

PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

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Diseases of Turfgrass

Bruce B. Clarke, Ph.D., Turf Plant Pathology

General

Brown patch and **pythium blight** have been quite severe on greens and tees during the past few days. This disease should continue to be troublesome as long as the weather remains hot and humid. **Take-all patch** is still apparent on bentgrass turf. **Anthracnose, dollar spot** and **red thread** are also very prevalent on golf and landscape turf at this time. Since all three diseases are stimulated by environmental and cultural stress, maintain optimum turf vigor (i.e., provide adequate soil fertility and moisture) to reduce disease severity. Refer to recent issues of this newsletter for complete disease control recommendations.

Brown Patch

This disease, caused by the fungus *Rhizoctonia solani*, developed recently on tees, greens, and home lawns due to the hot, humid weather. To reduce the incidence and severity of **brown patch**, avoid nitrogen applications during hot weather, irrigate between midnight and 9 a.m. to reduce the period of leaf wetness, and spray turf with Banner (preventive only), Chipco 26019, Cleary 3336, Curalan, Daconil, Eagle, Fungo, Heritage, mancozeb, Manicure, Prostar, Sentinel, Thalonil, or Touche per manufacturer's recommendations.

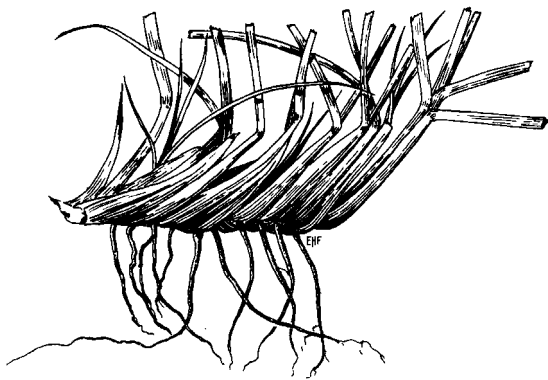
Fairy Ring

This disease, caused by a group of fungi known as **basidiomycetes**, is starting to show up on golf greens and home lawns at this time. Symptoms typically appear as continuous or interrupted rings of dark-green turf. Mushrooms, which are often associated with fairy ring, usually only develop in the spring and the fall. Although chemicals have been relatively ineffective against these fungi in the past, Prostar has shown promise in university tests. For best results, maintain adequate soil moisture and fertility to mask symptom expression. Spike affected turf prior to irrigation or the application of fungicides to enhance water movement into the soil profile.

Pythium Blight

With the return to hot, humid weather, **pythium blight** has recently been reported on golf greens and tees. **Pythium** thrives in low or poorly drained areas, especially when the night temperatures are above 68 to 70°F. For best results, improve drainage, water in the early morning hours, avoid over-fertilization, and apply Aliette, Banol, Heritage, Koban, mancozeb, Prodigy, Subdue, or Terrazole, according to the manufacturer's recommendations.

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Summer Patch

Now is the best time to apply a second preventive fungicide application for the control of **summer patch** in areas prone to this disease. For optimum results, apply Banner MAXX 1.3MC (4 fl oz product/1000 ft²), Rubigan 50W (4 oz product/1000 ft²), Bayleton 25DF (4.0 oz product/1000 ft²), or Heritage 50WG (0.4 oz product/1000 ft²) in 4 to 5 gal of water/1000 ft². If fungicides cannot be applied with that much water, irrigate them into the thatch immediately with 1/16 to 1/8 inch of water. Aeration and improved drainage will also aid in disease suppression. Soil pH should be maintained at or slightly below 6.0 for best results.

Turf Field Day

The date for this year's "**Golf and Fine**" Turf Research Field Day has been set for August 6, 1998 at Hort Farm II, Ryders Lane, in North Brunswick, NJ. Registration will begin at 12:30 p.m., "rain or shine." Guided field tours will commence at 1:30 p.m. The day will conclude with a barbecue dinner at 5 p.m. The "**Lawn and Landscape**" Turf Research Field Day will be held on August 5, 1998 at Hort Farm II, Ryders Lane, North Brunswick, NJ. Registration will commence at 8:00 a.m. (rain or shine). Research tours will start at 9:00 a.m. and will conclude at 3:30 p.m. The cost of registration each day is \$20.00 without a meal and \$30.00 with a meal. Recertification credits will be awarded for both days, so mark your calendars now for these worthwhile events. Call Marlene at (732) 932-9400 for further information or directions. □

Tips for Summer Turf Maintenance

Jim Willmott, Camden County Agricultural Agent

High heat and humidity combined with low soil moisture are typical for New Jersey summers, but not good for our cool season turfgrass species. Turf performance during summer stress depends on genetic, site and cultural factors. Carefully consider each or risk opening a Pandora's box of summer turf troubles including devastation from drought and pests (insects, weeds and diseases). Here are some tips for good summer turf:

Preplant:

Prior to planting, conduct thorough site analyses. Consider physical qualities (i.e., light, soil texture, drainage) and soil chemistry (pH and nutrient levels), but don't forget about biological qualities - especially pest history including infectious diseases.

