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## PLANT DISEASES

### Phytophthora Root Rot of Rhododendron

Rhododendrons can be spectacular plants, even in Illinois. They just require a little more planning and work here than in milder climates with loose, acidic soil. Prepare the planting site as recommended by Extension horticulturalists or reputable nurseries. Planting in exposed, poorly drained, or clay sites with a high pH soil will invariably lead to slow decline and/or infection by *Phytophthora*. It is often said that the two biggest problems for rhododendrons in Illinois are clay soil and Phytophthora root rot.

We usually see Phytophthora root rot in late May or June in this state. Because the fungus thrives in wet or poorly drained sites, and because we've had more than enough rain in the past weeks, expect it earlier in 2002. Be ready to identify the symptoms.

*Phytophthora*-infected roots are reddish brown rather than healthy white. Roots die, and the reduced root mass is unable to absorb enough water or nutrients to support top growth. Often, the top of the plant quickly turns dull green, and foliage rolls. Several *Phytophthora* species could be involved, some of which do not overwinter in Illinois. Carefully inspect any plant material that you purchase from a nursery that imports plants from the South.

You will not be able to save infected plants, but proper identification of the problem can go a long way in preventing spread to other rhododendrons. Because poorly drained soils allow disease development, even in some resistant rhododendrons, obviously, proper soil preparation and good drainage are keys to disease control. Chemical drenches are available for commercial growers to help prevent disease spread in the planting.

Field work to develop rhododendrons with resistance has been ongoing for many years. At the Ohio State University, Hoitink and Schmitthenner performed trials on 336 hybrids of rhododendrons (1974). The most resistant hybrids were Caroline, Professor Hugo de Vries, and Red Head. English Roseum was moderately resistant. There were not a great many resistant choices. Even with resistant

hybrids, we need to emphasize site and soil preparation. Equally important is the selection of a hybrid hardy in your area.

What else might look like Phytophthora root rot? Any root decline such that as caused by flooding, drought, or mechanical or chemical injury could cause similar symptoms. A fungal disease called Botryosphaeria dieback probably causes the most confusion. That disease forms a canker at the base of a branch. From the canker outward on the branch, the foliage turns off-color and rolls, as with Phytophthora. On the stem, *Botryosphaeria* forms a canker in which you should see black, pinhead-sized fruiting bodies. The affected branch can be pruned out, and the plant will recover. *Botryosphaeria* typically follows drought stress, whereas Phytophthora follows wet weather and usually accompanies a growth flush.

For more information, consult *Report on Plant Disease (RPD)* no. 664, "Phytophthora Root Rot or Wilt of Rhododendron and Azaleas in the Midwest," available in your Extension office or on the Web at the Extension Vista Web site. (Nancy Pataky)

### Sphaeropsis of Pine: Should You Spray?

Sphaeropsis blight of pine is a fungal disease that commonly infects Scotch, Austrian, and mugho pines in Illinois. Until a few years ago, we traditionally saw infected stem tips die with brown, withered needles remaining attached throughout the season. The disease was, until recently, a tip blight. Unfortunately, a new pathotype of this fungus "invaded" a few years ago. It causes a damaging, sap-oozing canker on limbs of affected trees. Often, the branch dies beyond the canker, resulting in a very unpleasant-looking tree.

Managing this disease is difficult. Some of the most intense infection takes place in the spring as new growth emerges. This growth is very susceptible, especially in wet weather, until about mid-June. It helps to remove dead wood and needles to reduce the amount of the fungus in the area. Do this when the tissue is dry so you don't increase disease spread. It helps to get rid of cones. On an infected tree, the cones are usually full of fruiting bodies of the fungus. Because drought-stressed trees are more susceptible to canker infection, we recommend watering infected trees in periods of extended drought.

Chemical options are available to control this disease. The recommendation is to use a systemic product and apply it three times, following label directions. Usually this is as buds begin to expand, at half candle, and at full candle. In central Illinois, we are currently at about half candle. This means the new growth (the candle) is elongating, but needles are not yet expanded. I have heard testimonials from a few local growers that chemical applications protected their trees in the year they sprayed and that infection was heavy in an unsprayed year. I have also heard from people who say sprays did not work. Recent research has shown that even symptomfree foliage is often infected. That research questions the use of chemicals intended to prevent infection. In summary, it is still very much recommended that you follow the cultural controls discussed. The use of chemicals may still be of benefit but should be used in addition to cultural controls. Choose a systemic product from those listed in the Illinois pest-management handbooks and follow label timing precisely.

For details about this disease, consult *Report on Plant Disease (RPD)* no. 625, "Sphaeropsis Blight or Diplodia Tip Blight of Pines," available in Extension offices or on the Illinois Extension Vista Web site.

