

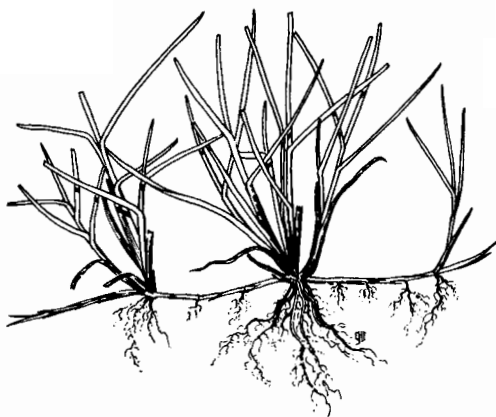
PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

MAY 3, 2007

Diseases of Turfgrass

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



Leaf Spot and Melting-Out

This disease, caused by the fungus *Drechslera poae*, is once again apparent on susceptible Kentucky bluegrass lawns throughout the State. To prevent severe damage from the melting-out phase of this disease during the next few weeks, avoid heavy applications of nitrogen in the spring (especially quick-release formulations such as urea or ammonium nitrate), maintain the cutting height at or above 2 to 2-1/2 inches, remove excess thatch, and apply Armada, Compass, Headway, Heritage, Insignia, mancozeb, Medallion, or Tartan, now per manufacturer's recommendations. Avoid the use of certain acropetal penetrant fungicides (e.g., benzimidazoles) this spring in areas with a history of **leaf spot** and **melting-out**, since these fungicides may intensify symptom expression.

Red Thread

This disease, caused by the fungus *Laetisaria fuciformis*, is prevalent on susceptible turf at this time. Infections are characterized by the appearance of short red threads (1/16-1/4") long emerging from tan-colored leaf blades. Affected patches are typically pink in color and range from 1 to 6 inches in diameter. Although perennial ryegrass and fine fescue are most susceptible, Kentucky bluegrass, velvet bentgrass, and tall fescue may also be affected. **Red thread** is typically found on "hungry" (low fertility) turf during cool, wet weather. Well-fertilized turf, however, may also be attacked. To obtain optimum disease control, maintain adequate fertility levels, avoid drought stress and excessive thatch, and apply Banner, Bayleton, Chipco 26GT*, Compass, Curalan*, Eagle, Headway, Heritage, Insignia, ProStar, Rubigan, Tartan or Touche per manufacturer's recommendations (*not for use on residential properties).

Stripe Smut

This disease, caused by the fungus *Ustilago striiformis*, is starting to appear in Kentucky bluegrass plantings at this time. To identify **stripe smut** in the field, look for thick masses of black spores protruding through "shredded" leaf blades. Although fungicides are most effective when applied once in mid-October, present infections can be controlled now with two applications (7 to 14 days apart) of a penetrant fungicide such as Armada, Banner, Bayleton, Eagle, Rubigan, Tartan, or thiophanate-methyl. Follow label directions carefully for best results.

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Take-All Patch

Take-all patch, caused by the root and crown infecting fungus *Gaeumannomyces graminis* var. *avenae*, may soon develop on golf course greens, tees and fairways. Although infection takes place during cool, wet weather in the fall, winter and spring, symptoms are most striking in April and May after periods of stress. Infected grass first appears bronzed to reddish-brown and then fades to a dull brown color. Patches are usually circular, range in size from several inches to two feet or more in diameter, and may exhibit a bronzed colored outer ring when active. The centers of patches are frequently colonized by bluegrass (*Poa* spp.), fescue (*Festuca* spp.), or weeds. Upon close examination, decaying roots and leaf sheaths appear black and dark strands of mycelium often develop parallel to the root axes. The disease is enhanced by poorly drained, light textured soils, and high pH. For best results, use acidifying fertilizers during cool-weather to lower soil pH (e.g., between 5.5 and 6.0) and apply Banner, Bayleton, Headway, Heritage, Insignia, or Rubigan now and repeat in 4 weeks. Apply manganese (2 Lb Mn/A) as a "foliar spray" if soils are deficient in this nutrient to reduce disease severity.