Incorporate organic matter into soil prior to planting. This improves water and nutrient holding capacity and structure which helps water infiltration. Sphagnum peat is good, but expensive. Consider municipal composts made from leaves and grass clippings. Organic amendments may also reduce soil-borne infectious disease problems.

Fertilize and adjust pH according to soil nutrient test results.

Plant drought and pest-resistant turf. Generally tall and fine fescues handle heat and drought better than Kentucky bluegrasses and perennial ryegrasses. However, some Kentucky bluegrasses, including Mid-Atlantic ecotypes, are tolerant. Choose disease-resistant and endophytic grasses and select those with good performance in Rutgers trials. Maximize genetic diversity with several species and/or cultivars in seed mixes or blends. Rutgers recommendations are offered in the following fact sheets available from county offices: FS738 *New Jersey Seed Standards for Sod Certification*; FS684 *Turfgrass Seed Selection for Home Lawns*; FS688 *Fine Fescues: Low Maintenance Species for Turf*.

Post-Planting Maintenance:

Avoid excess spring nitrogen that may reduce root growth, drought tolerance, and disease resistance.

Provide sufficient levels of soil potassium which is important for drought and disease resistance. Spring and fall applications are best since the most common potassium fertilizer, potash, may injure turf in summer. Sulfate of potash is safer for summer applications.

Irrigate properly. Droughts in recent years require judicious and efficient water use. Frequency and duration depend on many factors including traffic, species and soil types. To reduce infectious diseases, irrigate between 12:00 midnight and 8:00 AM. Provide uniform delivery and adjust frequency and rates for infiltration throughout the rootzone.

Mow properly. Maintain sharp cutting blades and avoid either very low or high cutting heights. Low cuts risk injury to crowns while high cuts increase water loss.

Core aerate in spring and/or fall. This provides dual benefits. First, it promotes development of roots. Second, it improves water infiltration conserving irrigation water and allowing rainfall from heavy summer downpours to penetrate into the soil.

Define summer troubles now and plan to address underlying causes in the future. Be sure turf sites and maintenance regimes are compatible. Finally, diagnose infectious disease and insect problems. Remember, the most critical steps for summer quality begin before summer. □

Ornamentals Pest Notes

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

BAGWORM (600-900 GDD) - This native caterpillar is easily identified by the spindle shaped bags that range in size from 1/4" in mid-June to 2" by July. The insects overwinter as eggs within the female bag. During early June the eggs hatch and the young caterpillars immediately spin a silken sack about themselves. As they feed, they attach bits of leaves to the bag, enlarging it as they grow. At the time of early development the bags are small enough to be carried on their backs in a pointed-up position.

Bagworms prefer evergreen conifers (Arborvitae in particular), but will also feed on many deciduous plants. When populations are small, the best control is to hand pick the bags before the eggs inside hatch. Control now with B.t. (*Bacillus thuringiensis*) when bags are <1", or Conserv (spinosad), which also kills larger larvae. Research from MD also shows very good results using beneficial nematodes (wet the foliage first and mix with an antidesiccant). By July, bags are large and caterpillar feeding causes defoliation. At this point, a contact insecticide is necessary; treat with Mavrik, acephate (Orthene), chlorpyrifos (Dursban), cyfluthrin (Tempo), carbaryl (Sevin), or bifenthrin (Talstar).

BLACK VINE WEEVIL (400-2800 GDD) often initially enter the landscape via infested nursery stock. Adults emerge in June and feed upon the new foliage of yew, rhododendron, azalea, and other broad-leaf evergreens. The nocturnal adults cause C-shaped feeding notches on new foliage. During the day, they hide in the litter under the plant. Adults do not fly, but must walk from plants, seldom traveling more than 30 feet in a season.

