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NEWSLETTER

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PLANT DISEASES

Mayapple Rust

Mayapple (AKA mandrake or ground lemon) has the scientific name of *Podophyllum peltatum*. I have seen mayapple growing as a woodland plant, but it also could be used in a garden, if contained. It quickly establishes and takes over any open areas. It requires partial shade and a moist, acidic location.

Mayapple rust is a striking disease seen only infrequently at the Plant Clinic, probably because this host is not usually submitted. Mayapple is affected by rust in the spring. Yellow or light green spots appear on the upper surface of leaves. The underside of leaves reveals the orange- to rust-colored spores and pustules below each light green spot. Sometimes, leaves pucker where lesions occur. The disease may even cause some leaf drop. Still, the plant seems to tolerate the disease without permanent injury. It is not considered a problem and does not require treatment.

No alternate host is required for mayapple rust. This fact makes it an autoecious rust. A heteroecious rust, such as cedar–apple rust, requires two species of plants to complete its life cycle. *(Nancy Pataky)*

Powdery Mildew on Turfgrass

Powdery mildew of turfgrass is a cool-season disease and has appeared this season. We see it in Illinois in the spring and again in the fall. It is caused by a fungus, *Erysiphe graminis,* and is most common on Kentucky bluegrass, bermudagrass, redtop, fine-leaved fescues, and zoysiagrass. Affected plants appear to have been dusted with flour. Look for the disease in shady areas of turf where air circulation is minimal. The fungus thrives during cool (55º to 70ºF), humid, cloudy weather (now). The disease can spread rapidly. Under ideal conditions (for the fungus), the conidia (spores) may even germinate and produce infection within 2 hours of landing on a leaf.

Although we don't usually see powdery mildew as a major problem on turf, a severe attack may weaken and kill plants, especially in crowded, newly planted areas. Infected plants are more susceptible to drought, other diseases, and winterkill. The disease is most common in spring, late summer, and fall in Illinois. Mild, cloudy days followed by cool, damp nights favor development of powdery mildew on turf.

There is resistance reported to powdery mildew in bermudagrass, some cultivars of Kentucky bluegrass, and several fescue species. Look for resistance information from your seed supplier and use shade-tolerant cultivars in shady sites. It helps to overseed thinned areas of turf with a resistant cultivar or a shade-adapted grass species. Some information on turfgrass cultivars can be found on the University of Illinois Extension turf Web site http://www.turf.uiuc.edu/.

It helps to have a strong stand of turf, but apply fertilizer based on soil tests. Excessive nitrogen fertilization actually increases powdery mildew problems. Cultural practices to increase the penetration of light, movement of air, and drying of turf also help. This may mean pruning surrounding plants, spacing new plants, and watering early in the day. It also helps to mow frequently and keep the turf at the recommended height. For bluegrass, this is 1½ to 2½ inches.

More information about this disease can be found in *Report on Plant Disease,* no. 406, available on the Extension VISTA Web site http://www.ag.uiuc.edu/%7Evista/horticul.htm. *(Nancy Pataky)*

Sycamore Anthracnose

We tend to assume that anthracnose refers only to leaf-spotting diseases on shade trees, but that is not the case. There are many different anthracnose fungi on a diversity of plants, including strawberry, corn, dogwood, and turfgrasses, to name only a few. The name "anthracnose" refers to a disease that has a leaf, stem, or fruit lesion and forms spores in a specific type of fruiting body called an acervulus. Anthracnose on shade trees in Illinois appears in the spring, most commonly on sycamore, ash, oak, maple, and walnut. The diseases require cool, wet conditions for infection. How cool does it need to be? For sycamore anthracnose, it has been determined that for the 2 weeks

following bud break an average temperature lower than 55ºF will result in a serious infection. Of course, that assumes the presence of rain (water). If the temperature is 55º to 60ºF, the infection will be less serious. If the average temperature at that time is greater than 60ºF, you won't see much sycamore anthracnose. The 2-week period following bud growth is critical because succulent new growth is most susceptible. Older leaves, drier conditions, and warm temperatures usually retard disease development. The weather has been ideal for the development of sycamore anthracnose, and it is obvious now on sycamores in central Illinois.

As long as I have lived in Illinois (since the 70s), we have seen conditions cool and moist enough to have some anthracnose each spring. If you are patient and can wait for the second flush of new leaves on infected sycamore, ash, oak, and maple, you probably will not see any more anthracnose that year. Walnut trees vary in susceptibility and may show much more injury from anthracnose. We see anthracnose on stressed birch trees, especially those with chlorosis. Leaf drop may seem excessive but is not solely due to the anthracnose. One other tree species that can host anthracnose in Illinois is dogwood. Dogwood anthracnose appears in June and will be discussed in a later newsletter. That disease can be quite serious.