Turf Field Day

Mark your calendars now for this year's Rutgers Turfgrass Research Field Days which will be held on Tuesday, July 31, 2007 (Golf and Fine Turf Research Field Day at Horticultural Farm II, New Brunswick, NJ) and Wednesday, August 1, 2007 (Landscape Turf Research Field Day at Adelpia Research Farm, Freehold, NJ). Additional information and directions to each location will appear in future issues of this newsletter. □

Rusts in the Ornamental Landscape

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

Rust diseases are a commonly occurring phenomenon in New Jersey landscapes. Some of the most troublesome rusts include **ash rust, hollyhock rust, and cedar-apple, hawthorn, and quince rusts** (known collectively as the **Gymnosporangium rusts**). These organisms are fascinating because some of them require more than one host to survive, and all produce in succession two or more types of spores.

The fungi that cause rust diseases are actually related to the common mushroom, but the spores produced by these organisms are found in "rusty" pustules on leaves, stems, needles, and fruit. Some rust fungi have a unique life history, requiring more than one host plant to grow and reproduce. These different hosts are called alternative hosts, and without them the fungus cannot survive. Examples of these "**heteroecious**" rusts diseases include the *Gymnosporangium* rusts and ash rust. Alternatively, other rust fungi do not require more than one host plant to survive and hence do not have alternative hosts in their life cycle. These rust fungi are "**autoecious**" and include *Puccinia malvacearum*, the cause of hollyhock rust.

All rust fungi produce two types of spores: **basidiospores**, which result from genetic recombination, and **teliospores**, spores that support the development of basidiospores. Many other rust fungi also produce additional spore types such as spermatia, aeciospores, or urediniospores. Each of these spore types are found in a specialized pustule (fruiting structure) that develops on a given host during a certain point in the disease cycle.

Heteroecious rusts

The *Gymnosporangium* rusts. Rusts caused by fungal species in the genus *Gymnosporangium* are some of the most interesting of diseases that affect landscape trees and shrubs. The alternative hosts of this group of fungi include rosaceous hosts such as apple, crabapple, hawthorn, and quince, and juniperous hosts, such as eastern red cedar and juniper. Recently, a specimen of this rust on shadblow was submitted to the Monmouth County Extension office.

Gymnosporangium rusts overwinter in galls on the juniperous host. Galls of the cedar-apple rust fungus grow to several inches in diameter, whereas galls of the quince rust fungus are small and spindle-shaped. Bright orange, gelatinous "horns" of spores (teliospores) ooze from galls during rainy weather in the spring. Teliospores give rise to basidiospores which can only infect rosaceous hosts and are spread by wind to newly developing tissues. By mid-summer, rusty orange pustules (called aecia) containing aeciospores appear on infected leaves (cedar-apple rust and quince rust) and young stems, petioles, and fruit (quince rust). By mid- to late-summer, the aeciospores are carried by the wind to infect cedar and juniper. Although these rusts are rarely destructive on cedar and juniper, they can cause premature defoliation, stunted growth, swollen and distorted twigs and petioles, and poor quality fruit on susceptible rosaceous hosts.

If desired, protect susceptible rosaceous hosts with chlorothalonil, ConSyst, fenarimol, flutolanil, mancozeb, myclobutanil, propiconazole, Quali-Pro TM/C WDG, Spectro, sulfur (dusting, flowable)*, thiophanate-methyl, triadimefon, trifloxystrobin, triflumizole, or Two-Some (no commercial uses) applied at 7- to 21-day intervals (see label

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for specific timing) from pink-bud until two weeks after petal fall. With the exception of triadimefon, these compounds may also be used to manage apple scab on susceptible hosts (check the label before use). When possible, use cultivars of crabapple and other rosaceous plants that are resistant to rusts. To help protect valuable landscape plantings, do not plant juniperous species near rosaceous hosts such as crabapple, hawthorn, or quince.

To manage the Gymnosporangium rusts on cedar and juniper, prune affected branches 6 to 8 inches below galls during dry weather with surface-sterilized pruning tools. Fungicides such as azoxystrobin, copper (salts), ferbam, flutolanil, Junction, mancozeb, myclobutanil, sulfur (dusting, flowable)*, thiophanate-methyl, triadimefon, or Zyban may be applied on a preventive basis to these hosts beginning in July.

