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PLANT DISEASES

Two Diseases of Vinca

Vinca ground cover has been a popular landscape plant for many years. It has also developed two fungal diseases that are now fairly common in Illinois. Because of the similar symptoms, many cases likely have been misdiagnosed. **Phoma blight** (Phomopsis blight) is known by most landscapers. Be aware, however, that **Rhizoctonia root rot** can produce very similar symptoms and requires different management.

Phoma blight is caused by the fungus *Phoma exigua var exigua*. Shoots turn brown or black, wilt, and die. Black lesions can be found on the stems, girdling and killing all tissue beyond the infection. Within the black lesions, the fungus forms fruiting bodies that are black and pinhead-sized. The fungus remains on the plant stems protected under the plant canopy, making this a very difficult disease to control.

Rhizoctonia root rot causes brown, rotted areas on the roots. Poor root growth results in poor top growth, so dying shoots are prevalent with this disease as well. Black lesions may even appear on the stems. One difference is that fruiting bodies are not found in the lesions on *Rhizoctonia*-infected plants.

Both of these diseases are very difficult to control. Try to avoid overhead watering or excessive watering of vinca beds. It may be helpful to improve air circulation in the area by pruning surrounding plant material and overhanging branches. Because the fungus can survive in the soil on dead plant material, remove fallen leaves and dead tissue. This may seem to be an impossible task because you may not be able to remove all of the dead material and still have live plants remaining. Work with plants when they are dry to avoid further spread of the disease. It has been suggested that new plantings be mulched with landscape cloth or black plastic perforated every 4 to 6 inches and then covered with pea gravel or ground corn cobs. In most cases, we would avoid the plastic mulch, but this may be the only way to establish healthy vinca.

The fungicides that may provide some protection against Phoma blight differ from those that protect against Rhizoctonia root rot. Refer to the *Commercial Landscape & Turfgrass Pest Management Handbook* or the *Home, Yard, and Garden Pest Guide* for specific products. A chart at the back of each appropriate chapter lists the trade name, active ingredient, mobility, and company for each product listed in the chapter. This way, you can choose a protective-contact type of chemical or possibly something with systemic activity.

These diseases are most prevalent in cool, wet conditions; but infection can occur anytime from June to August following periods of cool, wet weather as we have recently experienced. Rhizoctonia can occur even in dry conditions. These diseases are very persistent in vinca plantings, and their presence is one of the main reasons that growers often seek an alternative ground cover. Stem blight of vinca is discussed in *Report on Plant Disease (RPD)*, no. 640, which is available at Extension offices or on Extension's VISTA Web site.

A few readers have described how devastating Phoma blight has been in their established vinca plantings. They want to know what to do. Only work with plants when they are dry. If possible, use a systemic fungicide from the list of options. A product containing thiophanate–methyl (such as Bonide Bonomyl, Dragon 3336, Ferti-lome Halt) or azoxystrobin (Heritage) provides systemic protection. The products do not eradicate the fungus, so it is important to physically remove infected plants or plant parts. It is very important to remove plant debris. When replanting, consider using a landscape cloth in those areas to minimize plant–soil contact. *(Nancy Pataky)*

Artillery Fungus

A recent tree sample was sent to the Plant Clinic with small, pinhead-sized, black dots on the foliage about the size of scale insects. The real source of concern was the appearance of these same dots on cars parked nearby. When the sample was examined with a microscope, it became clear that this was a fungal problem. The fungus is not housed on the trees and shrubs as you might expect but on mulch in the landscape. We sometimes receive similar reports of spots appearing on houses.

The small dots are the spores, called peridioles, of a fungus, probably *Sphaerobolus*. We call this an artillery, or shotgun, fungus because it can shoot its spore caps as much as 20 feet. The fungus is probably

living in the mulch. It is not harming the mulch but prefers to live in moist environments with a source of organic matter.

How do the spores shoot so far? The peridioles are located on top of cup-shaped cells that accumulate water. When enough liquid is accumulated, the cupped cells invert, causing the cells to burst and shoot the peridioles as far as 20 feet. The peridioles are very sticky and readily adhere to surfaces.

What can you do to get rid of the spore masses? We are not aware of a product that removes these spore masses without harming siding, car finish, or other painted surfaces. You can prevent more problems by raking the mulch and trying to get it to dry more quickly. If the area is not too large, remove the mulch and use something without an organic source, such as pea gravel, or stone. Artillery fungi are more common on wood mulch (versus bark mulch). Composting the wood mulch before use may help reduce colonization by artillery fungi. If wood products are used as mulch, the addition of a fresh mulch layer to cover old mulch each year may lessen the problem. Use of bark products may also lessen the fungal spread.