Use pitfall traps or a board laid on the ground under the plant to monitor adults before spraying. Weevils fall into the trap or hide under the board and can then be hand picked and destroyed. Ideally, control adults before they lay eggs (by the end of June). Black Vine Weevils are resistant to many synthetic chemicals, with some control still achieved with bendiocarb (Turcam/Dycarb), imidichloprid (Merit), bifenthrin (Talstar), or fluvalinate (Mavrik). Two applications are needed, at 14 day intervals. (Nurserymen that pre-plant incorporating Talstar into the potting mix have seen up to two years of total control.) A late summer entomopathogenic nematode soil drench is another fairly effective control against small, young grub larvae (follow label instructions).

SOFT SCALES - These insects (including Calico Scale; Lecanium Scale; Fletcher Scale; Cottony Scale, etc.), damage plants by feeding on plant sap. Extensive feeding by large populations can cause plant dieback, foliage discoloration, and honeydew/sooty mold accumulation. A mature adult female "plumps" up when it is laying eggs, making it very obvious to see. Females are now laying hundreds of eggs, with the crawlers emerging in June. (Two notable exceptions are the tulip and magnolia soft scales with the crawlers appearing in August/September). Most soft scales have one generation per year.

This group of scales has many parasitoids that will often keep populations in check. However, if populations are high and honeydew and sooty mold becomes a problem, other control methods must be utilized. When the crawlers emerge they move to leaves to feed for the summer. Monitor for the crawlers with sticky tape and control with horticultural oil. In some cases, pruning may be necessary to remove

branches that are weakened or declining due to a high scale population. Control crawlers with oil or insecticidal soap. Malathion, acephate (Orthene), cyfluthrin (Tempo 2), Scimitar and imidichloprid (Merit) are also labeled.

PINE SPITTLEBUG - The native spittlebug attacks nearly all of our common pines, as well as Norway, white, and red spruces, balsam fir, larch, eastern hemlock, and Douglas fir. Nymphs are covered with frothy honeydew called spittle. They are mostly black in color with a white abdomen and can be found under spittle on twigs in May and June. Inspect for adults feeding in the same locations in July and August. Adults are about 1/4" long and are mostly tan in color with whitish bands on the wings. Both adults and nymphs suck sap from the phloem vessels of twigs. Damage is usually not serious with light infestations and chemical controls are not warranted. On small pines, spittlebug populations may be manually removed. Adults are more active than the nymphs and may require an insect net to effectively keep them from twigs. If necessary, spray spittle masses with insecticidal soap. □

Bagworms prefer evergreen conifers (Arborvitae in particular), but will also feed on many deciduous plants. When populations are small, the best control is to hand pick the bags before the eggs inside hatch.

NJDA Establishes Beneficial Beetles in the Landscape

Robert Chianese, NJDA Beneficial Insect Laboratory

Scale insects are one of the most serious pests of euonymus plants. Euonymus scale, *Unaspis euonymi*, feeds on a number of varieties and species of euonymus plants including shrubs, ground cover and tree species. Euonymus alatus scale, *Lepidosaphes yangicola*, attacks the popular species, burning bush. Both of these scale species are capable of killing a euonymus plant within a few years if control measures are not taken.

Since 1986 the New Jersey Department of Agriculture's (NJDA) Beneficial Insect Laboratory has released three parasitoids and two predators which feed on euonymus and euonymus alatus scale. The NJDA has not been able to recover the parasitoids and believes they are not established but, two beneficial beetles, a ladybug, *Chilocorus kuwanae*, and a small nitidulid beetle, *Cybocephalus nipponicus*, have been recovered and can be found in many New Jersey communities throughout the state. In addition to euonymus and euonymus alatus scale, *C. nipponicus* will feed on other hard shell scale species. The NJDA's Beneficial Insect Laboratory is currently performing host preference studies to determine the extent of its host range.

Although both beetle species feed on both species of euonymus scale, their habitat preferences vary, allowing them to live in harmony with each other. Data collected from the release sites demonstrates the ability of both species to reduce scale populations below economic injury levels. Dispersal of the species has been documented at well over one mile within a year. It is our intent to establish a complex of beneficial insects to help control the scale and reduce the need for chemical applications. The NJDA will continue to evaluate the impact of these beneficial beetles as well as continue rearing and releasing additional beneficial species. □

Plant Diagnostic Laboratory Highlights

Richard Buckley, Coordinator, Plant Diagnostic Laboratory

Turfgrass

Take-all patch is active on bentgrass at this time. The disease was found on bentgrass tees from Ocean County. Another **root-infecting patch disease, summer patch**, was recently diagnosed on samples of an annual bluegrass fairway. Although we generally do not diagnose **summer patch** until early-July, this course has a long history of the disease, had not applied a preventive fungicide, and had turf areas that were beginning to show very distinct 10-12 inch patches of wilting and yellowing turf. These observations, plus the extensive colonization of the roots by ectotrophic fungi, strongly suggested **summer patch**. In a recent phone conversation a turf pathologist from the University of Massachusetts also noted early **summer patch** activity on golf course turf. Perhaps the excess soil moisture this spring gave the causal fungus a jump-start. On landscape turf, **necrotic ring spot** was diagnosed on Kentucky bluegrass submitted from Somerset County.