The alternate hosts of **ash rust**, caused by the fungus *Puccinia*, are ash trees and salt marsh or cordgrass. Fungal spores (basidiospores), produced on marsh grass in the spring, are carried by wind to susceptible ash foliage. Yellow spots quickly form on the upper surface of infected leaves and on petioles and stems. Within two weeks, bright orange infection cups (aecia) develop on infected petioles, stems, and the lower surface of leaves. Affected tissue puckers and swells. Bright orange/yellow aeciospores produced within the aecia become windborne in early summer and infect the leaves of marsh grass along the coast. Severely infected leaves on ash trees die prematurely and drop. What happens to the marsh grass? Urediniospores develop in pustules (uredinia) within the newly infected grass and continue to re-infect this host the remainder of the summer. Just before the end of the season, teliospores develop and overwinter within infected plant material. The cycle starts anew the following spring.

Some years, when environmental conditions are good for disease development, ash rust is prevalent in New Jersey landscapes. Other years, no. Chemical control for ash rust is usually not necessary; to protect highly susceptible trees, however, apply flutolanil, mancozeb, myclobutanil, Spectro, sulfur (dusting, flowable)*, thiophanate-methyl, or triflumizole at budbreak and repeat at intervals on the label. Ash rust is more severe on trees in coastal areas close to the alternate host.

Autoecious rusts: Hollyhock rust

Hollyhock rust is one of the most common and disfiguring diseases of hollyhock (*Althaea* spp.) in New Jersey. The fungus that causes this rust, *Puccinia malvacearum*, has only one host. In spring, spores that have overwintered in plant debris are disseminated to newly developing tissues. Waxy, circular, yellow to brown lesions appear on the lower leaf surface of infected plants. Soon, swollen orange pustules appear on the corre-

sponding upper leaf surface. Teliospores produced in these pustules quickly spread to other leaves, stems, and green floral parts. Leaves on severely affected plants turn yellow and drop prematurely.

To control hollyhock rust, remove and discard all infected leaves and stalks when pustules are evident. In the fall, cut plants to the ground, carefully removing all plant debris. In the spring, consider applying a fungicide to newly expanding leaves and repeat at intervals stated on the label. Compounds including chlorothalonil, copper (sulfate), Exotherm Termil (greenhouse only), ferbam, flutolanil, mancozeb, maneb, myclobutanil, oxycarboxin (enclosed structures only), Spectro, sulfur (dusting, flowable)*, thiophanate-methyl, triadimefon, triflumizole or TwoSome are labeled for hollyhock rust. Common mallow is also susceptible to this disease and may serve as a source of infection. If common mallow is in the vicinity of hollyhock beds, it should be removed.

*Do not apply sulfur in full sun or when the air temperature exceeds 85°F. Do not apply sulfur within 2 weeks of an oil spray. □

Plant Diagnostic Laboratory Highlights

Richard J Buckley, Laboratory Coordinator

Turfgrass

We are finally starting to see some grasses coming into the laboratory. Well, we have had a large number of *Poa trivialis* and *Poa annua* samples from residential clients that were followed by the question – how do I kill this weird grass? The real fun came because of the cold rain last week. The cool and wet weather completed the disease triangle and drove cold weather turf diseases into the lab. Turf submitted from southern New Jersey and eastern Pennsylvania golf courses were diagnosed with **pink snow mold**, which is caused by the fungus *Microdochium nivale*. This disease also is known as **fusarium patch**. **Yellow patch**, which has its own alias – **cool season brown patch**, and is caused

by *Rhizoctonia cerealis* has also been diagnosed. These samples came from northern New Jersey golf courses with another pair from southern New York. Be aware that these diseases will continue to pop up during cool and wet periods into late May.

Ornamentals

Winter injury continues to dominate the submissions of ornamental plants. All types of conifers and broad leaved evergreens have been submitted with burns, browning, leaf and needle drop, and branch dieback. Simple pruning is your best control. A pair of boxwood plants was submitted to the laboratory this week with actual problems. One of the plants was diagnosed with **phytophthora crown and root rot** and the other, from a Bergen County landscape, had a nice infestation of **boxwood leaf miner**. The boxwood leaf miner is in the larval stage at this point, so choose translaminar or systemic materials to get control. ☐

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much above normal, averaging 57 degrees north, 59 degrees central and 61 degrees south. Extremes were 88 degrees at Freehold on the 4th, and 39 degrees at Charlotteburg on the 26th. Weekly rainfall averaged 1.83 inches north, 1.50 inches central, and 0.52 inches south. The heaviest 24 hour total reported was 1.94 inches at Canoe Brook on the 26th to 27th. Estimated soil moisture, in percent of field capacity, this past week averaged 96 percent north, 88 percent central and 78 percent south. Four inch soil temperatures averaged 57 degrees north, 59 degrees central and 59 degrees south.