Symptoms of anthracnose include brown to black leaf spots, brown to black blotches, and sometimes (as with sycamore anthracnose) death of entire, young leaves. Rarely does anthracnose cause all of the foliage to die. Sycamore anthracnose also causes small stem cankers. Anthracnose of shade trees is usually worse in the lower or inner canopy of the tree where leaves stay moist longer.

As a reminder, fungicides are not recommended for these early anthracnose diseases of shade trees. Help the tree produce a new flush of foliage by providing water in periods of drought. Stressed trees can be fertilized in early spring or in the fall. A fact sheet on anthracnose of shade trees can be found at http://www.ag.uiuc.edu/%7Evista/horticul.htm. *(Nancy Pataky)*

Cedar–Apple and Related Rusts

There are three major tree rusts that occur in Illinois. We usually refer to these as the cedar–apple and related rusts, which include cedar–apple rust, cedar–quince rust, and cedar–hawthorn rust. Each requires two plant species to complete the rust life cycle. The disease is named based on the hosts on which it occurs or the hosts on which it were first reported. The alternate host of all three of these rusts is *Juniperus virginiana,* eastern red cedar. Damage to this juniper host is minimal.

The disease begins as galls on the juniper host. The galls are still growing but lack spores for most of the fall, winter, and early spring. These galls become active in warm weather, exposing spores that then blow to other hosts, including apple, crabapple, quince, and hawthorn. Look at your redcedars now to find these swollen galls.

All of the cedar–apple and related rusts can cause considerable injury to the deciduous host. Injury to apple, crabapple, quince, and hawthorn might include leaf spots, leaf discoloration, defoliation, and stem cankers with dieback. Cedar–apple rust is usually of most concern on apple and crabapple. In the past decade, landscapers and homeowners have become concerned with cedar–quince rust on hawthorn, which does not affect leaves but does cause stem galls that can kill twigs and stems. Symptoms on the deciduous hosts appear in summer.

Further details can be found in the Illinois publication *Report on Plant Disease,* no. 802, "Rust Diseases of Apple, Crabapple, and Hawthorn," available at http://www.ag.uiuc.edu/~vista/horticul.htm or in printed form at University of Illinois Extension offices.

Management strategies are usually concentrated on the crabapple and hawthorn host. If possible, the use of a resistant cultivar is suggested. We are not aware of commercially available hawthorn species with resistance to cedar–quince rust. If feasible, galls can be removed from junipers before they swell and expose spores that will move to the alternate hosts. Fungicides can be used to control these diseases, but remember that fungicides are not a permanent fix because the chemicals provide only a preventative control measure during the year they are applied. *(Stephanie Porter, Assistant Plant Pathologist)*

INSECTS

Scouting Watch

The phenology plant of the week is lilac. It is in bloom during the last week of April in central and southern Illinois and will soon be in bloom in northern Illinois.

Pine sawfly was reported as having hatched throughout the state in the third week of April. Scout even treated plants because you may see small larvae later in the spring due to delayed hatches.

Eastern tent caterpillar has also hatched throughout the state. The young tents at this time of year are only a couple of inches long. *Bacillus thuringiensis*

kurstaki (Dipel, Thuricide), as well as several chemical insecticides, is an effective control.

Japanese beetle treatments with soil applications of imidacloprid (Merit) need to be completed by the first few days in May to be effective against the adult beetles later in July. It takes 2 months for the insecticide to travel from the roots throughout the tree. Trunk injections only take 2 weeks, so they can be used later.

Elm flea weevil adults should be out in northern Illinois. Look for pinhole damage in the leaves of Siberian and other European elms. An application of carbaryl (Sevin) or a pyrethroid will provide control.

Gypsy moth eggs should be hatching in northeastern Illinois. Realize that lightly infested trees are likely to have damage occurring only in the top of the tree. Binoculars are useful for scouting for this early damage. When newly hatched and just starting to feed, the young larvae are black, spiny caterpillars and only about ¼-inch long. They don't get their characteristic blue and red balls down the back until they approach ¾-inch long.

Boxwood psyllid damage should be visible over the state. The new leaves at the ends of the twigs will be cupped and be turning yellow. The 1/8-inch, green pysllid nymph is on the upper, cupped surface of the leaf. To obtain control, a laminar systemic insecticide such as acephate (Orthene) is needed. *(Phil Nixon)*

Spruce Spider Mite

It is during this time of year that spruce spider mite *(Oligonychus ununguis)* feeds on conifers, including arborvitae, Douglas fir, hemlock, juniper, spruce, and several species of pines. Spruce spider mite has piercing–sucking mouthparts, used to remove plant fluids residing in the chlorophyll (green pigment), resulting in injured foliage appearing bronze or brown.

