RUTGERS
New Jersey Agricultural
Experiment Station

Landscape, Nursery & Turf Edition
April 16, 2009

PLANT & PEST ADVISORY

A Rutgers Cooperative Extension Publication

Symptoms of necrotic ring spot disease on Kentucky bluegrass lawn. Source: Penn State Cooperative Extension

INSIDE

Diseases of Turfgrass

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

Necrotic Ring Spot

This disease, caused by the fungus *Ophiosphaerella korrea* (formerly *Leptosphaeria korrea*), may develop soon on susceptible landscape turf. *Ophiosphaerella* attacks the roots and crowns of turf during cool, wet weather in the spring and fall. Grass growing under stress (i.e., low mowing height, pH extremes, or moisture extremes) is most susceptible to infection. Although most cool-season grasses are susceptible to necrotic ring spot, annual bluegrass, Kentucky bluegrass, and fine fescues are most frequently affected. Symptoms typically appear as circular to irregular patches of dead turf (3″ to 12″ in diameter) with green tufts of resistant grass or weeds in the center. To control, reduce plant stress, avoid soil pH extremes (i.e., keep soil pH between 6.0 - 6.5, if possible), and treat affected turf now with Banner, Chipco 26GT, Eagle, Headway, Heritage, Rubigan or thiophanate-methyl in 2-4 gallons of water / 1,000 sq ft. Repeat 14-28 days later for best results.

Take-All Patch

This disease, caused by the root and crown infecting fungus *Gaeumannomyces graminis* var. *avenae*, is likely to develop soon on bentgrass turf. Although infection takes place during cool, wet weather in the fall, winter, and spring, symptoms are most striking throughout the growing season after periods of heat or drought stress. Infected grass first appears bronzed to reddish-brown in color and then fades to a dull brown. Patches are usually circular or ring-shaped and range in size from several inches to two feet or more in diameter. The centers of patches on affected greens, tees or fairways are frequently colonized by bluegrass (*Poa* spp.), fescues (*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.

Although take-all is difficult to control, good results can be achieved through the use of acidifying fertilizers (e.g., ammonium sulfate applied during cool weather to avoid foliar burn), aerification, and preventive applications of Banner, Bayleton, Headway, Heritage, Insignia, Trinity, or Rubigan in October and November in 2-4 gallons of water / 1,000 sq ft. If symptoms reappear in the spring, fungicides should be reapplied in April and then again 28 days later. Wherever practical, overseed affected areas with less susceptible grasses (i.e., fine

See Turf Diseases on page 2

Turf Diseases from page 1

fescue, Kentucky bluegrass, or perennial ryegrass) to mask symptom expression. Maintain soil pH at approximately 6.0 and aerify (when symptoms are not present) to suppress disease development. If soils are deficient in manganese, apply manganese (2 lb actual manganese per acre) as a foliar spray once in April to reduce the incidence and severity of this disease.

Turf Field Day

Mark your calendars now for this year's Rutgers Turfgrass Research Field Days which will be held on August 4, 2009 (Golf and Fine Turf Research Field Day at Horticultural Farm II, New Brunswick, NJ) and August 5, 2009 (Landscape and Sports Turf Research Field Day and Equipment Demonstrations at Adelphia Research Farm, Freehold, NJ). Additional information and directions to each location will appear in future issues of this newsletter. ❑

Plant Diagnostic Laboratory Highlights

Richard J. Buckley, Laboratory Coordinator

Turf

There has been a huge change in fortune for turfgrass in the region since the beginning of April. A lot of rain and some warmth and the winter damaged turfgrass we reported last issue is most certainly the green and vigorously growing turfgrass we see today. Preemergent weed control applications and lawn mowers have been spotted on many local lawns and utility turf areas. In my neighborhood, the landscape maintenance folks were messing with the irrigation system. I hope they don't turn it on!

A couple more samples of golf turf were submitted in the last week with infections of **anthracnose basal crown rot**. Small dime-sized spots of yellow turf that represent individual infected plants are dying during warm periods with moderate transpiration demands. Recognize the disease as an overwintering infection that might result in real disease outbreaks later in the season.