Weather Summary for the Week Ending 8 am Monday 4/30/ 7

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
CANOE BROOK	2.80	17.87	9.30	84	42	58.	4	118	92	97
CHARLOTTEBURG	1.30	13.77	5.33	83	39	57.	5	94	89	96
FLEMINGTON	2.34	16.92	8.70	85	42	58.	4	112	82	99
NEWTON	.88	10.09	2.57	83	41	56.	3	78	66	96
FREEHOLD	1.40	13.14	5.01	88	44	62.	6	172	121	96
LONG BRANCH	1.58	12.82	4.41	79	45	58.	3	113	74	91
NEW BRUNSWICK	1.82	16.96	9.15	85	44	58.	2	129	61	97
TOMS RIVER	.65	10.82	2.59	87	44	59.	4	150	106	85
TRENTON	2.06	14.36	6.98	84	47	60.	3	155	71	92
CAPE MAY COURT HOUSE	.20	6.93	-.23	80	47	60.	4	141	72	70
DOWNSTOWN	.35	11.94	4.55	85	47	61.	3	180	91	73
GLASSBORO	1.11	10.77	2.99	84	47	61.	4	198	114	93
HAMMONTON	.41	11.12	3.56	85	46	61.	4	185	106	74
POMONA	.25	9.04	1.80	85	48	61.	5	172	117	69
SEABROOK	.81	11.65	5.07	85	48	63.	5	218	126	91
SOUTH HARRISON	1.04	13.29	6.23	83	47	62	NA	194	NA	NA
WES KLINE -- GDD BASE 40 PINEY HOLLOW										
LAST WEEK 69 (Ending 4/23/07)										
THIS WEEK 150 (Ending 4/30/07)										

Green-Blue Summit: Clean Water Through Residential IPM

Are you concerned about the impacts of residential pest management on water quality? Then plan to attend the "Green-Blue Summit" on **July 18-19, 2007**. This event will focus on connections between water quality and integrated pest management (IPM) in turf and structural settings.

Location: The Green-Blue Summit will be held at Penn State's Great Valley Conference Center, about 30 miles west of Philadelphia, with an evening social at the internationally renowned Longwood Gardens.

Program: The purpose of the Green-Blue Summit is to **identify core messages for consumer outreach and education, to identify specific areas of concern, and to develop strategic plans for addressing IPM needs in turf and structural settings**. Plenary sessions will focus on:

- Risk management
- Water quality information sources for communities
- Marketing the message
- Success stories about IPM and water quality

Participants will then select from concurrent workshops on either turf or structural pest management issues. There will be many opportunities for interaction and networking among individuals of diverse affiliations who share concerns about water quality and residential property management. The summit will be hosted by the Northeastern IPM Center,* with presenters from universities, community organizations, private firms, and federal agencies.

Who should attend: The Green-Blue Summit will attract decision-makers interested in the connections between water quality and the management of pests in residential settings, as well as those who can make an impact by sharing key messages with the public. Participants will include municipal and community leaders, consultants, and those affiliated with Extension organizations, federal and state agencies, municipal water authorities, landscape and turf care service companies, structural pest management companies, nongovernmental organizations, universities, and lawn and home care product manufacturers, wholesalers, and retailers.

Registration: Registration will begin in mid-April at North-eastIPM.org/greenbluesummit.cfm. A registration cost of \$220 will cover participation in the program, proceedings, food, and entrance to Longwood Gardens. Hotel costs will be separate (details will be available when registration opens). For additional information, please contact the leaders of the Northeastern IPM Center's Community IPM Working Group: Mary Kay Malinoski (mkmal@umd.edu) or Lynn Braband (lab45@cornell.edu). To receive future announcements about the event, please contact Amy Galford (aeg1@cornell.edu).

