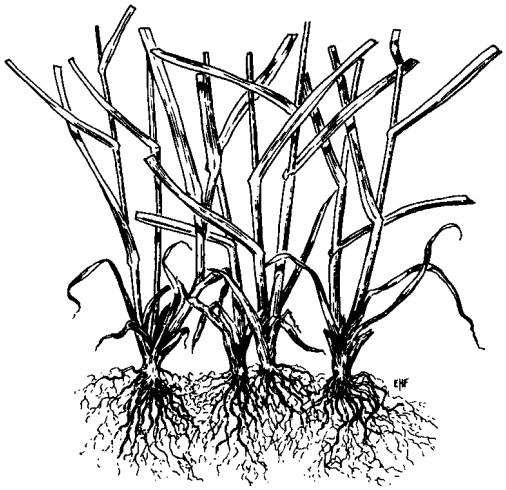
RUTGERS COOPERATIVE EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION $1.50 SEPTEMBER 23, 1999



INSIDE

Diseases of Turfgrass

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

Bentgrass Dead Spot

This disease has recently been identified on sand-based greens and tees on several courses in New Jersey. The causal agent, a previously unidentified species of *Ophiosphaerella*, induces small reddish-brown spots 0.5 to 1 inch in diameter. Spots usually do not coalesce and only enlarge to 3 inches in diameter. Affected areas eventually fade to a light tan color. Initially, symptoms may be confused with **dollar spot**, **copper spot**, **black cutworm** and golf ball injury. However, upon close inspection, black flask-shaped fruiting bodies (*pseudothecia*) can be found embedded in necrotic leaf and stem tissue. Mycelium is not apparent in the field.

Although University disease control tests have yet to be performed for this disease, Daconil (chlorothalonil), Chipco 26GT (iprodione), Cleary 3336 (thiophanate-methyl) and Fore (mancozeb) were used successfully by superintendents in the Mid-Atlantic States last year. In most locations, disease suppression only lasted seven to ten days. The disease has been identified on numerous bentgrass cultivars and was most serious on high sand content greens and tees. To date, all reports have come from recently established sites (one to four years old). Outbreaks have not been observed on fairways. Environmental conditions that appear to enhance disease development include hot, dry weather. The disease also appears to be more common in sunny locations than in shaded areas.

Gray Leaf Spot

Gray leaf spot was very active on perennial ryegrass in the Mid-Atlantic States last week. Symptoms start as tiny, brown leaf and stem lesions covering 1 to 2 inch spots. In severe cases, the leaves curl and lesions may extend the entire width of the blade. As the disease progresses, patches coalesce into large (one to two feet) areas of blighted turf. Extensive foliar blighting may occur during warm (75-85°F), wet weather. Newly established seedlings are more susceptible to infection than mature plantings. When conditions are conducive to infection, the causal agent (*Pyricularia grisea*) produces abundant one to two-celled, pear-shaped spores (conidia). For best results, avoid high rates of nitrogen during July and August and extended periods of leaf wetness (i.e., water in the early morning hours). Fungicide studies conducted in New Jersey, Georgia, Maryland, and Kentucky have shown that Heritage (0.2 to 0.4 oz/1000 ft ^{2})

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and Cleary 3336 50W (6 to 8 oz/1000ft^2) were most effective when applied on a preventive basis every 14 to 28 days beginning in mid to late-July. Chlorothalonil (e.g., Daconil) and the DMI (sterol-inhibiting) fungicides, such as Banner (propiconazole), have also provided effective control when disease pressure was moderate.

Pink Snow Mold

This disease, caused by the fungus *Microdochium nivale* (Fusarium nivale), should develop soon on greens and tees. Apply Banner, Chipco 26GT, Cleary 3336, Curalan, Daconil, Fungo, Heritage, Manicure, Touche, or Vorlan to stop 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 phytoxicity during warm weather next spring.

