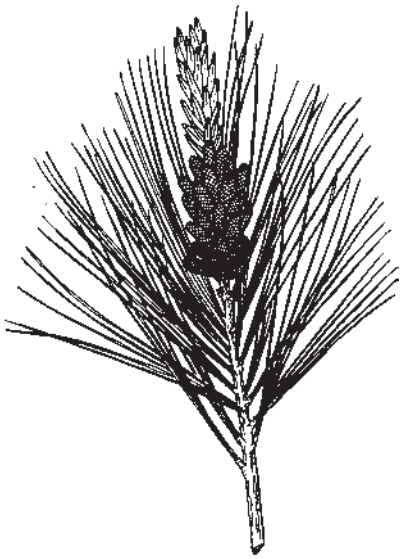
RUTGERS COOPERATIVE RESEARCH & EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION $1.50 JULY 14, 2005



INSIDE

Diseases of Ornamental Plants

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

Recent warm, wet weather has been conducive to root rot, crown rot, and dieback of many nursery and landscape plants caused by species of the water mold fungus *Phytophthora*. This pathogen is found worldwide and affects a variety of field, fruit, vegetable, forest tree seedling, and ornamental crops. Of several species associated with nursery crops in New Jersey, *Phytophthora cinnamomi* is the most prevalent and causes a root and crown rot that is troublesome in nearly 1000 host plants. Look for this disease over the coming weeks in hosts such as arborvitae, blueberry, camellia, chamaecyparis, daphne, dogwood, forsythia, Frasier fir, heath, heather, hemlock, Japanese holly, juniper, kalmia, pieris, pine, pittosporum, stewartia, white pine, and yew.

P. cinnamomi is a soilborne fungus that attacks the roots of susceptible plants. When soil moisture is high, the fungus produces fruiting structures called sporangia that release zoospores. These motile spores, attracted by root exudates to healthy roots, germinate on root surfaces and invade root tissues, which become dark brown and brittle. Once a substantial portion of the root system is killed, affected plants become stunted and leaves turn a dull-yellow and wilt, rolling inward along the major vein axis as they droop. Under more severe conditions shoot tips and major branches die, leading to eventual death of the plant. Dark, reddish-brown to brown streaks typically extend up into the wood just beneath the bark at the soil-line, a symptom that is diagnostic for this disease.

Root and crown rot can be severe when plants are grown in wet, poorly drained soils or mixes. Production and dispersal of sporangia and zoospores are enhanced in water-saturated soil. High temperatures (75 to 80°F) also favor disease development. The temperature of container media during the growing season is frequently higher than that of surrounding soil. Field grown stock, therefore, may not exhibit symptoms of the disease, even in the presence of the fungal pathogen. Furthermore, container stock infected by the fungus at low temperatures early in the growing season may not develop obvious symptoms of the disease until media temperatures increase later in the summer or plants are subjected to environmental stresses. Growers must take care not to over water as compensation for very warm temperatures.

Phytophthora can be very difficult to eradicate once established. Successful disease management, therefore, requires an approach that utilizes preventive cultural practices. To manage this disease:

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PHYTOPHTHORA FROM PAGE 1

• Use only pathogen-free stock. Purchase only healthy, vigorous stock, and inspect these plants carefully for signs of disease. Imported stock should be segregated in the nursery for several months to be sure the plants are free of disease. Propagate only from cuttings taken from disease-free mother plants.

• Plant only in pathogen-free soil or potting mix. Since Phytophthora root and crown rot is easily spread through the movement of infested soil, all potting mix components should be steam-pasteurized before use. Once pasteurized, mix components should not come into contact with fresh soil or plant debris. In the propagation house, containers should be new or surface-sterilized before use. All propagation tools, benches, and beds should also be surface-sterilized. In field sites with a history of this disease, an appropriate chemical fumigant should be applied before planting.