* The Northeastern IPM Center is funded through the USDA's Cooperative Research, Extension, and Education Service (CSREES). The Green-Blue Summit is organized by the Center's Community IPM Working Group. □

Christmas Tree Management Twilight Meeting

June 5, 2007 Tuesday

6:30-8:30 pm

Simonson Farms, George Davidson Rd., Cranbury, NJ

Co-sponsored by New Jersey Christmas Tree Growers Association and Rutgers Cooperative Extension

Topics: Irrigation, herbicide application, equipment, planting decision and recycling Christmas Trees

Meeting is free and open to anyone interested.

For more information contact Dr. Mark Vodak, Specialist in Forestry, Rutgers Cooperative Extension at 732-932-8992 x10 or vodak@aesop.rutgers.edu. □

New Jersey Pesticide Container Recycling for 2007

The New Jersey Department of Agriculture, in partnership with the Cumberland County Improvement Authority, will continue to offer free recycling of empty plastic pesticide containers on specific collection dates in 2007. The collection program will be held at the Cumberland County Solid Waste Complex in the Township of Deerfield. This is a free program and will save pesticide license holders in excess of \$61/ton in landfill tipping fees.

Non-refillable, high-density polyethylene # 2 (HDPE #2) containers used by agricultural, professional and commercial pesticide applicators will be accepted at the collection sites. Containers must be no larger than 55 gallons and properly rinsed.

The program is open to anyone who holds a New Jersey Department of Environmental Protection pesticide license and to state, county and municipal government agencies. Participants must follow the processing guide or material will be rejected.

One core credit will be issued to pesticide license holders who participate in the program. To receive credit, participants must bring their pesticide license to the collection site and must follow the processing steps.

If growers have plastic pails, bulb crates, or other plastics that are HDPE #2, contact the NJDA to determine if they are suitable for the recycling program and can be brought to the collection site.

The vehicles used to transport the pesticide containers to be recycled are not required to be licensed by DEP so long as the material is transported directly to the Solid Waste Complex.

Many of the pesticide containers arrive at the farm in cardboard boxes. Growers who wish to recycle the cardboard should flatten the cardboard boxes and bring them to the Solid Waste Complex and deposit them in the cardboard collection container located at the convenient center.

If you have any questions or need more details on the plastic pesticide container-recycling program, contact Karen Kritz, Recycling Program Manager, NJ Department of Agriculture, at (609) 984-2506.

2007 Collection Schedule

LOCATION: Cumberland County Solid Waste Complex
169 Jesse Bridge Road (located off Route 55, Exit 29)
Deerfield, New Jersey

TIME: 9 a.m. to 12 Noon

DATES:

Friday, May 25	Friday September 28
Friday, June 29	Friday October 26
Friday, July 27	Friday November 16
Friday, August 31	

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New Jersey Pesticide Container Collection Program Guide

Plastic Pesticide Container Processing Steps:

All pesticide containers must be either triple rinsed or pressure rinsed and drained;

1. All pesticide containers must be free of residue (other than stains);
2. Lids should be removed;
3. The MSDS booklet must be removed (it is not necessary to remove all of the paper labels glued to the container);
4. Only non-refillable pesticide containers will be accepted – drill a ¼-inch hole in the bottom of the container or with a utility knife make a 6-inch slit in the bottom of the container so the container will not hold liquids;
5. Only pesticide containers embossed with HDPE and the recycling #2 will be accepted;
6. Pesticide containers up to 55 gallons in capacity will be accepted but we are asking that if all possible they be cut in half, quarters, or eighths. This can be accomplished using a sawzall, chainsaw, circular saw, or jigsaw; and
7. Pesticide containers must have originally held an EPA registered pesticide.

Items That Will Not Be Accepted and Will be Returned to the Recipient:

1. Pesticide containers with dried formulation on the container, pour spout or the spout threads;
2. Pesticide containers with any liquid residue;
3. Pesticide containers where the insides are caked with dried residue;
4. Mini-bulk, saddle tanks and nurse tanks, which can be made of fiberglass;
5. Pesticide containers with lids or lids by themselves;
6. Containers that held any type of petroleum oil product or anti freeze.

Any agricultural, professional and commercial applicator of crop protection and other pesticide products who generate very large quantities of agricultural crop protection containers can contact USAg Recycling (www.usagrecycling.com) at 1- 800-654-3145 for direct service. USAg, an approved vendor of the Ag Container Recycling Council (www.acrecycle.org), will come to your site at no cost. □