Stripe Smut

This disease, caused by the fungus *Ustilago striiformis*, will soon be apparent on sensitive Kentucky bluegrass varieties. Symptoms typically appear as long black streaks (striations) between the veins of infected blades. These areas eventually rupture, releasing abundant black smut spores. Research at Rutgers has shown that one well-timed application of a systemic fungicide in early to mid-October offers excellent control and is, therefore, far superior to multiple applications in the spring (mid-May). For best results, apply Banner, Bayleton, Cleary 3336, Eagle, Fungo, Rubigan or Sentinel, now per manufacturer's recommendations.

Turf Expo

This year's Turf Expo will be held at the Trump Taj Mahal Casino/Resort on December 7-9, 1999. 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, Laboratory Coordinator

Turfgrass

We thought we dodged the gray bullet, but then Dennis and Floyd came to town. With all the rain, **Gray leaf spot**, caused by the fungus *Pyricularia grisea*, has reared its ugly head. The disease was first diagnosed on golf turf from our area on September 2. On the 14th, samples began to come into the laboratory on a daily basis. From the submissions, it appears the disease is more common in northern New Jersey counties and New York than in the south. We even diagnosed the disease on perennial ryegrass from the Great Lawn in Central Park. The common thread among the submitted samples is the fairways had all been recently seeded. **Gray leaf spot** is a very well known seedling disease. Most of the samples also have some "regular" **leaf spot** activity, caused by the fungi *Drechslera siccans* (**brown blight**) or *Bipolaris sorokiniana*.

Early in the period **pythium blight**, **pythium induced root dysfunction**, and **pythium seedling blight** caused problems on several golf courses. Remember that *Pythium* can cause problems in cooler weather, particularly in newly seeded turf stands. Diseases caused by species of *Rhizoctonia* were also common. **Brown patch**, caused by *Rhizoctonia solani*, was active during the humid period at the beginning of the month, and **yellow patch**, caused by *Rhizoctonia cerealis*, is active now. **Anthracnose** continues to be an issue for some turf managers at this time. The disease was identified on landscape turf submitted from Morris County and on golf turf from Pennsylvania. **Rust** is also very active. Kentucky bluegrasses and perennial ryegrasses are the favored hosts for **rust**.

Dead spot, the new disease described by Dr. Peter Dernoeden of the University of Maryland, has finally been confirmed on a golf course in New Jersey. To date, the fungus *Ophiosphaerella* was only seen by this laboratory on out-of-state samples or on Rutgers research plots. I won't name names, but it's a new course in Monmouth County. Check out the third green, those aren't ball marks!

Landscape

Oak leaf scorch, caused by the xylem-limited bacterium *Xylella fastidiosa*, was confirmed in pin oak samples from Mercer County. Several other samples are currently being tested for the disease. Other suspect samples tested negative and were subsequently diagnosed with environmental stress. If you suspect **oak leaf scorch**, now is the time to test your trees. Boxwood has a myriad of problems. Environmental stresses like winter injury, sunscald, or nutrient imbalances seem to plague the shrub. Boxwood that is stressed in this manner is an excellent host for the fungi *Macrophoma* and *Volutella*. *Macrophoma* causes leaf tissue to brown, and *Volutella* causes branch dieback. Almost every boxwood sample that we look at in the laboratory has these fungi. This week's sample came from a landscape in Morris County. Other diseases and insects of note include: **white pine weevil** injury from pines in Atlantic and Passaic counties, **botryosphaeria canker** on sweet gum from Monmouth County; and **sphaeropsis tip blight** on Japanese black pine from Atlantic County. ❑

Diseases of Landscape Ornamentals

Ann B. Gould, Ph.D., Plant Pathology

End of Growing Season Notes

Drought stress on landscape vegetation was of major concern this past growing season (refer to the July 29th edition of this newsletter for more information). Although we have had considerable rain the last few weeks, trees and shrubs that were affected by drought this past year are not out of the woods. Severe drought has affected the root systems of many landscape trees (especially newly transplanted ones), and it often takes trees 5 or more years to recover from the effects of a severe drought. Furthermore, excessive moisture in some communities has compounded the problem by displacing oxygen from soil, which stresses root systems even further. Keep these stresses in mind during the next few years when monitoring landscape trees and shrubs for plant health.