• Select well-drained potting mixes and field sites. Phytophthora root and crown rot tends to be more severe in container plants than in the field because over-watering is a frequent problem and mix temperatures tend to be higher. The disease can also be a problem when soil, peat moss, or sawdust is used as the sole component of the container mix. A mix high in sawdust is more conducive to disease development because drainage is poorer. A good potting medium should generally contain 20 to 25% air-filled pore space. When used as a potting mix amendment, composted hardwood bark releases inhibitors that suppress disease development.

• To prevent the dispersal of spores of *P. cinnamomi* through splashing in the nursery, place container plants on a well-drained base, such as three to four inches of gravel. Container beds should be graded to allow water to drain away from the pots and prevent puddling. In the field, select planting sites that are most appropriate for vigorous growth.

• Maintain plant vigor. Maintain proper levels of soil nutrients, moisture, and soil pH. Avoid over-watering and cultural practices that promote overly succulent growth, such as heavy fertilization, over-crowding, and low light. Succulent plants and those under stress are more susceptible to disease.

• Utilize disease resistant plants and cultivars when possible. Many well-known azalea and rhododendron hybrids are very susceptible to this disease. Under severe environmental stress, however, even tolerant cultivars may succumb to this disease.

• Apply an appropriate fungicide when necessary. Fungicides such as Banrot, etridiazole, fosetyl-Al, mefenoxam, or propamocarb-HCl are useful when applied as a preventive drench per manufacturer's recommendations. Once plants become infected, fungicides may arrest further infection but do not kill the fungi within infected roots and soil. Although fungicides are useful for disease control, they cannot replace good cultural practices. ❑

Diseases of Turfgrass

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

Anthracnose

This disease, caused by the fungus *Colletotrichum graminicola* is apparent on annual bluegrass, fine fescue, perennial ryegrass, and Kentucky bluegrass. The fungus typically attacks turf growing under low soil fertility and/or heat or drought stress. Low cutting height and traffic can also enhance symptom development. To identify **anthracnose** in the field, look for small black fruiting bodies with protruding black spines. For best results, increase turf vigor with frequent, light applications of nitrogen, maintain adequate irrigation, reduce thatch, and raise the cutting height (whenever possible). On a preventive basis, apply Banner, chlorothalonil, Compass, ConSyst, Eagle, Heritage, Insignia, Rubigan, Spectro or thiophanate-methyl per manufacturer's recommendations. Resistance has been reported at some locations for the QuI (strobilurin) and benzimidazole fungicides. Also, Prostar may enhance the severity of this disease, therefore, restrict the use of this product to sites that do not have active infections.

Bentgrass Dead Spot

This is the time of year when **bentgrass dead spot** typically occurs in the Mid-Atlantic region. The causal agent, *Ophiosphaerella agrostis*, induces small reddish-brown spots 0.5 to 1 inch in diameter on newly constructed sand-based greens and tees. Spots usually do not coalesce and only enlarge to 4 inches in diameter. Affected areas eventually fade to a light tan color. Initially, symptoms may be confused with **dollar spot, copper spot, black cutworm** injury and golf ball injury. However, upon close inspection, black flask-shaped fruiting bodies (*pseudothecia*) can be found embedded in necrotic leaf and stem tissue. Active patches often have a half inch bronzed outer margin. Foliar mycelium is not apparent in the field.

The disease is most serious on high sand content greens and tees (one to six 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. Benzimidazole (e.g., Cleary 3336 50W), dithiocarbamate (e.g., Fore Rainshield 80W), nitrile (e.g., Daconil Ultrex 82.5SDG), phenylpyrrole (e.g., Medallion 50WG) and phosphonate (e.g., Chipco Aliette Signature 80WG) chemical classes have provided the most effective control of bentgrass

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dead spot in tests conducted by Rutgers faculty. Of the sterol-inhibiting fungicides, only propiconazole (e.g., Banner MAXX 1.3 MC) adequately controlled the disease in these trials, whereas myclobutanil (e.g., Eagle 40W) and triadimefon (e.g., Bayleton 50W) proved ineffective at the rates tested. The strobilurin fungicide pyraclostrobin (e.g., Insignia) consistently suppressed the disease, while the strobilurins trifloxystrobin (e.g., Compass 50WG) and azoxystrobin (e.g., Heritage 50WG) provided poor to fair control of bentgrass dead spot. Carboximide (e.g., Prostar 70W) and phenylamide (e.g., Subdue MAXX 2MC) fungicides and a strain of *Bacillus* subtilis (e.g., Companion I) did not control bentgrass dead spot, compared to untreated turf.