We also had a Kentucky bluegrass sample from a sod grower with the beginnings of a **leaf spot and melting out** problem. There were numerous conidia (asexual spores) in the thatch and many of the characteristic "football" shaped purple spots on the foliage. The fungus *Drechslera poae*, which causes leaf spot, will sporulate profusely in cool, wet weather during late-winter. Those spores cause infections of the leaves now and then cause disease in the crown as the season progresses. Severe disease results in large dead areas, the melting out phase, by late-spring when the crown tissue rotted by the fungus can't keep up with the transpiration demands on the turf. The best intervention for leaf spot is to use blends of Kentucky bluegrass varieties with leaf spot resistance. Judicious use of water-soluble nitrogen in spring, proper mowing heights, thatch control, and water conservation can all contribute to disease control in an integrated plan.

Ornamentals

Still more **winter damage in ornamentals** this week. Broad-leaved evergreens – boxwood, holly, rhododendron, and magnolia – were submitted to the lab for diagnosis. We also had juniper, arborvitae, spruce, and Douglas fir samples.

A Douglas fir branch from a Christmas tree plantation was infested with **Douglas fir needle midge**. This small wasp causes swellings, yellow or brown spots, and distortions of the needles that can be confused with **Rhabdocline needlecast** or **cooly spruce gall adelgid**. The same set of samples also had relatively large populations of **elongate hemlock scale**. This scale is reported as a minor pest of Douglas fir, but large populations can do some damage. Look on the undersides of the needles for brown translucent scale covers and time control efforts for the emergence of the crawlers in mid to- late May. Dormant oils can suppress small populations.

Last, but not least, we are beginning to see lots of **spruce spider mites** on juniper and spruce samples. By the looks of things, there is a nice sized overwintering population. Look for mite eggs to hatch in the next few weeks and populations to build rapidly as the weather warms. Use a tap test to judge your populations and control as necessary. ❑

Diseases of Christmas Trees

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

HOST	DISEASE	MANAGEMENT	CHEMICAL CONTROL*
All Christmas tree species	Canker (*Cytospora*, *Atropellis*)	Maintain plant vigor and avoid wounding and moisture stress. Prune affected branches during dry weather at least 6 to 8 inches below affected tissue with surface- disinfested pruning tools.	None.
	Armillaria root rot (shoe string root rot)	Avoid establishing plantations in areas where previous stands of trees were affected by this disease. Avoid nutrient and moisture stress. Remove and destroy stumps and roots of diseased trees.	None.
	Root rot	Examine stock before planting; avoid excessive moisture and planting beds with poor drainage.	Non-water molds (e.g., *Rhizoctonia*, *Fusarium*): Banrot, iprodione, fludioxonil, flutolanil, Mycostop (not for landscape use), PCNB, SoilGard, SysStar, thiophanate-methyl, or triflumizole. Water molds (e.g., *Pythium, Phytophthora*): drench plants with Banrot, etridiazole (red, southern, western pine), fosetyl-Al (foliar spray or dip treatment at transplant), mefenoxam, phosphite (not for landscape use), or SoilGard and repeat as specified on label.
Douglas-fir	Rhabdocline needle cast	Remove old and severely diseased (more than 30%) trees prior to budbreak. Prune branches on lightly affected trees (less than 30%) prior to budbreak with surface-disinfested pruning tools. Remove clippings and culled trees from block. Improve air circulation through proper spacing and weed control.	Spray chlorothalonil when 10% of buds have broken (are 1/2-inch long) in block. Spray twice more, one and three weeks after the first spray. A fourth spray may be necessary if weather remains cool and wet. Other compounds labeled for control include copper (hydroxide, salts, sulfate), mancozeb, Spectro, Stature, or thiophanate-methyl.
	Swiss needle cast	Improve air circulation through proper spacing and weed control.	When candles are 1/2 inch long, apply azoxystrobin, chlorothalonil (1 application), mancozeb (2-wk intervals through infection period), Spectro, or thiophanate-methyl.
Pine	Brown spot	Maintain plant vigor and improve air circulation through proper spacing and weed control.	Apply chlorothalonil (new growth is 1/2 inch and repeat at 3- to 4-wk intervals), mancozeb (every 2 weeks through infection period), Junction, Spectro, Stature, or thiophanate-methyl (seedling treatment of longleaf pine) according to label timing and rates.
	Needle cast (*Cyclaneusma*, *Lophodermium*)	Minimize prolonged periods of leaf wetness and reduce humidity through proper spacing and weed control. Avoid moisture stress.	In spring, apply azoxystrobin, chlorothalonil (early spring and repeat at 6– to 8-wk intervals through fall), copper (hydroxide), ferbam, Junction, mancozeb (every 2 weeks through infection period), Spectro, or triadimefon according to label directions. Sprays must continue through fall during periods suitable for infection.
	Dothistroma (red band) needle blight	Improve air circulation through proper spacing and weed control. Rake up and remove fallen needles.	In spring, apply copper (salts, sulfate), Junction, or PCNB according to label directions.
	Pine gall rust	Remove galls from trees. Inspect incoming stock and destroy affected seedlings. Do not plant pines close to plantings of red oak.	Apply azoxystrobin, flutolanil, mancozeb (every 2 weeks through infection period), myclobutanil (nursery use only), sulfur (dusting, flowable), triadimefon, or ziram (seedlings) in spring and repeat according to label recommendations.
	Sphaeropsis (Diplodia) shoot blight and canker	Improve plant vigor, prune affected branches during dry weather, and consider planting tolerant species.	Apply azoxystrobin, copper (salts), Junction, propiconazole (every 14 days prior to major period of infection), Spectro, Stature, SysStar, or thiophanate-methyl at budbreak according to label directions.
Spruce	Rhizosphaera needle cast	Minimize leaf wetness through proper spacing and weed control. Where the disease is present, avoid shearing trees when wet.	In early June (when new growth is 1/2 to 2 inches long), apply chlorothalonil, copper (hydroxide, salts, sulfate), mancozeb, Spectro, or Stature and repeat at intervals on label.