The Rutgers Plant Diagnostic Laboratory has received samples this year of oak trees with diseases that affect the leaves. In many cases, oaks throughout New Jersey have been simply affected by springtime **leaf spot diseases** and **anthracnose**. These diseases are very common, occur when weather during the spring is good for disease development, and are merely cosmetic and do not require chemical control. Other oaks, however, have exhibited a leaf scorch typical of moisture stress (particularly on young, transplanted trees) or of the biotic disease, **oak leaf scorch**, which is caused by the bacterium *Xylella fastidiosa*. The causes of leaf scorch (both biotic and abiotic) on oaks were discussed in the August 26th edition of this newsletter. Since symptoms of leaf scorch are still evident on trees, refer to this article when trying to identify the cause of the scorch. Definitive diagnosis for bacterial leaf scorch requires a special laboratory test. If in doubt, contact your local Rutgers Cooperative Extension County office and refer to the Rutgers Cooperative Extension fact sheet FS 875.

Evidence of **leaf spot diseases** and **anthracnose** is still present on many other shade trees (not just oaks!) and shrubs in New Jersey landscapes. Again, trees become infected with the fungi that cause these diseases in the spring, and disease severity depends on environmental conditions present at the time. To manage leaf spots and anthracnose *next year*, rake away fallen leaves this autumn. This helps to remove a source of inoculum (or the source of the disease) next growing season.

Powdery mildew is still evident on many landscape trees and shrubs. Powdery mildew is a very common disease and is caused by fungi that grow on the surface of leaves. This growth is evident as "powdery" spots or mats on tissue surfaces. Hosts commonly affected by powdery mildew include ash, azalea and rhododendron, flowering dogwood, elm, lilac, oak, and rose. In most landscape trees and shrubs, powdery mildews do little harm to the host. Refer to the June 17th edition of this newsletter for more information. ❑

Pest Notes

Deborah Smith-Fiola, Ocean County Agricultural Agent, and Steven Rettke, Program Associate in IPM

✔ **BANDED ASH BORER:** During September this clearwing moth is mating and laying eggs on ash trees, especially green ash street trees (trees in open areas). Look for sawdust frass accumulating on the trunk, or small piles beneath the tree. Light brown pupal "skins" protrude from the trunk as a result of adult emergence. Pheromone traps are the best tools for judging when to apply controls. When the first male is caught in the trap, usually around Labor Day, count 10 days and then apply chlorpyrifos (Dursban) or Astro before eggs hatch. Spray the bark and major branches thoroughly. Research has also shown greater than 50% control by spraying tree bark with beneficial nematodes in October or late spring.

✔ **YELLOWJACKETS & HORNETS:** During the spring and summer, hornets and wasps are considered to be beneficial insects. These carnivorous predators can especially be effective against a variety of caterpillar pests.

During the late summer, the decreasing daylight hours signal yellowjackets and baldfaced hornets to produce new queens and drones. When these reach maturity, their diets change from high protein to high carbohydrate food sources. This change causes the workers to stop preying on insects and instead to forage for sugars (such as sodas and other sweets commonly found at picnics). They therefore can become a major nuisance during early fall. To avoid defensive stinging, don't swat at yellowjackets.

Avoid wearing brightly colored and patterned clothing, since a wasp will likely explore further if a shirt looks like a flower or plant. Furthermore, body odor or bad breath can aggravate bees and wasps. If a person smells like one of the common predators of wasp nests (such as a bear or raccoon), then it becomes more likely that a wasp or hornet will react defensively. Wear plain, light-colored clothing, brush your teeth and use unscented deodorant when in the area of foraging wasps and hornets. *(Source: Ohio St. Univ. Ext.; P.E.S.T. Newsletter)*.

✔ **OAK LACE BUGS: M**any of our white oak trees throughout the area are showing characteristic feeding damage from the oak lace bug. Some trees observed had virtually every leaf affected by this insect. From a distance, the

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symptoms are similar to those of oak spider mites or classic leaf scorch.

