

# PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

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## Ornamental Pest Notes

*Steven K. Rettke, Landscape IPM Program Associate of Ocean County*

✓ **Soft Scales:** Tuliptree, Magnolia, Fletcher, Calico, Lecanium, Cottony Maple and Cottony Camellia are all examples of soft scales that overwinter as nymphs on twigs or branches of mostly deciduous trees and shrubs. Before leaves drop in the autumn, scale crawlers move back from the leaves to the bark where they will spend the remaining part of their life cycles (Tulip and Magnolia Scales immatures feed only on woody tissue).

Late winter dormant oils are particularly effective against soft scales, although late fall sprays can also be applied. Monitor for their presence before spraying by investigating further when the black sooty mold on needles/branches is first observed. Close inspection is often required since many overwintering soft scales are difficult to see as translucent nymphs. Avoid cover sprays in order to conserve beneficials, because predators and parasitoids can often effectively control soft scale populations if unnecessary sprays do not destroy them.

✓ **Armored Scales:** Euonymus, Elongate Hemlock, Pine Needle, Juniper, White Prunicola, Maskell, Obscure, and Oyster Shell are all examples of armored scales that should be monitored during the fall and winter periods. Look for the mostly gray scale covers of the overwintering adult females on twigs, branches and trunks. Dormant oil control sprays can provide some suppression, but do not expect outstanding results. Some of the control recommendations within the older literature have possibly over-emphasized the value of applying a dormant oil treatment against armored scales (in contrast, dormant oils can be very effective against soft scales). Horticultural oil treatments timed to the emergence of the scale crawler periods will provide the best results. When infestations are especially high, the scale populations may be lightly brushed from the stem and branches or simply pruned out.

✓ **White Pine Aphids:** This native aphid feeds only on eastern white pines. Active during the cooler months of early spring and fall, these large aphids (3/16 inch) are emerging as the autumn weather progresses. As the aphids suck sap from the twigs they exude honeydew, which collects on lower needles and branches. Heavy infestations can cause branches to decline, but usually they are classified as only a nuisance pest. The swarming of bees and yellow jackets around the pines

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and sooty mold fungus (growing on the honeydew and causing the needles to turn black) are signs of aphid presence. Prominent rows of black oval eggs on individual needles are deposited toward the end of the season. Horticultural oils can provide excellent control of the overwintering eggs if good spray coverage is applied.

✓ **Banded Woollybear Caterpillar:** The fall migration of the banded woollybears has begun. Since these yellow, white and brown-banded caterpillars generally feed on grasses and weeds in pastures and meadows, they can only be classified as nuisance pests. Mature caterpillars search for protected spots (under logs or rocks) to spin their cocoons.

Woollybears supposedly have the ability to forecast the harshness of the upcoming winter season. The "old wives tale" implies that the length of the black band foretells how long the cold part of the winter will be, while the brown band predicts how much mild weather will occur. As one might expect, inspecting a number of these critters during any given fall season will undoubtedly reveal a wide variation in the caterpillar markings. You can always show off the one that you would like to believe!

✓ **Oils and Mite Controls:** During the months of autumn, many landscape managers begin applying horticultural oils (2-3%) to suppress spider mites. Spruce spider mites and southern red mites are the two primary species that are active on landscape plantings during the fall season. The spruce spider mite feeds primarily on conifers, while the southern red mite feeds primarily on broadleaf evergreens. Both species have been building their populations for the past several weeks and typically reach peak levels during the month of November. Both of these cool season mite species generally have 4 or 5 generations during the fall period. Usually by December they have laid many of their overwintering eggs.

Symptoms from mite feedings during the fall season often do not become evident until the following spring. The application of horticultural oil in the fall is important to prevent these cool season mites from causing unacceptable damage. Horticultural oil sprays applied over the next couple of months will suppress mite adults, immatures, and eggs. An oil application has a physical mode of action and causes a disruption of cell membranes (indirectly promotes suffocation). Therefore, to be effective, thorough oil coverage is required.

As a reminder, do not make the mistake of applying oil sprays to kill "overwintering eggs" of two-spotted spider mites (e.g., burning bush). This warm season mite species does *not* overwinter as eggs, but rather as adults. The adults are hidden in protected areas under the plant (e.g., soil/mulch) where oils cannot effectively contact them. Oil applications this time of year will be a waste of time and material. Controls will have to wait until next year when they emerge during the late spring months.