(Nancy Pataky)

### Pine Needle Blights

Two of the most common needle blights of pine are *Dothistroma* and brown spot. Both are caused by fungi that thrive in wet weather; and both prefer succulent new growth. Scout now for these diseases. You will definitely have some trouble telling the two apart, but the following should help.

In Illinois, *Dothistroma* needle blight occurs most often on Austrian pine. Scotch pine and red pine are resistant, making diagnosis much easier. *Dothistroma* causes reddish brown spots and bands on the needles, with infection most intense in the lower part of the tree. As the disease progresses, needle tips turn brown and drop, leaving the live, green needle base. Early defoliation may occur in spring and summer. Do not confuse these symptoms with salt burn or scorch, which causes needle tips to turn brown on the exposed side of the tree. *Dothistroma* is worse in more humid areas of the tree and shows definite spots and bands on the needles, not just brown tips.

Brown spot needle blight appears nearly identical to *Dothistroma* blight. Because chemical options differ depending on the disease, you need to distinguish between the two. Brown spot infects Scotch

pine most readily in Illinois. Remember, Scotch pine is resistant to *Dothistroma*.

In both cases, cultural controls to promote more rapid drying of foliage may help. Suggestions are to prune overgrown plants in the area, control weeds, and use proper plant spacings at planting.

Fungicides may be used to prevent infection of new growth, especially on trees with a chronic needle blight problem. Choices are listed in the Illinois pest-management guides. Remember to look at the end of the disease chapters for information on mobility of the chemicals listed. Applications of fungicides are made when needles are half-grown and again 30 days later. First applications should be made now.

In the home landscape, some control may be attained by removing fallen needles and helping tree vitality with fertilization and watering. For both of these fungal needle blights, control measures are most successful when cultural controls are begun as soon as the disease is identified, with chemical controls started the following spring. For more information on pine needle blights, consult *Report on Plant Disease (RPD)* no. 624, available in Extension offices or on the Extension Vista Web site. (Nancy Pataky)

## INSECTS

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### Scouting Watch

Bridal wreath spirea, or Vanhoutte spirea (*Spiraea x vanhouttei*), is blooming in southern and central Illinois—at least as far north as Peoria. This is a major phenology plant in Don Orton's book *Coincide*, available from the publisher, Labor of Love Conservatory, 468 S. President, Suite 103, Carol Stream, IL 60188-2894; (630)668-8597. With phenology, stages of plant development (usually bloom time) are used to predict stages in pest development. This method is more accurate than using calendar dates because the plant is exposed to the same climatic conditions as the insect. Thus, "early" and "late" springs associated with unusually high or low temperatures, respectively, cause similar responses in both plant and insect.

Phenology helps predict when pest stages susceptible to control are likely to be present, but it is not a spray guide. When a phenological event predicts that a pest is susceptible to control, one needs to scout to verify that the pest is present and in a susceptible stage before using a control measure. Following are the most common pests that are in susceptible treatment stages during Vanhoutte spirea bloom.

**Full bloom:** Birch leafminer young larvae; elm leaf beetle young larvae; European pine sawfly feeding larvae; gypsy moth feeding larvae; pine needle scale crawlers (first generation)

**Full to late bloom:** Lilac (ash) borer newly hatched larvae; oystershell scale (brown) crawlers

**Finishing bloom:** Bronze birch borer newly hatched larvae

**Most blossoms brown, still a few white:** Flat-headed apple tree borer larval hatch; peach tree borer newly hatched larvae; viburnum borer newly hatched larvae

**Bloom finished:** Oystershell scale (gray) crawlers  
(*Phil Nixon*)

### Cooley and Eastern Spruce Gall Adelgid

Galls in general are not normally harmful to trees and shrubs. However, several galls occur in Illinois that not only are an aesthetic concern but also may have an economic impact on plants. These include horned oak gall (*Callirhytis cornigera*) and gouty oak gall (*Callirhytis quercuspunctata*), which are caused by cynipid wasps, and the cooley spruce gall adelgid (*Adelges cooleyi*) and eastern spruce gall adelgid (*Adelges abietus*). These are caused by adelgids that resemble aphids, except they don't possess cornicles.

**Cooley spruce gall adelgid** has a complex developmental sequence that uses alternate hosts to complete its life cycle. In some situations, this insect can continue to infest one host without the other being nearby. It takes 2 years to complete development on Douglas fir and spruce. Galls are formed on spruce but not on Douglas fir. This insect causes spruce trees to create conelike growth on the tips of new growth. Susceptible hosts include Colorado blue, Sitka, oriental, and Engelmann spruce. The galls are green to purple, 1 to 2 inches long, and resemble small pineapples. They eventually turn brown. Also, adelgid feeding causes needle distortion and yellowing.

Winged adults migrate from Douglas fir to spruce around July. On twig terminals, females lay eggs that hatch into nymphs that overwinter on spruce trees. Just before budbreak in spring, the nymphs become active. They eventually develop into females that can each lay over 100 eggs on spruce terminals.