For pictures of the artillery fungus and peridioles, use a Google search on the Internet for "artillery fungus." There are several good sources with photos. *(Nancy Pataky)*

Slime Flux in Trees

Many callers have expressed concern over slimy, frothing liquid oozing from an otherwise healthy tree in the landscape. This is the time of year for appearance of wet wood and slime flux. This chronic, rarely serious disease can contribute to general decline in vitality of trees but is not known to cause tree death. It is probably most common on elm in Illinois, but we see it on many other trees, including oak, poplar, cottonwood, maple, redbud, sycamore, and other species. The causal organism is a bacterium called *Enterobacter cloacae (Erwinia nimipressuralis)*. The bacterium gains entry into the tree, usually through wounds, where it ferments and causes internal pressure. Moisture containing the bacterium flows from cracks, wounds, or weak areas in the tree. The usual place is in crotches of the tree. The smell that sometimes develops is usually due to secondary rotting organisms. Although this problem cannot be cured, it is comforting to know that the wet regions are not decayed. Decay fungi do not thrive in this water-soaked wood.

You cannot always see the wound, but you can see the liquid from this disease. Bacteria in the inner sapwood and heartwood of the tree ferment, causing internal gas pressure. This pressure commonly reopens old wounds and the sour liquid flows down the bark. As it dries, a light gray to white encrustation remains —slime flux. The liquid commonly causes localized death of the cambium. Although fluxing occurs from April to December, it is most conspicuous in the summer, especially now.

There is no cure for this condition, but the following may be helpful. Fertilize stressed trees in the spring or fall to stimulate vigorous growth. Some people like to install perforated plastic or iron drain tubes in the tree to relieve the gas pressure and to allow continual drainage away from the trunk. The idea is to keep the liquid off the trunk so that the cambium is not killed. Be aware that drain tubes often make the problem worse internally. Trees have the ability to compartmentalize injuries or diseased wood. They may "wall off" the wetwood areas. Because drain tubes create a deep wound, they may also break the compartment that the tree has made to encompass the wetwood, allowing the internal discoloration and any future decay to spread beyond the contained area.

Removing dead or weak branches, plus promptly pruning and shaping bark wounds is helpful. Proper pruning techniques encourages rapid callousing of wounds. The sap flow that results from pruned branches is normal and is not the same as wetwood flow. The liquid we see with wetwood may flow year-round and is often followed by the foul-smelling slime flux described. Consult *Report on Plant Disease (RPD)*, no. 656, "Bacterial Wetwood and Slime Flux of Landscape Trees," for more on this condition. *RPDs* are available in Illinois Extension offices or on Extension's VISTA Web site. *(Nancy Pataky)*

INSECTS

Gypsy Moth Pheromone Flakes

The Illinois Department of Agriculture, in conjunction with the USDA Animal and Plant Health Inspection Service, will be applying gypsy moth pheromone flakes in areas of northern Illinois during the first week of July. These tiny flakes are applied by aircraft flying about 50 feet above the tree canopy. They do not contain insecticide. They release a synthetic pheromone that confuses the male gypsy moths so that they are unable to locate females for mating. In high populations, male gypsy moths are able to find and mate with females just by wandering around and making chance encounters, so the pheromone flakes are ineffective in reducing numbers. In areas of low gypsy moth population, where chance encounters are unlikely, the pheromone flakes are effective.

Areas planned for treatment are Barrington Hills, Maple Lake, and Sag Bridge areas of Cook County; Argonne, Burr Ridge, and Downers Grove areas of DuPage County; Barrington Hills, Sleepy Hollow, and St. Charles areas of Kane County; Barrington Hills, Marengo Ridge, and Woodstock West areas of McHenry County; and Goodings Grove area of Will County. Updates on application can be found at **http://www.urbanext.uiuc.edu/gypsymoth/treatment/index.html.** *(Phil Nixon)*

Japanese Beetle

Japanese beetle adults have emerged in central and southern Illinois. Emergence is expected in northern Illinois the week of July 7. These beetles typically emerge about July 4 in northern Illinois but should be delayed a week or so due to the cold spring. The first beetle in central Illinois was reported June 25, a few days later than normal.

Typical emergence pattern for most insects is that the males emerge a few days before the females. About a week after the adult beetles become numerous, "balling" is likely to occur. When a female Japanese beetle is emerging from the soil, males gather at the location. As she emerges, they are attracted to her, crawling on top of each other. The result is a ball of 25 to 200 Japanese beetles, frequently about the size of a golf ball. They are most noticeable on closely mowed turf, so most reports come from golf courses.