**Refer to label for host and application timing and rates. NOTE: USE OF TRADE NAMES. In some instances trade names are used to avoid using long and complicated chemical names. No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.*

Landscape IPM Pest Notes

Steven K. Rettke, Ornamental IPM Program Associate

✔ **SYMPTOMS vs. SIGNS:** Occasionally plant diagnosticians will mistakenly use symptoms and signs interchangeably when describing plant problems. It is important to distinguish the difference in meaning when describing each term. Being consistent when communicating plant diagnostics will help reduce confusing an already complicated process.

Symptoms can be defined as the abnormal appearance of a plant after successful pest attack (e.g., stippling, defoliation, skeletonization, notching, chlorosis, necrosis, etc.). A common error arborists sometimes make is classifying woodborer exit holes as signs. In actuality it is proper to call them symptoms.

Alternatively, signs can be defined as the actual presence of the pest (the causal agent) or pest related byproducts (e.g., active insects, mites, or cast skins, eggs, webbing, honeydew, sooty mold, fruiting bodies, mycelium, etc.). For example, since signs are observed causal agents, it would be correct to call tree damaging girdling roots as signs.

✔ **IPM SCOUTING FUNDAMENTALS:** Some commentary to consider for improving routine monitoring effectiveness: (1) – Make it a common practice to reverse directions each time you visit a specific property. It is surprising what may be observed when scouting in one direction that is completely overlooked when moving in the opposite direction. (2) – Scouting the same property at different times of the day can uncover possible problems that may be less obvious during a certain time of day. Shadows and sunlight angles change throughout the day that can mask or enhance plant symptoms or signs. (3) – Scouting during overcast days will typically provide ideal visual conditions. The subtle color variations of plant foliage are best observed without the sharp contrasting shadows from bright sunlight.

✔ **DESIRABLE IPM INSECTICIDES:** There are several characteristics that ideal IPM insecticides should offer. In reality, it is rare for a particular insecticide to possess all of these characteristics. Nevertheless, appropriate IPM insecticides should still be able to satisfy at least some of the following: 1) It should be as specific as possible for the target pest. 2) It should give adequate control. 3) It should have a short residual 4) It should not eliminate the presence of beneficials for more than a day. 5) It should be low risk to plants, applicators, and the environment. 6) It should be economical.

