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PLANT DISEASES

White Mold

It seems odd to be talking about a wet-weather disease when some areas of the state are still experiencing serious drought. But it has appeared in wet areas in Illinois and may occur where plants are heavily irrigated. Common names include white mold, watery soft rot, cottony rot, and Sclerotinia disease, but white mold is the most common.

The causal fungus—*Sclerotinia sclerotiurum*, *S. minor*, or *S. trifoliorum*—is favored by wet weather, as some areas have just experienced. These fungi can infect over 370 species of plants. In Illinois we might see white mold on such vegetables as green bean, carrots, tomatoes, and peas. We have seen it on ginger and on soybeans at the Plant Clinic this year. In addition, look for it on aster, begonia, columbine, dahlia, delphinium, larkspur, peony, snapdragon, and other garden plants. It also occurs on some woody plants, but that does not seem to be a problem in Illinois.

Symptoms of white mold may occur on any above- or belowground portion of the host plant. You'll see the problem where plantings are dense and the soil is wet. Look for brown lesions, especially on the stems, which become covered with a fluffy white mycelial growth (mold). This growth is very white and wispy compared to the dense gray mold of *Botrytis*. As the disease develops you will see large black resting bodies of the fungus that look much like irregular rabbit pellets. They grow in or on the plant tissue. Although black on the outside, these resting bodies are white internally. As the infected plant tissue dries down, the white mycelium may dry up, but the canker will still be bleached or tan, as if grabbed by a very hot hand or glove.

This disease, including a list of susceptible plants, is discussed in Report on Plant Disease 1008, available in Illinois extension offices and at http://www.ag.uiuc.edu/%7Evista/horticul.htm (*Sclerotinia Disease, White Mold or Watery Soft Rot, RPD No. 1008*). Correct identification is important to disease control because the resting stage of white mold can remain in the soil for many years and will cause problems at that location on many other hosts. The sclerotia in the top 2 to 3 inches of soil germinate each year given a favorable environment. There is no cure for plants once they are infected. Many plants are hosts of this disease, so choose a nonhost crop for the infected area if plants decline. (*Nancy Pataky*)

Anthracnose Diseases of Perennials

We often talk about anthracnose on trees. Most of us have heard of sycamore anthracnose, and in Illinois we see anthracnose in the spring on ash, oak, maple, and walnut. Anthracnose diseases occur on many plants, including trees, shrubs, field crops, fruit, turf, vegetable, and even perennials. Anthracnose diseases are caused by various fungi that produce their spores in a fungal fruiting body called an acervulus. The acervuli (plural) are often visible as small dark dots in the necrotic leaf or stem lesions, and the spores are often released in slimy masses.

Anthracnose symptoms typically appear as dark-colored spots or sunken lesions that can quickly run together to form irregular dark lesions that cause rapid blighting of leaves or stems. This blighting can result in severe plant losses if not diagnosed in the early stages of infection. Under wet conditions anthracnose can have multiple infection cycles during the growing season.

Perennials commonly infected by anthracnose diseases include acorus, bellamcanda, bergenia, calamagrostis, convallaria, dianthus, epimedium, heuchera, hosta, liatris, liriope, luzula, malva, miscanthus, panicum, pennisetum, phlox, polygonatum, rudbeckia, saponaria, sedum, and tiarella.

Anthracnose diseases are manageable. They can be controlled and do not require removal of the infected plants. If possible, water plants early in the day, allowing leaves to dry before evening. Keeping foliage dry overnight helps prevent fungal diseases, because infection usually occurs when leaves are wet for prolonged periods. Pick and discard infected leaves and stems, working only with dry plants. Cut the infected plant to the ground level in the fall, and discard foliage in the trash rather than composting. Thorough fall cleanup of plant residue will help reduce the amount of infection the next growing season. Many fungicide

options are listed in the *Home, Yard, and Garden Pest Guide* and the *Commercial Landscape and Turfgrass Pest Management Handbook,* both available from www.PublicationsPlus.uiuc.edu. Recommendations are preventives, used to protect nearby plants or those known to have had past problems. Products are listed by host plant. (*Nancy Pataky*)

Pruning to Improve Oak Wilt Management

Oak wilt disease was discussed in an earlier issue of this newsletter (see issue #8). If you are considering pruning oaks, it is important to know whether oak wilt is present in your area. If you prune oaks during the growing season when sap is flowing, infested beetles may be attracted to your tree, bringing with them the oak wilt fungus. Before pruning oaks, find out what the oak wilt situation is in your area. Most city arborists and state foresters are aware of outbreaks. Horticulture specialists in Extension offices are also aware.