Closer inspection determines the identity of the pest. Look for a batch of 30 to 50 tiny black "spikes" arranged in a circular area of 3/4 inch diameter or less. These are not fecal matter, but actually are the eggs of the oak lace bug. Adult females from the first generation earlier this summer already laid eggs. Some nymphs may be active, indicating a new second generation.

Even though the leaf discoloration caused from oak lace bugs can be alarming (to the extent that action seems necessary), spraying is generally not recommended. Tall landscape oaks would require a large volume of spray material (an exception can be argued for valuable trees in high visibility areas). Tree injections with systemic insecticides may be of questionable value since the injection holes may do much more damage than the lace bugs. This pest primarily creates an aesthetic concern, since it is doubtful the insect is significantly reducing the tree's ability to store starches and sugars for the next season.

✔ **GRUB CONTROL CONFUSION:** Mach2, the new Molt Accelerating Compound (halofenozide), forces a larva into a molt before its normal time. Since 2nd and 3rd stage instar grubs have to molt in order to continue development, Mach2 works well in late summer. However, 3rd instar grubs in the fall usually stop feeding when exposed to Mach2, and then die slowly. The bottom line: treat with Mach2 during July or early August as a grub early curative treatment. This holds true for masked chafer grubs as well as Japanese beetle grubs. *(Source: The P.E.S.T. Newsletter)*

✔ **YELLOW NUTSEDGE** is sometimes mistaken for a grass, but is a member of the sedge family. Nutsedge is a perennial that forms tubers. Once established, it is a tough weed to eliminate (especially in wet areas). The best herbicides for control are Manage and Basagran T.O. This late in the season neither can be expected to give great results since tubers have already developed. Mowing will reduce seed and future infestation. Plan to apply herbicides if necessary next year in late spring or early summer.

✔ **WINTER ANNUALS** are weeds that germinate in fall or early spring and then die in summer. The most familiar winter annual is common chickweed. Corn speedwell and henbit are also common. Generally, they infest weak, thin turf. Again, the best management tactic is good culture (increase turf density). Severe infestations can be addressed with either pre-emergent or post-emergent herbicides. Labeled pre-emergent products for chickweed include pendimethalin (Pre-M), Dimension and Barricade. These products must be applied before weed germination in late summer or early fall. Dichlobenil (Casoron, Norasac, Dyclomec) will control small winter annuals, along with certain perennials such as quackgrass and mugwort if applied in established woody ornamental beds.

✔ **THATCH CONTROL:** Lush turfgrass growth is the major cause of thatch accumulation, occurring when the rate of decomposition of stolons and rhizomes cannot keep up with new thatch formation. Excessive thatch harbors insects and disease, slows movement of water, fertilizer and pesticides and promotes shallow rooting. It can destroy turf if not properly managed, especially under drought conditions.

Microorganisms and earthworms naturally decompose thatch. Organic matter, pH, water, temperature, and aeration influence their activity. Manipulating these factors can stimulate microbes that reduce thatch. Increasing organic matter can be achieved by using organic fertilizers and organic soil conditioners. Topdress turf in the fall by adding up to 1/2 cubic yard of compost/1000 sq. ft. Fall liming of acidic soils, based on soil test results, is recommended in order to adjust the pH to between 6.0 and 6.8 (the range of optimal thatch decomposition). Acidic soil conditions have shown to promote the accumulation of thatch. Additionally, long-term use of fertilizers and certain fungicides also may alter pH, thus promoting thatch.

Core aeration and/or verti-cutting reduces thatch by increasing oxygen levels to turf roots, and thus increasing microbial activity (cores can also be dragged as a topdressing). Adequate watering (not excessive) keeps the thatch moist, which also hastens decomposition. *(Source: Landscape Management; 1/93)*

✔ **RED HEADED PINE SAWFLY:** Primarily a pest of 2 and 3 needle pines, they are rarely seen feeding on other conifers. Fully grown sawfly larvae are 1" long with reddish heads and yellowish-white bodies with rows of black spots. Heavy infestations can cause defoliation and may kill small pines. There are two generations per year with the second from August through October.