✔ **HEMLOCK SYMPTOMS = Spruce Spider Mites vs. Hemlock Rust Mites:** Two different species of mites that commonly attack hemlock trees, they each have distinctive symptoms. Spruce spider mites produce a whitish, chlorosis-stippling pattern at the base of individual hemlock needles (up to a ¼ of the needle may show this stippling at the base). Characteristically this whitish discoloration is very uniform on many of the needles of infested branches. Some of your clients might even mistake these symptoms for hemlock woolly adelgid pests. To the contrary, hemlock rust mite feeding symptoms produce a dull and olive appearance to the needles. Also, instead of concentrating their stippling at the base of the needle, this rust mite feeding pattern is evenly spread. Hemlock rust mites are only 1/3 the size of spruce spider mites and as a result their smaller mouthparts produce much finer stippling on the needles.

Both species are cool season mites and are active during the spring and fall months. Although both can be active on the same tree at the same time, the hemlock rust mite (an eriophyid mite) is more active at lower temperatures than the spruce spider mite. The hemlock rust mite has even been called a cold season mite. Spruce spider mites often become active by mid-September, if not earlier, and can continue feeding and egg laying through November and into December. Hemlock rust mites may not resume activity until October and will also continue activity into the late weeks of fall. Both mites over-winter as eggs on twig bark and therefore can be controlled with horticultural oils.

✔ **EASTERN SPRUCE GALL ADELGID:** This spruce gall species forms at the base of current years growth. Cooley spruce galls, on the other hand, form at the terminal tips of new twigs. Typically the Eastern spruce gall adelgid (ESGA) is found on Norway spruce, while the Cooley spruce gall adelgid is found on Colorado blue spruce. Often the ESGA has the potential to be more damaging to the aesthetic appearance on highly infested trees.

Although they have only one generation per year, there are two control window opportunities when attempting to manage the ESGA. The first control window is during the early spring (late March to the end of April). The target is the over-wintering stem mother before eggs are laid. The second window is early fall (mid September thru October). During both windows the target to inspect for are small, white webbing located at the base of lateral or terminal buds (10X hand-lens might be useful). These are the protective over-wintering sites of the adelgid stem mother.

Horticultural oil or insecticidal soap will both provide excellent controls with adequate coverage (*"if it isn't drippin, then you're slippin"*). When conditions permit, insecticidal soaps will provide outstanding efficacy against adelgids.

✔ **ANTS & HONEYDEW PRODUCERS vs. PREDATORS:** Various pests such as aphids, soft scales, mealybugs, and whiteflies are plant feeders that insert their piercing-sucking mouthparts into vascular tissue (phloem) to remove plant sap from leaves or stems. Since

See IPM Notes on page 5

IPM Notes from page 4

phloem sap is not nutrient rich in proteins, plant pests must withdraw large quantities to maintain growth and reproduction. As a result, to avoid blowing-up into "Macy's Thanksgiving Day Balloon Floats" these insects must also expel copious amounts of unwanted waste called honeydew. The predigested honeydew still contains a lot of sugary carbohydrates and is valued by ants, wasps, bees and other vespids as a food source. The honeydew is often easily observed as a clear, shiny and sticky material on foliage. The honeydew usually darkens over time as a black sooty mold fungus grows on the liquid droppings.

Numerous predators and parasitoids including ladybeetles, lacewings, flower flies and wasp parasites typically attack and consume honeydew-producing pests. Carpenter ants and other colony ant species have waged vicious wars for "eons" against predators of honeydew producers. Certain ant species will expend a lot of energy and effort to protect honeydew producers and prevent effective biological control. As a result, to help restore the predator vs. prey balance in the landscape, it may be necessary for the pest manager to intervene and seek out ant colony locations to apply controls.