Leaf spot and melting out is very active in landscape turf at this time. The disease was identified on Kentucky bluegrass samples from Somerset, Bergen, and Monmouth Counties. **Anthracnose** is beginning to show-up on golf course turf. The **basal crown rot** stage of the disease was evident on *Poa annua* greens from Connecticut and Monmouth County. The disease was also identified on bentgrass from Ocean County and Pennsylvania golf greens. **Yellow tuft**, caused by the fungus *Sclerophthora macrospora*, was diagnosed on golf turf from Burlington County.

Landscape

Leaf spot diseases on shade trees continue to primary submissions to the laboratory. **Anthracnose** of ash, oak, sycamore, and maple continue to flow in from around the state. Samples of **apple scab** were recently identified on crabapple from Middlesex County, **phyllosticta leaf spot**, was diagnosed on mountain ash from Morris County, and **oak leaf blister** caused spots on the leaves of oak from Atlantic and Camden Counties. Another leaf spot disease that is closely related to **oak leaf blister, peach leaf curl**, was identified on peach leaves from a residential landscape in Hudson County. Other leaf diseases from residential landscapes this period include; **black spot of rose** from Middlesex County, **black rot of grape** from Middlesex and Warren Counties, and **leaf and flower gall of azalea** from Middlesex County.

Stem and twig blights are also a concern of our clients this period. **Juniper twig blight** caused twig blight on juniper samples submitted from Monmouth County. **Phomopsis twig dieback** was active on a sample of holly from Mercer County. **Cytospora canker** continues to cause injury to Japanese maple. A sample of the disease was submitted from a landscape in Atlantic County. Two fungi, *Lophodermium juniperi* and *Pestalotiopsis spp.*, were identified on dying juniper branches and cryptomeria, respectively. These fungi are considered to be opportunistic or weak pathogens that will colonize dead or dying plant tissue. In each case, the plants in question had been previously injured by mite feeding and various environmental stress factors. The fungi simply came along and hastened the decline of the branch. Proper pruning will take care of all these problems.

SEE DIAGNOSTIC LAB ON PAGE 5

IR-4 Minor Use Report Card - 1998 Update

Submitted by Jerome L. Frecon, Gloucester County Agricultural Agent

Since its beginning in 1963, the IR-4 Project has cooperated with researchers, producers, the agricultural industry, and federal agencies to assist with pest control registration on minor food crops and ornamentals.

The IR-4 Ornamentals Research Program was begun in 1977 in response to an industry-wide need for approved pest control products for use in a wide range of commercially grown ornamentals. This program assists in providing pest control products for use in the field, greenhouse, landscape, and nursery crop storage. These products, which include both pesticides and biopesticides, have potential uses in floral, forestry, including Christmas trees, woody, and herbaceous nursery production, interior plantscapes, tissue culture, turf and commercial landscape uses. Since 1977 IR-4 has assisted with over 5000 plant ornamental label expansions.

Since IR-4's role is one of providing technical data to support product registrations on ornamentals, there is often little public recognition of the contribution the program has made to the current availability of minor pest control products. A report published in the IR -4 Newsletter, Spring, 1998, Vol. 29.1, lists some of the pest control products and ornamental species for which IR-4 has provided data to support registrations on commercially grown floral, nursery crops, forest crops, commercial landscape and interior plantscapes uses.

Copies can be obtained by contacting Dr. Richard Guest, Executive Director, IR-4 Project, New Jersey Agricultural Experiment Station, New Brunswick, NJ 08903. □

DIAGNOSTIC LAB FROM PAGE 4

A large planting of perennials in Morris County had severe problems with **rhizoctonia root and crown rot**. Daisy, phlox, foxglove, and astilbe each were diagnosed with the disease. The phlox was had **anthracnose**.