✓ **Squirrel Damage:** Grey squirrels are notorious in the fall season for "attacking" red oak trees during the weeks prior to leaf drop. They litter the ground beneath trees with twigs less than ¼ inch diameter after chewing them off and letting them drop to the ground. Explanations regarding this sometimes-annoying squirrel behavior have been postulated. One possibility is that the squirrels are cutting branches to get acorns to the ground. Another reasonable likelihood is the squirrels will use the twigs and leaves for nesting materials. Chewing the twigs off the oak trees before the leaves drop will provide for better nesting since the leaves will continue to stay attached. These are a couple of educated guesses that some of your curious homeowner clients may find interesting. (Reference: *Cornell Extension Field Diagnostic Handbook*, 8/01)

✓ **Pear Leaf Blister Mites:** These eriophyid mites are considered to be a major pest of pears grown in orchards, yet they also attack ornamental pears such as Callery Pear. Although pear fruit is attacked, most IPM monitors notice the blistering of the foliage. One-eighth to ¼ inch blisters are produced on new growth, appearing red to whitish-green initially before fading to black in color. Large numbers of blisters may coalesce and cover most of the leaf. Heavy blistering can impair the leaf function and is an eyesore, although defoliation usually does not occur.

This mite overwinters beneath buds as adults, reproducing all winter long. By spring, they attack developing buds, fruit and leaves en masse, producing red blisters. Female mites lay eggs in the blisters, and new generations feed over several overlapping generations within the blisters throughout the summer. Fresh blisters are produced in the fall on new leaf growth flushes. Mites leave the blisters prior to leaf drop, migrating to the buds to overwinter.

Orchard research shows that when 1 or 2 shoots during the dormant season show blisters, a damaging population exists. Since most mites are present on tree buds in the fall, this is the best time of year for control. Spray in October and/or November with a 1% to 2% horticultural oil. After November, mites move deeper into the buds to overwinter and controls become challenging. Note: Alternate plant hosts include Mountain ash and shadblow (*Amalanchier*). (Reference: *Landscape IPM Notes*, 9/01)

✓ **White Spots on Azaleas:** A mystery involving strange white spots observed over the years on the foliage of certain varieties of evergreen azaleas may have been solved. These peculiar spots were initially suggested to be a virus infection or some unusual genetic expression that produced the whitish discoloration present on a select few azalea varieties. Since virus infections within plants are known to produce some rather bizarre symptoms, it is not surprising that a virus

SEE WHITE SPOTS ON PAGE 3

# Composting – The Natural Solution for Fall Leaves and Lawn Clippings

*Jim Willmott, Camden County Agricultural Agent*

This year's precipitation has favored plant growth and promoted a significant crop of leaves, grass clippings and other debris. While many scorn this, it should brighten our fall days with vibrant foliage colors and provide great opportunities for producing a gardening necessity – compost.

In healthy natural ecosystems, countless numbers of organisms produce and decompose organic matter. However, our urban/suburban landscapes have limitations compared to complex natural ecosystems. Without our help they fail to maintain themselves. For example, deficiencies in the decomposition process leads to accumulation of organic debris including leaves. Also, our aesthetic standards do not permit accumulation of unsightly landscape debris. As a result, disposal has been a serious issue for decades, with many viewing this valuable organic resource as waste. Today many individuals and communities are taking composting seriously.

Let's consider a few points about composting. First, it is a process that depends on the activities of living organisms - mostly microbes such as bacteria and fungi, but also bigger creatures like insects. All of these require resources for growth including oxygen, water and organic matter. All of these resources can be provided in a properly constructed and managed compost pile. There are many ways to construct composting units - some are extremely simple and others somewhat elaborate. Units need not take up much space and they should not produce objectionable odors if properly managed. Any organic debris of plant origin can be added. At this time there are plenty of leaves and grass clippings. Together, these make an ideal combination. Clippings contain plenty of nitrogen to promote the breakdown of tree leaves. The combination is great for the microbes. Remember, in managing compost, you are managing an entire living community of organisms.

Act now to have lots of rich dark compost for next year's growing season. Compost helps soils to retain nutrients and water, improve structure and control plant diseases. Also, consider applying compost to turf including lawns and sports fields. Apply no more than about  $\frac{1}{4}$  inch of fine textured compost. Greater amounts may result in the formation of thick surface layers that will be prone to drying while limiting root growth into the soil. Next, incorporate compost into the soil. This can be accomplished by aerating, with a hollow tine aerator, and raking compost and soil cores back into aeration holes. For large areas use a heavy drag mat.