✔ **FEEDING LOCATIONS OF SCALE TYPES:** Most of armored scale species with broadleaf hosts will feed either on bark or leaf tissues, but usually not both (Euonymus scales are a notable exception). The crawlers have only 24 to 48 hours after hatching before they must insert their mouthparts into plant cells and begin feeding. Once armored scale crawlers settle they do not move again for the remainder of their lives (winged adult male scales do change positions, but cannot feed and only live for 24 hours). On the other hand, most soft scale species feed both on bark and leaf tissues during different stages of their life cycles (there are exceptions, especially with coniferous hosts). Unlike armored scales, the soft scales do not lose their legs after the crawlers settle and therefore can move to different feeding locations. On deciduous hosts, the 1st instar crawlers of most species will emerge in June or July from under adult females located on bark. They then move to settle and feed on leaves for the remainder of the summer. Before the leaves drop in autumn the nymphs will move back to bark tissue where they will over winter as 2nd instar nymphs.

✔ **ANDROMEDA LACE BUGS:** Foliar symptoms caused from this familiar landscape pest will become apparent early next month on the new leaves of previously infested andromeda shrubs. This host specific pest over-winters as eggs inserted into the lower leaf veins. The other lace bug species with evergreen hosts also over-winter as eggs (e.g., azalea & rhododendron lace bugs). Lace bugs with deciduous hosts over-winter as adults (e.g., oak & hawthorn lace bugs). Adult lace bugs that over-winter as eggs have oval-shaped wings with rounded corners. Alternatively, adult lace bugs with deciduous hosts have rectangular shaped wings with squared-off wing corners.

For future consideration it is useful to remember that the eggs of andromeda lace bugs typically hatch at least a week or two earlier than the other evergreen host species (e.g., azalea lace bug). Attempts to control eggs with dormant horticultural oils are futile since most of the eggs are not exposed. However, with good coverage, horticultural oils can successfully suppress lace bug nymphs and adults to a lesser degree. Insecticidal soaps are exceptionally fast acting insecticides and can also be very effective if proper coverage is achieved. If infestations of the andromeda lace bug or any of the other species become a perennial problem, then Merit (imidacloprid) may be the product of choice. Field studies and observations have shown that soil injections of this material can maintain effective controls for at least 1 or 2 years. Therefore it is probably unnecessary to apply Merit every year as a preventative.

✔ **WITCHES' BROOMS:** The development of witches' brooms on woody plants and the resulting formation of abnormal growth can cause curiosity and concern to your clients. Typically, the new growth is distorted and a proliferation of leaves or fruit/cones closely clumped together appears when apical dominance is lost. Witches' Brooms are created on plants when the transfer of growth hormones is disrupted (perhaps caused from the introduction of a foreign substance). Insects (e.g., aphids), fungi, bacteria, phytoplasmas, and herbicides have all been implicated in causing the formation of witches' brooms in a large number of plant species. It is interesting to note that sub-lethal doses of glyphosate (Round-Up) when applied late in the season can cause witches' brooms on new plant growth the following spring. ❑

Pesticide Applicator or Dealer Storage Inventory Due May 1st to Fire Department

All licensed pesticide applicators, *as well as dealers*, who store pesticides are required by law to send a copy of their storage inventor(ies) with an explanatory cover letter to the local fire company by May 1st each year. In New Jersey, all licensed pesticide applicators and dealers who store pesticides are required per N.J.A.C. 7:30-9.5 to maintain a list of the pesticides stored or likely to be stored during the license year. A storage inventory should be kept separate from the actual storage area.

The Rutgers NJAES Pest Management Office 'Records & Forms' webpage provides two editable templates for submittal to the Fire Department that meet the minimum regulatory requirements. See the webpage at www.pestmanagement.rutgers.edu/PAT/record_forms.htm. You may also devise your own format that suits your needs as long as it meets the requirements of N.J.A.C. 7:30-9.5.

1. Pesticide Storage Inventory Form- The purpose of the inventory is to provide local fire departments with an accurate description of things stored by location in case of fire or other emergency. We suggest filling out a form per storage address of your establishment.

2. Cover Letter-- All licensed pesticide applicators and dealers who store pesticides are required by law to send a copy of their storage inventor(ies) with an explanatory cover letter to the local fire company. Specifically, NJDEP regulations provide: "The cover letter shall explain that this list has been sent pursuant to N.J.A.C. 7:30-9.5(b).4".

3. Recent revisions to the New Jersey regulations now require a **written description or diagram depicting the exact location of the area on the property where the pesticide is stored**. Our template cover letter provides a space to write that description or indicate that a diagram is enclosed.