So far this year the Plant Clinic has confirmed oak wilt in St. Clair and Stephenson counties. In 2004 the clinic isolated the fungus, confirming oak wilt in DuPage, Henry, JoDaviess, Lee, Madison, Marshall, Mason, Stephenson, Tazewell, and Winnebago counties. This information is reflective only of Plant Clinic samples; I do not mean to imply that oak wilt is not in other counties. For example, it has been found in Champaign County but has not been confirmed at the Plant Clinic since 2000. This information still has great value. If you live in one of these counties, know that recently confirmed cases of oak wilt have occurred in your area. Do not prune oaks during the growing season in those areas if possible. Most of the oak wilt literature says not to prune until mid-July. If you can wait until fall to avoid attracting beetles that might carry the oak wilt fungus spores, that would be a safer plan of attack. (*Nancy Pataky*)

Two Very Important Tree Care Facts!

When diagnosticians at the University of Illinois Plant Clinic receive a tree sample, the first observation often involves assessing tree health. We can tell whether a tree is stressed based on size and color of leave and the amount of new stem growth at the stem terminal. It helps to know how to make a simple observation on tree growth. The stems on a sample will show you how well the tree has been growing. Follow the tip of the branch to the place where a series of very close rings encircle the stem. That is one year′s growth. Continue down the stem to the next set of rings for the previous year's growth, and so on. Most tree species should be developing 8 to 10 inches of stem per year. Shaded areas do not develop as quickly, however, so it helps to know where on the tree a sample was taken from. Authors including Michael Dirr, in *Manual of Wood Landscape Plants*, state an expected amount of stem growth for a species. If you assess the amount of growth over the last several years on a stressed tree, you can often determine when the stress started. This can help determine the original problem, such as construction injury, the year a car ran into the tree, and other memorable events.

Sometimes I feel like a broken record (if anyone out there remembers records!) The most widespread tree problem we see at the Plant Clinic seems to be deep planting and the decline that follows. If a tree trunk does not flare at the soil line, it may have been planted too deeply. The first root that connects to the trunk should be just below the soil. Trees that are planted too deeply, or that settle with the same result, may slowly decline. The base of the trunk must be exposed to air, not buried in soil. Placing deep piles of mulch at the base of the tree compounds the problem. Pull the mulch back from the trunk a few inches and let the trunk breathe. (*Nancy Pataky*)

Twospotted Spider Mite

With all of the dry weather occurring throughout much of Illinois, it is important to be aware of problems due to twospotted spider mite, *Tetranychus urticae*. Populations of this pest tend to multiply rapidly under hot and dry conditions—as we have experienced lately. When rainfall is low, populations of natural fungi decline, allowing twospotted spider mite populations to increase. However, when conditions are moist and rainfall is sufficient, naturally occurring fungi generally keep twospotted spider mites in check. Although we have recently received rainfall in much of the state, we have been seeing numerous cases of mite damage. These will increase if weather predictions of continued hot, dry weather are correct.

Twospotted spider mite is considered a warm-season mite because it is active primarily from late spring through early fall. Summer temperatures allow twospotted spider mites to reproduce so rapidly that they overwhelm populations of beneficial insects and mites that can control them at moderate temperatures.

Twospotted spider mites feed on a wide diversity of trees and shrubs, including ash, azalea, black locust, elm, euonymus, maple, oak, poplar, redbud, and rose. They also feed on many herbaceous annuals and perennials, such as marigold, pansy, aquilegia (columbine), buddleia (butterfly bush), clematis, daylily,

delphinium, phlox, rudbeckia, salvia, shasta daisy, and verbena.

Adult twospotted spider mites are oval and about 1/16-inch long. They vary in color from greenish yellow to reddish orange, with two lateral dark spots that are visible when the adult is viewed from above. Adults and nymphs can be found on all plant parts but are more numerous on older leaves. Twospotted spider mites produce a fine silk, which is sometimes observed between leaves and between the petiole and stem. This webbing protects populations of twospotted spider mites from their natural predators. A heavy rainfall usually washes this webbing away.

Twospotted spider mites feed on leaf undersides, removing chlorophyll (green pigment) from individual plant cells with their stylet-like mouthparts. They typically feed near the leaf midrib and veins, where the highest concentrations of amino acids are present. Leaves that have been fed on appear stippled with small silvery gray to yellowish speckles. Plant leaves heavily infested with twospotted spider mites will appear bronzed, turn brown, and eventually fall off.

Warm, dry conditions favor rapid development, increased feeding, and enhanced reproduction of twospotted spider mites. The life cycle from egg to adult can occur in 5 days when temperatures reach 80ºF. Twospotted spider mite females, which don't have to mate to reproduce (this doesn't sound like much fun), can live for 4 weeks, laying up to 300 eggs. Twospotted spider mites spend the winter in protected places, such as weeds, or in ground debris. Unlike spruce spider mite (*Oligonychus ununguis*), twospotted spider mite does not overwinter on plants, so applications of dormant oil sprays are not effective.