For years the benefits of compost were known, but unexplained: gardeners have observed productive gardening results for generations, but researchers have just begun to reveal the chemical, physical and biological reasons.

For more information on composting contact your county Rutgers Cooperative Extension office. □

## WHITE SPOTS FROM PAGE 2

would be blamed for the strange white spots. In actuality, the white discoloration is caused from an infestation of maple mealybug nymphs. These crawlers attach themselves to the undersides of the foliage and release a toxic substance as they feed. The toxic material released by the maple mealybugs is therefore believed to be the cause of these mysterious white spots!

✓ **Drought vs. Frost Cracks:** Many arborists and landscapers often suggest to their inquiring clients that frost-cracks are the reason for the bark separation within the trunks of trees. Often, however, the actual cause may be from drought stress. Drought-cracks occur most commonly when trees are first planted and a year or so after transplant. The trunks will crack if trees are allowed to become too dry. Some common trees more susceptible to this condition include maple, honeylocust, crabapple, mountain ash, and London-plane.

One of the easiest ways to distinguish between drought vs. frost cracks is by the way the wounds close. Drought cracks typically represent a one-time event and will generally close or seal almost completely and never re-open again. On the other hand, frost cracks are more likely to continue to open and close over subsequent years. Usually less freezing and thawing stress is required to re-open the crack in the future and the development of a conspicuous callus ridge often occurs over time.

Sunscald wounds occurring on the south or southwest sides of tree trunks can also create cracks (i.e., frost or drought cracks can occur on trunk sides facing any direction). Sunscald wounds generally never close or seal over and may often increase in size as the tree grows.

Although there is rarely any need for immediate concern when managing trees with these types of trunk cracks, the open wounds can increase the potential exposure to wood decay fungi. □

## Diseases of Turfgrass

Bruce B. Clarke, Ph.D., Turfgrass Pathology

### General

**Gray leaf spot** is quite severe on new plantings of perennial ryegrass in central Jersey. Avoid fertilizing affected areas for the next two weeks since nitrogen can enhance disease development. **Red thread, rust, dollar spot, and stripe smut** are also active at this time. Refer to recent issues of this newsletter for additional information about the identification and management of these diseases.

### Pink Snow Mold

This disease, caused by the fungus *Microdochium nivale* (Fusarium nivale), should develop soon on greens and tees. Apply Banner, Chipco26GT, Cleary 3336, Compass, ConSyst, Curalan, Daconil, Defend, Eagle, Fungo, Heritage, Spectro, Thalonil, Touche, or Vorlan to prevent snow mold from developing or to arrest current infections. For best results, apply any of these fungicides (or PCNB) in early to mid-October and then repeat in late-January if the snow cover recedes. Do not reapply PCNB after January 15 due to the possibility of phytotoxicity during warm weather next spring. In addition, avoid excessive nitrogen applications prior to dormancy in the fall.

### Turf Expo

This year's Turf Expo will be held at the Trump Taj Mahal Casino/Resort on December 11-13, 2001. This is an excellent opportunity to receive the latest turf management information from nationally renowned speakers. For additional information, please contact Bea Devine (732) 821-7134. □

## Plant Diagnostic Laboratory Highlights

Richard Buckley, Plant Diagnostic Laboratory Coordinator

### Turfgrass

The major turfgrass issue in the Plant Diagnostic Laboratory since our last report in mid-September was **gray leaf spot**. Just after the submission of our last article, samples with **gray leaf spot** poured into the laboratory. Perennial ryegrass fairway and rough areas were hammered with disease activity. At first the samples came from New York City golf courses. Then we had reports from colleagues on Long Island. Finally, we saw samples from south-Jersey and the Philadelphia area. This year we also had some landscape turf. All of the landscape turf was seeded in August. *Pyricularia grisea*, the fungus that causes **gray leaf spot**, is an excellent seedling blight fungus. The disease was a bit late, and not as widespread as some years, but still caused quite a stir.