Submittal to the fire department is required annually by May 1st of each year (this does not pertain to pesticides stored for personal use, or to those storing pesticides at loading or application areas for less than 7 days).

Applicators and dealers must keep the cover letter on file for a minimum of three years and should have it available for NJDEP upon request. ❑

Rutgers Plant Diagnostic Laboratory Services

The Rutgers Plant Diagnostic Laboratory & Nematode Detection Service is a full-service plant health diagnostic facility sponsored by Rutgers New Jersey Agricultural Experiment Station. The Lab's mission is to provide accurate and timely diagnoses of plant health problems for the residents of New Jersey.

Located on the George H. Cook campus in New Brunswick, NJ, the Lab provides plant health diagnostic services in cooperation with Extension faculty, staff, and other university personnel. The Lab serves residential and commercial clientele.

The Rutgers Plant Diagnostic Laboratory provides the following services:

- ✔ Disease and Insect Pest Diagnosis
- ✔ Plant and Weed Identification
- ✔ Insect Identification
- ✔ Fungus and Mold Identification
- ✔ Nematode Assays
- ✔ Screening for Acremonium Endophytes
- ✔ Fungicide Resistance Screening
- ✔ Other Services Available by Contract

For fees and instructions on how to submit samples, go to the web at: http://njaes.rutgers.edu/services or call the lab at 732-932-9140, fax 732-932-1270 or e-mail clinic@njaes.rutgers.edu. ❑

Rutgers Soil Testing Laboratory Services

The Rutgers Soil Testing Laboratory is a part of Rutgers New Jersey Agricultural Experiment Station outreach component. Located on the George H. Cook campus, the Rutgers Soil Testing Laboratory is a service unit that performs chemical and mechanical analyses of soils for the residents of New Jersey and for University research personnel. The mission of the Laboratory is to provide accurate and timely soil and water test reports to meet the increasing agricultural and environmental needs of the state.

For testing and fees provided for Greenhouse Samples or Other Organic Matter-based Growing Media or for Field, Commercial Vegetable and Fruit, or Nursery Crops, go to the web at: http://njaes.rutgers.edu/services or call the Lab at 732-932-7000, ext. 4231 or e-mail soiltest@rce.rutgers.edu. Soil test kits are available through your county Rutgers Cooperative Extension office. ❑

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged below normal, averaging 42 degrees north, 44 degrees central and 47 degrees south. Extremes were 70 degrees at Glassboro on the 11th, and 26 degrees at several locations on the 13th. Weekly rainfall averaged 0.50 inches north, 1.64 inches central, and 1.32 inches south. The heaviest 24 hour total reported was 1.09 inches at Cape May Courthouse on the 6th to 7th. Estimated soil moisture, in percent of field capacity, this past week averaged 100 percent north, 99 percent central and 98 percent south. Four inch soil temperatures averaged 45 degrees north, 48 degrees central and 51 degrees south.

The following table contains meteorological information since the start of the growing season March first. The table is updated each Monday and the following is an explanation for each column.

WEEK=TOTAL RAINFALL FOR THE PREVIOUS 7 DAYS ENDING MONDAY MORNING
TOTAL=TOTAL RAINFALL SINCE MARCH 1ST
DEP=DEPARTURE FROM NORMAL OF RAINFALL SINCE MARCH 1ST. A NEGATIVE SIGN INDICATES BELOW NORMAL AND NO SIGN INDICATES ABOVE NORMAL.
MX=HIGHEST TEMPERATURE FOR THAT 7 DAY PERIOD
MN=LOWEST TEMPERATURE FOR THAT 7 DAY PERIOD
AVG=AVERAGE TEMPERATURE FOR THAT 7 DAY PERIOD
DEP=DEPARTURE FROM NORMAL OF THE AVERAGE TEMPERATURE FOR THAT 7 DAY PERIOD
TOTAL=TOTAL NUMBER OF GROWING DEGREE UNITS SINCE MARCH 1ST
DEP=DEPARTURE FROM NORMAL OF GROWING DEGREE UNITS
%FC=PERCENT OF FIELD CAPACITY (SOIL MOISTURE)