Twospotted spider mite management involves maintaining plant health, practicing proper sanitation, and using appropriate pest control materials (miticides). Avoid plant stress through proper watering, fertility, and mulching, which will minimize potential problems. For example, inadequate moisture or overfertilizing plants, particularly with nitrogen-based fertilizers, will result in higher than "normal" outbreaks of twospotted spider mites.

Monitor for twospotted spider mites by knocking them off plant parts such as leaves and branches onto a white sheet of paper, where they can be observed more easily. This is particularly important after periods of rainfall, because damaged plants may no longer have high spider mite populations. Plant-feeding spider mites such as twospotted spider mite and spruce spider mite produce a green streak when crushed, whereas predatory mites produce a red streak.

A very effective and cost-efficient way of dealing with twospotted spider mites is to apply a hard spray of water, which dislodges all the life stages, including eggs, from plants. (Remember, water is not registered as a pesticide—yet). Removing plant debris and weeds eliminates overwintering sites. In addition, many weeds, especially broadleaves, are hosts for twospotted spider mites.

Pest control materials recommended for controlling twospotted spider mites outdoors include abamectin (Avid), bifenazate (Floramite), bifenthrin (Talstar), etoxazole (TetraSan), hexythiazox (Hexygon), insecticidal soap, and horticultural (summer) oil. Both Avid and TetraSan have translaminar properties, meaning that the active ingredient penetrates the leaf surface and resides in leaf tissues, thus killing any twospotted spider mites feeding on leaf undersides. Coverage of the undersides of leaves is less critical with these materials. All of the other products listed have contact activity only. Hexygon primarily kills the egg and nymphal stages, with no adult activity. Be sure to make applications before twospotted spider mite populations are "high" and aesthetic injury becomes noticeable. Many pest-control materials recommended for twospotted spider mites are harmful to beneficial insects and mites that naturally feed on them, potentially leading to continual use of these materials once applications are initiated. (*Raymond A. Cloyd*)

Green June Beetle

We have received reports from the Carbondale, Salem, and Effingham areas about green June beetles, *Cotinis nitida*. These are typically found at least as far north as Peoria. They are stocky, bright green beetles about 3/4-inch long, with a yellow stripe down each side. The underside is a mix of metallic green, yellow, and red. These beetles fly during the sunny parts of the day with what I like to call reckless abandon, commonly flying into peoples' foreheads and throats as they walk across turf areas. Observations that I have made indicate that these beetles appear to seek out upright objects to fly into.

Green June beetle larvae look like large white grubs with short legs. They grow to about 1-1/2-inch-long, white, thick larvae that do not form the typical C-shape of turf-feeding white grubs. When moving on a flat surface, the larva flips over on its back and crawls with the legs sticking up in the air. The larvae feed on dead grass and frequently come out at night to crawl around on their backs. They make 1/2-inch diameter holes through the turf. Frequently, a hundred or so of these holes may be seen under a tree canopy.

The larvae do not directly damage turf, but they may cause turf decline by loosening the soil around roots while "grubbing" around for dead grass. In residential areas, the larvae are commonly found in piles of grass clippings.

There is no control for green June beetle adults. Control the larvae by avoiding heavy thatch and by not collecting and not composting grass clippings. Carbaryl, sold as Sevin, and other insecticides applied to turf areas and watered in will also control the grubs. (*Phil Nixon*)

Strawberry Root Weevil

We have had several calls recently about strawberry root weevil adults. They are hard-shelled beetles about 3/16-inch long, with the head narrowed into a large muzzle. They range from tan to black, being lighter when they have recently molted to the adult stage. Strawberry root weevil adults look like small black vine weevils, which are close relatives. They are attracted to cracks and crevices, commonly coming into houses. These adults typically do not feed indoors, but they occasionally feed on house plants. They may live for a year or more indoors.

Outdoors, the adults feed at night on the petals and leaves of flowers and other plants, eating notches out of the edge of the petal or leaf. They commonly feed heavily on the petals of black-eyed Susan, daisy, rose, trumpet creeper, and other flowers, eating the entire edge away. Leaves of attacked outdoor plants can be sprayed with acephate (Orthene), bifenthrin (Talstar), and other labeled insecticides. Keep the insecticide off of the flower petals. The larvae feed on the roots of many landscape shrubs and other plants, preferring those of needled evergreens. It is usually not practical to try to control the larvae. (*Phil Nixon*)

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