### Landscape

**Bacterial leaf scorch** is still our main focus on the ornamental side of things. To date, we have tested nearly 1000 trees. State foresters selected most of the trees from aerial photographs. These trees were subsequently collected by several Arborists and brought to the laboratory 60 – 100 at a time over the last month. We also received many samples from other tree companies, several from residential clients, and a few dozen from the Rutgers research team. We are hoping to have some numbers to report in the next issue, but the general trend show most of the positive trees were from central and southern New Jersey. A major hot spot is the southern Middlesex/Monmouth County area and the northern Mercer/Burlington County area. Towns like Allentown, Trenton, Princeton, Cranbury, and Plainsboro were especially hard hit. A few trees from northern counties were positive as well. I have seen trees from the Garden State Parkway north of the Union tolls that appear to be infected. Red oak, scarlet oak, pin oak, and black oak cover the positives. We have tested several white oaks, maples, elm, plane, and walnut, which were all negative. It is exciting to us plant pathologists to see an epidemic in progress, but the reality of the situation is bleak. There is a lot to learn about this problem, we certainly do not have any control at this point, so it looks like we are going to lose many valuable oaks before we get a handle on things. □

**Correction: In the article, "Estimating Gypsy Moth Populations for the Year 2002" from the Sept. 13, 2001 issue, the 1st line of the 4th paragraph should read, "Under standard conditions, gypsy moth females will lay egg masses containing between 400 to 500 individual eggs with the long length of the mass measuring 1 1/2 inches or longer."**

# *Sphaerobolus stellatus*, The Artillery Fungus

Ann Brooks Gould, Ph.D., Plant Pathology,  
Richard J. Buckley, Plant Diagnostic Laboratory  
Coordinator, and Clare S. Liptak, Senior Program  
Coordinator, RCE Resource Center

## Introduction

Nursery growers, landscape professionals, and home gardeners are often confused by small, brown or black spots splattered on the sides of buildings, downspouts, windows, cars, plant leaves, or any other object in the vicinity of a mulched landscape planting. When cut, these tiny, globular spots are white or cream-colored in the center. Efforts to remove them from buildings or other surfaces are often futile. Severe scrubbing often only removes paint or damages the finish on cars.

In many cases, "spotting" can be attributed to scale insects, flyspeck, or other insect excrement. In this case, however, the spots are actually masses of mature spores, called peridioles, produced by the fungus called *Sphaerobolus stellatus*. These peridioles are forcibly ejected from reproductive structures, or fruiting bodies, of the fungus. The word *Sphaerobolus* means "sphere thrower" in Latin, and the tiny fungus is commonly known as the "artillery fungus."

## Distribution

*Sphaerobolus* is distributed in most temperate climates throughout the world. The fungus grows on manure, rotting wood, or other organic matter, and is often found on tanbark and wood chips in mulched foundation plantings. It is most prolific in open areas that are not too shady. The fungus also requires adequate moisture to complete its life cycle. Fungal populations tend to be higher in areas that have a northwest exposure. Occasionally, this fungus is found indoors associated with mulched potted plants, and in the greenhouse on old wooden benches or other rotting wood.

## Life History

*Sphaerobolus* fruiting bodies, approximately 2 mm in diameter, appear in large numbers on rotting wood as spherical, white or yellow globes that resemble tiny puffballs. The production of fruiting bodies is favored at temperatures between 50 and 60°F. Upon maturation, the fungal fruiting structure splits radially from the top, forming 4 to 8 teeth around a cup-like structure. A single peridiole, which is 1 mm in diameter, is produced inside and sits in liquid at the bottom of the cup. Several hours later the cup is violently turned inside out, catapulting the peridiole into the air. These spores can travel as far as 20 feet at 1/10,000 horsepower.

*Sphaerobolus* is strongly phototropic and will shoot its peridioles toward the strongest source of light, which can be any reflective surface such as the siding on a building or the bumper of a car. In nature, phototropism helps the fungus to disperse. By shooting its spores toward a light source, the fungus avoids obstacles such as leaves and stems of plants and helps to ensure the longest possible flight. Peridioles are highly adhesive and will stick to anything. They will also stick to plant material that may eventually be eaten by a herbivore and disseminated with the animal's feces.

## Management

*Sphaerobolus* grows anywhere rotting wood products are found. In situations where the aesthetic value of objects surrounding a mulched landscape bed is concerned, an alternate form of mulch should be considered. The rotting wood should be removed and replaced with stones or other material. Existing mulch can be raked periodically or covered with fresh mulch each year to inhibit the production of fruiting bodies. These measures, however, only temporarily reduce populations of the fungus and do not eliminate the problem.

Scraping peridioles from surfaces is a daunting project. Not only are they hard to remove, but in doing so, spores are often liberated and re-inoculate the planting bed. There are no fungicides currently labeled for control of this fungus. □

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