Weather Summary for the Week Ending 8 am Monday 4/13/ 9

	RAINFALL			TEMPERATURE				GDD BASE50		MON
WEATHER STATIONS	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.31	2.50	-3.04	61	26	41.	-8	20	20	99
CANOE BROOK	.81	3.53	-2.73	64	28	43.	-5	31	31	100
CHARLOTTEBURG	.56	4.21	-1.77	59	26	41.	-5	16	16	100
FLEMINGTON	.54	3.34	-2.59	64	26	43.	-6	34	34	100
NEWTON	.30	2.32	-2.93	58	27	42.	-5	23	23	98
FREEHOLD	1.85	4.62	-1.42	63	29	43.	-7	44	44	100
LONG BRANCH	2.11	4.64	-1.63	58	31	43.	-6	23	23	99
NEW BRUNSWICK	1.24	3.82	-1.85	63	29	43.	-7	36	36	100
TOMS RIVER	1.85	4.68	-1.31	64	30	45.	-4	52	52	99
TRENTON	1.13	3.25	-2.23	64	32	46.	-6	56	51	99
CAPE MAY COURT HOUSE	1.55	4.07	-1.25	62	34	48.	-3	57	54	99
DOWNSTOWN	missing									
GLASSBORO	.88	5.59	-.15	70	34	48.	-4	50	45	99
HAMMONTON	1.39	3.40	-2.14	67	30	47.	-5	79	74	99
POMONA	1.70	4.57	-.85	63	33	47.	-3	80	80	99
SEABROOK	1.09	3.77	-1.05	68	28	46.	-6	66	59	99
SOUTH HARRISON	missing									

WES KLINE -- GDD BASE 40 PINEY HOLLOW
LAST WEEK missing (Ending 4/6/09)
THIS WEEK missing (Ending 4/13/09)
TOTAL UNITS BASE 40 FOR FEBRUARY=55

RUTGERS
New Jersey Agricultural
Experiment Station
Plant & Pest Advisory
Rutgers School of Environmental
and Biological Sciences
ASB II, 57 US Hwy. 1
New Brunswick, N.J. 08901

PLANT & PEST ADVISORY
Landscape, Nursery & Turf Edition Contributors

Rutgers NJAES-CE Specialists and Staff
Bruce B. Clarke, Ph.D., Turf Pathology
Ann B. Gould, Ph.D., Ornamentals Plant Pathology
Steven Hart, Ph.D., Weed Science
Joseph R. Heckman, Ph.D., Soil Fertility
Albrecht Koppenhofer, Ph.D., Turfgrass Entomology
James A. Murphy, Ph.D., Turf Management
Gladis Zinati, Ph.D., Nursery Management
Richard J. Buckley, Coordinator, Plant Diagnostic Laboratory

RCE County Agricultural Agents and Program Associates
Bergen, Joel Flagler (201-336-6780)
Burlington, Raymond J. Samulis (609-265-5050)
Camden, Steven Rettke, Program Associate IPM (856-566-2900)
Cape May, Jenny Carleo (609-465-5115)
Cumberland, James R. Johnson (856-451-2800)
Essex, Jan Zienteck, Program Coordinator (973-353-5958)
Gloucester, Jerome L. Frecon (856-307-6450, ext. 1)
Hunterdon, Winfred P. Cowgill, Jr. (908-788-1338)
Middlesex, William T. Hlubik (732-398-5260)
Monmouth, Richard G. Obal (732-431-7261)
Morris, Peter Nitzsche (973-285-8307)
Passaic, Elaine F. Barbour, Agric. Assistant (973-305-5740)
Somerset, Nick Polanin (908-526-6293)
Sussex, Brian Oleksak, Program Associate (973-948-3040)
Union, Madeline Flahive-DiNardo (908-654-9854)
Warren, William H. Tietjen (908-475-6505)

Newsletter Production
Jack Rabin, Associate Director for Farm Services, NJAES
Cindy Rovins, Agricultural Communications Editor

Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The pesticide user is reponsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCE in your County.

Use of Trade Names: No discrimination or endorsement is intended in the use of trade names in this publication. In some instances a compound may be sold under different trade names and may vary as to label clearances.

For back issues, visit our web site at:
www.rce.rutgers.edu/pubs/plantandpestadvisory