Pine trees located in stressful conditions are most readily prone to attack. When larvae are small, their mouth-parts cannot consume the entire needle. This partial feeding causes a few dry, curled, golden brown needles at the tips of branches. Careful observation may uncover brown, oval, ¼ inch pupal cases attached to a branch. These cocoons are the overwintering stages of the pine sawfly.

Handpick or prune out small populations of larvae feeding in clusters. Horticultural oils and soaps can control populations when the larvae are young and small, with thorough coverage. When larvae are larger, various residual pesticides can be sprayed, including Conserve. Since the sawflies are not caterpillars, the bacterial insecticide B.t. does not provide any controls.

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Greenhouse IPM Notes on Web

Northeast Greenhouse IPM Notes, a joint publication between Rutgers Cooperative Extension and Cornell Cooperative Extension can now be accessed from Rutgers Floriculture web site: http://aesop.rutgers.edu/~floriculture.

Subscriptions can also be attained through: James D. Willmott, Agricultural Agent, Rutgers Cooperative Extension of Camden County, 152 Ohio Avenue, Clementon, NJ 08021, 856-566-2900 ext. 227, email: willmott@aesop.rutgers.edu. ❑

Landscaping for the '90's IPM Symposium

Thursday, December 2, 1999
Ramada Inn, Toms River
Corner of Rt. 70 and Rt. 9

Wednesday, December 1, 1999
North Jersey location (see below)

Featuring:

- ◆ Dr. Casey Sclar, Longwood Gardens
- ◆ Scott Aker, US Arboretum, Cost Analysis of the US Arboretum Program

Additional Topics:

- ◆ Who's Buying IPM: Finding and Keeping Customers Willing to Pay for Your Services
- ◆ The Rutgers Cooperative Extension Landscape IPM Program
- ◆ Perennials to Plant to Attract Beneficials
- ◆ Equipment and Formulation Advances to Reduce Applicator Exposure
- ◆ Nematode QC
- ◆ Rutgers Turfgrass Research Review

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Contact: Deborah Smith Fiola, Agricultural Agent, RCE of Ocean County, (732)-349-1250, e-mail: smithfiola@aesop.rutgers.edu.

Call Joel Flagler, Agricultural Agent, RCE of Bergen County for N. Jersey location, (201) 599-6162.

Upcoming Public Meeting on Snow Goose Management

Janet L. Bucknall, State Director, USDA APHIS Wildlife Services

The U.S. Fish and Wildlife Service (FWS) will hold nine public meetings around the country during September and October. The meetings are to solicit public comments on the scope of an Environmental Impact Statement (EIS) regarding management of snow geese in the US. New Jersey professionals may wish to attend the meeting scheduled for Wednesday, September 29 at the Richard Stockton College of New Jersey (7:00 - 9:30 PM, "A" Wing Lecture Hall, Jimmie Leeds Rd., Pomona, NJ) to comment on the severity and distribution of snow goose damage to agriculture in New Jersey.

Issues presented to the FWS will be addressed in the EIS, and will contribute towards overall snow goose management in the U.S. Similar meetings will be conducted in DE, TX, NM, DC, CA, LA, ND, and MO; this is a unique opportunity for New Jersey residents to directly participate in an important wildlife management process. ❑

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✔ **BOXELDER BUGS:** Large populations of boxelder bugs this year are associated with female boxelder trees and silver maple trees (euonymus is also a reported host). During the fall, these insects can be alarming to homeowners who see large numbers congregating at the base of tree trunks, woodpiles, or the south side of light-colored buildings. This gathering stage is followed by a flight period to overwintering sheltered places. These insects are nuisance pests when they invade buildings in the fall to overwinter. There is only one generation each year.

Control strategies call for the removal of female boxelder trees. Insecticidal soap applications will suppress populations if sprays are necessary. Many synthetic pesticides are labeled for controls.

This article was excerpted from the September, 1999 issue of Landscape IPM Notes. Subscriptions can be attained through: Deborah Smith-Fiola, Agricultural Agent, Rutgers Cooperative Extension of Ocean County, 1623 Whitesville Road, Toms River, NJ 08755-1199, (732) 349-1246. ❑

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