Eggs hatch into nymphs that crawl to the base of needles and feed. When the adelgids feed, they inject saliva that causes spruce trees to produce a succulent, cell-like compartment, or gall, about 2 to 3 inches long surrounding each individual adelgid. Generally, during summer, the galls formed on the tips of twigs on spruce become woody and open, releasing winged adults that migrate to Douglas fir, where the females

lay eggs. This produces another generation of adelgids. Sometimes Douglas fir is so heavily infested that the needles appear to be sprinkled with snow. These eggs hatch into nymphs that overwinter on Douglas fir. No gall is formed on Douglas fir.

Just before budbreak, nymphs become active; their feeding causes needle distortion or yellowing. These nymphs develop into adults (in spring) and then produce offspring (in summer) that may be either winged or wingless. Wingless adults remain on Douglas fir; winged adults migrate to spruce to complete the cycle. Two or more parthenogenic generations may occur each year on the needles of Douglas fir.

Management of this adelgid involves dealing with the pest on both spruce and Douglas fir trees. Pest-control materials recommended include carbaryl (Sevin), chlorpyrifos (Dursban), imidacloprid (Merit), insecticidal soap, and summer oil. **Spruce:** Apply sprays in spring just before budbreak to kill nymphs overwintering on trees as eggs. In addition, this prevents adults from laying eggs on young needles. Removing galls by pruning does not control the problem. **Douglas fir:** Apply pest-control materials such as insecticidal soap or summer oil to control nymphs and prevent further infestations.

When installing a new landscape, it is best to avoid interplanting spruce with Douglas fir.

**Eastern spruce gall adelgid** attacks Norway, white, and black spruce. Adelgid feeding causes spruce trees to create pineapple-shaped galls, 1/2 to 1-1/2 inches long, at the base of new growth. Their feeding also distorts shoot growth. Galls produced in midsummer open and release adelgids. However, unlike cooley spruce gall adelgid, these remain on the spruce. Eastern spruce gall adelgid overwinters as an immature female in cracks and crevices at the base of buds. In spring, before budbreak, adelgids mature into adults, and each female deposits 100 to 200 eggs under a mass of cottony wax. Egg hatch normally occurs when buds open (in spring) and when new needles are exposed.

Feeding by the nymphs on new needles and then the base produces abnormal twig growth and then galls, which develop at the basal portion of shoots. The galls contain many cells filled with immature adelgids. Adelgids inside the gall are protected from natural enemies and environmental conditions. Galls detract from the beauty and symmetry of a spruce tree. Also, if galls are abundant in large numbers, this can decrease a tree's vitality or weaken it.

The galls eventually crack open in summer, and mature nymphs crawl out. The nymphs settle on a needle, and then change or transform into winged,

egg-laying females. Females generally lay eggs near the tips of needles. The eggs hatch into young nymphs on terminal twigs, where they overwinter.

Pest-control materials advised for cooley spruce gall adelgid may also be used for managing eastern spruce gall adelgid. Apply sprays to trees just before budbreak to kill nymphs that hatch from the cottony egg masses at the base of needles. (*Raymond Cloyd*)

### **Periodical Cicada**

We have received several calls from people asking if periodical cicadas are due to emerge this year in Illinois. Marlatt's Brood XXIII, the Lower Mississippi River Valley Brood, is expected to emerge this year. This 13-year brood touches only small portions of Illinois, emerging in western Kentucky and Tennessee, southeastern Missouri, eastern Arkansas, most of Mississippi, and the eastern half of Louisiana. It is expected in southeastern Illinois in Crawford, Lawrence, and Wabash counties; in southwestern Illinois, in Alexander, Pulaski, Union, Jackson, southeastern Perry, and the western edges of Williamson, Johnson, and Massac counties. This brood should emerge in early to mid-May and be present for 4 to 6 weeks.

Adult cicadas insert their eggs through slits they make in stems up to 2 inches in diameter. In high-emergence areas, enough egg-laying occurs to weaken stems, causing them to wilt and snap in windy conditions. On established trees and shrubs, this causes aesthetic damage but no real threat to overall plant health. However, oviposition into trunks up to 2 inches in diameter can cause the trunk to snap off, severely damaging or killing young trees.

We recommend against planting small transplants the year before emergence to avoid damage. Trunks of susceptible trees can be wrapped or caged to reduce egg-laying damage. Emergence will not be heavy in housing developments and other areas where the trees and shrubs were removed within the past 50 to 100 years. Such activity kills the root systems and thus the cicada nymphs feeding on them. Periodical cicadas are slow to invade new areas, primarily because they get the chance only every 13 or 17 years when the adults are out.

Several insecticides are labeled and effective in killing large numbers of adults. However, in heavily infested areas, insecticide spraying causes little or no reduction in egg-laying damage. (*Phil Nixon*)

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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 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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