Insect problems are also being submitted to the laboratory at a rapid pace. Fortunately, in January, we added a part time entomologist to the laboratory staff who has rapidly become quite competent in insect pest diagnosis. Insect samples of note this period include: **wooly aphids** on birch leaves from Somerset County, **rose slug** on rose leaves from Middlesex County, **birch leafminer** on birch from Monmouth County, and **pine spittlebug** on juniper from Middlesex County. In other submissions, **azalea bark scale** and **cottony camellia scale** were identified on rhododendron and holly from the same Bergen County landscape. The crawlers of each of these scales were just beginning to emerge. **Hemlock wooly adelgid** was found on samples from Middlesex and Union Counties, and **white pine weevil** was diagnosed in Oriental spruce from Somerset County. □

Tick Warnings

Deborah Smith-Fiola, Ocean County Agricultural Agent

June is the month of peak activity for the immature nymph stage of the deer tick (now called the black legged tick), which vectors 70% of all cases of Lyme Disease. The nymph is very small, about the size of a poppy seed. You pick up this tick by brushing against low (4" - 6") vegetation. Since ticks don't fly or drop from trees, they crawl up and wait on vegetation for you (or an animal) to walk by, and then grasp onto your clothing, and crawl up. Tucking your pants into your socks (so they don't crawl up your leg unaware), wearing light-colored clothing (to see them easier), wearing high rubber boots (too slippery to crawl up - but in the summer?), and wearing a repellent (to kill them upon clothing contact) are thus all precautionary recommendations to prevent a tick bite. The nymph stage will feed for 3 to 5 days, swelling up with blood to the size of a sesame seed, before it drops off.

The nymph prefers to live in the woods, or in adjacent vegetation, *not* in properly mowed lawns. A

lawn is simply too hot and dry for the nymph to survive. Research shows that 85% of nymphs are found in the woods, 13% along wood-edge vegetation, and only 4% in the lawn.

Reliable control of deer tick nymphs currently involves one application of a granular insecticide (Sevin G; Dursban G) broadcast 8' - 12' into the woods. Shaded turf adjacent to the woods is also treated. One application in late May/first week of June has given >95% control of nymphs. Liquid insecticides are also labeled, but *thorough* coverage - drenching foliage until runoff - must be performed. Only one pesticide application is necessary, because nymphs rarely move more than 3 meters (= 10 feet) from where they molted from a larva. Once they are killed, they won't move back into the area until the adult moves in via fall animal activity. □

Rutgers Cooperative Extension - NJAES
U.S. DEPARTMENT OF AGRICULTURE
Rutgers - The State University of New Jersey
88 Lipman Drive
Cook College
New Brunswick, N.J. 08901-8525

PLANT & PEST ADVISORY LANDSCAPE NURSERY & TURF EDITION CONTRIBUTORS

RCE Specialists and Staff

Albert Ayeni, Ph.D., Weed Science
Raul I. Cabrera, Ph.D., Nursery Management
Bruce B. Clarke, Ph.D., Turf Pathology
Ann B. Gould, Ph.D., Ornamentals Plant Pathology
Joseph R. Heckman, Ph.D., Soil Fertility
James A. Murphy, Ph.D., Turf Management
George J. Wulster, Ph.D., Floriculture
Paula Shrewsbury, Ph.D., Ornamental & Turf Entomology
Richard J. Buckley, Coordinator, Plant Diagnostic Laboratory
RCE County Agricultural Agents and Program Associates
Atlantic, Charlene H. Costaris (609-625-0056)
Bergen, Joel Flagler (201-599-6162)
Burlington, Raymond J. Samulis (609-265-5050)
Camden, James Willmott (609-784-1001)
Cumberland, James R. Johnson (609-451-2800)
Essex, Jonathan H. Forsell (973-678-7988)
Gloucester, Jerome L. Frecon (609-863-0110)
Hunterdon, Winfred P. Cowgill, Jr. (908-788-1338)
Middlesex, William T. Hlubik (732-745-3443)
Monmouth, Richard G. Obal (732-431-7261)
Morris, Edmund Milewski (973-285-8300)
Ocean, Deborah Smith-Fiola (732-349-1246)
 Steven Rettke, Prog. Assoc. IPM
Passaic, Stanley Kamara (973-305-5742)
Somerset, Betsey Saul, Agricultural Assistant (908-526-6293)
Union, Madeline A. Flahive, Prog. Assoc. (908-654-9854)
Warren, William H. Tietjen (908-475-6505)

Newsletter Production

Jack Rabin, Assistant Director, NJAES
Cindy Rovins, Editor and Designer

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