas. Close examination reveals firmly rooted grass with few grass blades. The brownish areas are the thatch showing. Commonly, one can find small, green fecal pellets from the caterpillars. One-half-inch diameter holes may also be numerous where insectivorous birds such as starlings, robins, grackles, and cowbirds have been feeding on the larvae.

The larvae themselves are up to 1 inch long, with dark brown spots. The background color varies and may be white, gray, tan, or greenish. The caterpillars emerge at night to feed, spending the day in silk-lined tunnels in the thatch. One can find the caterpillars at the soil–thatch interface, but it is easier to flush them out. A disclosing solution can be made by mixing a teaspoon of 5% pyrethrum insecticide or a tablespoon of dishwashing detergent in a gallon of water. Spread this evenly over a square foot of turf; a watering can works well for doing this. This solution irritates the larvae, causing them to come out onto the turf surface within a minute or so. Two or more larvae per square foot are enough to cause damage.

Sod webworm larvae are attacked by a naturally occurring microsporidium that typically kills most of the overwintering generation in Illinois. This disease is more prevalent during cool, moist weather. With the weather of recent weeks through much of Illinois, sod webworm damage is not likely to be widespread. Look for it to show up first in well-drained turf areas such as south-facing slopes and the tops of berms.

Later in the season, be watchful for large numbers of tan moths that fly up from the turf, fly just a few feet above the ground in a jerky motion, and drop back into the turf within 30 feet or so. Adult moths are

3/4 to 1 inch long, with elongated “snouts” and wings that fit tight against the body, making them look tubelike. Sod webworms have two generations per year in northern Illinois, three in southern Illinois. Generations overlap, making it likely to see them at any time during the growing season.

Bifenthrin (Talstar), carbaryl (Sevin), spinosad (Conserve), trichlorfon (Dylox), and many other insecticides—as well as insecticidal nematodes—are effective against sod webworm larvae. Apply control materials as spot treatments in infested areas and 2 weeks after a heavy moth flight under warm, dry conditions. Turf damaged by light to moderate sod webworm injury will recover with irrigation, as the grass crowns will grow new grass blades to replace those that were eaten. (*Phil Nixon and Bruce Spangenberg, McHenry County College*)

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*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 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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