Males and females are similar in appearance, being stocky, 3/8- to 1/2-inch-long, metallic green beetles with copper-colored wing covers. They are present in high numbers for about 6 weeks. They feed on the foliage and flowers of a wide range of plants, being most common on smartweed, crabapple, linden, birch, willow, rose, grape, apple, peach, and brambles. They do not feed heavily on needled evergreens, ashes, magnolias, oaks, and maples other than Japanese maple. They feed during the day at the top of the plant on the leaf's upperside—they appear to like sunshine. Individuals typically fly to another food plant every 3 days. These flights tend to be long, from 3/4 to 1-1/2 miles.

Beetles mate, and the females tunnel into the turf to lay eggs. These eggs hatch into white grubs that feed on the turf's roots, resulting in browning and dieback of the turf in late summer and fall. Female beetles are strongly attracted to moist, actively growing turf, so stopping or reducing irrigation during July results in reduced egg-laying, with fewer grubs. The beetles go to the neighbors' moister, greener lawns to lay their eggs. Typically, unwatered lawns do not have enough white grubs to warrant insecticide application.

The adults feed through the upper epidermis and mesophyll, leaving the lower epidermis intact. Initially, damaged leaves are whitish but soon turn brown as the exposed lower epidermis dries and turn brown. This type of damage is called window feeding. Heavy feeding results in holes in the leaves and can progress on favored hosts to skeletonization, with only the major leaf veins remaining. As apples, peaches, plums, berries, and other fruit ripen, the beetles attack them, completely covering the fruit. Apples are eaten to the core, whereas the skin of peaches is commonly left uneaten, leaving a dry, empty shell where fruit once was.

Beetles are attracted to previously attacked plants. Homeowners can greatly reduce damage by handpicking, particularly for the first week or two after beetle emergence. Use a widemouthed jar (such as a peanut butter jar) containing rubbing alcohol or a detergent and water mixture. Hold the jar under a beetle, poke it, and the beetle will fold its legs and fall into the jar, being killed by the alcohol or drowning in the soapy water. Doing this daily or every other day for the first couple of weeks results in plants with little damage compared to the neighbors' plants. Throughout the rest of the season, beetles will be more attracted to the plants next door.

Heavily attacked ornamental plants in obvious locations in the landscape can be sprayed with carbaryl (sold as Sevin), cyfluthrin (sold as Tempo, Bayer Advanced Garden Insect Killer), or other pyrethroid. An application typically controls the beetles for about 2 weeks. Because the beetles are out for about 6 weeks, three applications are needed. Due to the repeated applications and large plants that are commonly attacked, the use of insecticide can be reduced by spraying only plants where the damage is very noticeable. Plants in less obvious parts of the landscape and large trees can go untreated because the damage will be less noticeable. The beetles are so numerous and mobile that the beetles on the untreated plants make little difference in the number of beetles attacking treated plants or the amount of turf injury by the subsequent white grubs. *(Phil Nixon)*

Scouting Watch

Potato leafhopper is common on a variety of trees and shrubs in at least southern and central Illinois. The feeding and associated injection of toxins at this time of year causes phenoxy herbicide-like (2,4-D) deformation of young leaves. Several pyrethroids, as well as other insecticides, provide control for at least 2 weeks. Scout before treating for the 1/8-inch-long, wedge-shaped, green insects on leaf undersides because it may be a month until the leafhoppers come back onto the trees after an insecticide application.

Bagworms have hatched throughout Illinois. In central and southern Illinois, the larvae will have finished their ballooning by now so a single application of *Bacillus thuringiensis kurstaki* (Dipel, Thuricide), cyfluthrin (Tempo), or other pyrethroid should provide control for the season. In northern Illinois, delay application until the week of July 7.

Periodical cicada males should be dying during the first week of July in northern Illinois. The singing will stop, and the dead males should be noticeable on the ground and sidewalks. This will also signal the beginning of heavy egg-laying of the females. Tree trunks up to 2 to 3 inches in diameter should be protected from egg-laying by loosely wrapping them with fine mesh such as fiberglass window screening or shade cloth. Leave this protection on the trunks until the end of July.

Arborvitae leafminer is a very small moth that lays its eggs on tips of arborvitae at this time of year. The hatching larvae tunnel into the scalelike leaves, causing them to turn whitish and then brown. These leaves can cause the entire tree to be less attractive, even from a distance. Application of abamectin (Avid), acephate (Orthene), or spinosad (Conserve) should provide control.

Larch sawfly larvae have also been found at the Morton Arboretum. The caterpillar-like larvae are powder green, with brown heads. They feed in groups, eating off the foliage. Handpicking and various chemical insecticides are effective control measures. Because this is not a caterpillar, *Bacillus thuringiensis kurstaki* is not effective. *(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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