Spruce spider mite adults are oval-shaped and about 1/60-inch in length. They may be black or tan, whereas the nymphs vary in color from light gray to green. Eggs, which are the overwintering stage of this mite species, are round and brown. They are typically laid underneath bud scales or in the axils of needles from September through November. The eggs hatch into nymphs during spring…like right now! Spruce spider mite takes 3 to 6 days to go from egg to nymph. The active nymphs feed primarily on needles, preferring older needles. There are typically as many as three generations per year in Illinois.

How can you tell if spruce spider mites are present? Well, you can knock the mites off branches onto a sheet of white paper, where they will be easy to see. If you crush or smash spruce spider mites, they leave a green streak, in contrast to the red streak when predatory mites are crushed.

To successfully manage spruce spider mite, it is important to implement proper cultural practices, including irrigation, fertility, and mulching, which will avoid stressing susceptible host plants. This will help minimize having to deal with high populations of spruce spider mite. There are a number of pest control materials that are recommended for controlling spruce spider mite, such as bifenthrin (Talstar), hexythiazox (Hexygon), insecticidal soap, and summer oil. All these pest control materials have contact activity only, which means it is extremely important to cover all plant parts thoroughly to obtain sufficient control of spruce spider mite populations. The miticide (= acarcide) Hexygon is active primarily on mite eggs, having minimal affect on the nymphal and adult stages. It is important to note that improper use of any of the above-mentioned pest control materials may result in a spruce spider mite outbreak, as most of these products are harmful to the natural enemies of spruce spider mite. If feasible, applying a hard water spray removes mites from plants (however, remember that water is not registered by the EPA as a pesticide), thus negating the need to use any pest control materials. In addition, this approach is less harmful to natural enemies. Be sure to exercise caution when using summer oils on blue-needled conifers because the oil may cause discoloration. As always, be sure to read the label carefully prior to applying any product to control spruce spider mite. *(Raymond A. Cloyd)*

Pine Needle Scale

The fact that Vanhoutte spirea, *Spiraea* x *vanhouttei,* is blooming indicates that it is time to treat for…you got it…pine needle scale, *Chionaspis pinifoliae*. Vanhoutte spirea, also called bridal wreath spirea, is blooming in southern Illinois and will soon be doing so in central Illinois. Bloom occurs later in May in northern Illinois. At bloom time, eggs have hatched into young crawlers that move about on plants, searching for a suitable place to insert their mouthparts and begin feeding. The crawler stage is the most susceptible to foliar applications of insecticides and hard water sprays. Mugo, Austrian, Scotch, and red pines are more prone to attack by pine needle scale.

Pine needle scales, when mature, are elongated, white in color, and 2 to 3 mm long. Pine needle scale overwinters as eggs, which are located underneath the dead female scale cover. During their life, pine needle scale females can lay up to 100 eggs, which hatch into

crawlers from about late April through June; however, this depends on environmental conditions such as temperature. Crawlers actively move around on pine needles before finding a location to settle down and then initiate feeding. The crawlers use their piercing–sucking mouthparts to withdraw plant fluids from the mesophyll layer of the needles. This causes the needles to turn yellow, then brown. In cases where excessive populations of pine needle scale are present, entire branches may be killed. In fact, entire trees may be killed, particularly pine trees that are "stressed." In addition, young crawlers may be blown onto other plants via wind currents, which can initiate a new infestation. There are, in general, two generations per year in Illinois.

Pine needle scale management primarily involves maintaining "plant health" and using insecticides accordingly. Cultural practices—including, watering, fertility, mulching, and pruning—need to be properly implemented to avoid stressing plants. Stressed plants may sustain injury even when exposed to "low" or "moderate" populations of pine needle scale. Insecticides recommended for control of pine needle scale, primarily targeting the crawlers, include acephate (Orthene), bifenthrin (Talstar), cyfluthrin (Tempo), insecticidal soap, and horticultural (= summer) oil. These insecticides will be most effective when Vanhoutte spirea is blooming. Second-generation crawlers may be treated when Queen Anne's lace, *Daucus carota,* is in bloom. Repeat spray applications 7 to 10 days later may be needed because second-generation pine needle scale eggs tend to hatch over an extended time period. *(Raymond A. Cloyd)*

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