Brown Patch

This disease, caused by the fungus *Rhizoctonia solani*, is very common on tees, greens, and home lawns due to the recent warm, humid weather. To reduce the incidence and severity of **brown patch,** avoid nitrogen applications during hot weather, irrigate between midnight and 8 a.m. to reduce the period of leaf wetness, and spray turf with Banner, Chipco 26GT, chlorothalonil, Compass, ConSyst, Curalan, Eagle, Endorse, Heritage, Insignia, mancozeb, Medallion, Prostar, Spectro, thiophanate-methyl, or Touche per manufacturer's recommendations

Gray Leaf Spot

Gray leaf spot caused by the fungus *Pyricularia grisea*, should develop in the tri-state area soon. This disease has devastated perennial ryegrass and tall fescue plantings throughout the Mid-Atlantic States in the past. Symptoms start as tiny, brown leaf and stem lesions within a 1 to 2 inch patch. 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 diameter) areas of blighted turf. Extensive foliar blighting may occur during warm (75-85^{0}F days and 60-75^o F nights), wet weather. Newly established seedings are more susceptible to infection than mature plantings. When conditions are conducive to disease development, the pathogen 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 Compass, ConSyst, Insignia, Heritage, Spectro, thiophanate-methyl, and Zyban were most effective when applied on a preventive basis every 14 to 28 days beginning in mid-July. Chlorothalonil (e.g., Daconil) and the DMI (sterol-inhibiting) fungicides, such as propiconazole (e.g., Banner), may provide effective control when disease pressure is moderate.

Pythium Blight

With the recent return to hot, humid weather, **pythium blight** has been reported on golf turf. **Pythium** thrives in low or poorly drained areas, especially when the night temperatures are above 68 to 70^{0}F. For best results, improve drainage, water in the early morning hours (midnight to 8 am), avoid over-fertilization, and apply Alude, Banol, Chipco Signature, Heritage, Koban, Magellan, mancozeb, Prodigy, Quell, Subdue MAXX, Terraneb SP, or Terrazole, according to the manufacturer's recommendations. Caution: Koban and Terrazole can be phytotoxic during hot weather, so follow label directions carefully and experiment on a small area of turf before large scale use.

Turf Field Day

Mark your calendars now for this year's Rutgers Turfgrass Research Field Days which will be held on August 3, 2005 (Landscape Turf Research Field Day at Adelphia, NJ) and August 4, 2005 (Golf Turf Research Field Day at Hort Farm II, Ryders Lane, New Brunswick, NJ). This year's Lawn and Landscape Research Field Day & Trade Show will be held in cooperation with the New Jersey Turfgrass Association (NJTA) and the Sports Field Managers Association of New Jersey (SFMA). Highlights of this event will include: (1) trade show and equipment demonstrations, (2) new herbicides for landscape turf, (3) major advances in turfgrass breeding – "See tomorrow's cultivars today", (4) identification and control of grubs and other insects, and (5) latest efforts for disease control on lawns. The Golf and Fine Turf Research Field Day highlights will include: (1) latest on the management of anthracnose on *Poa annua*, (2) current efforts to convert *Poa* fairways and greens to bentgrass, (3) new bentgrass cultivars for greens and fairways, (4) irrigation management and wetting agent studies on bentgrass, and (5) advance in spray application technology. Pre-registration (before July 22, 2005) $35 (members of NJTA, Golf Course Superintendents Association of New Jersey (GCSANJ) or SFMANJ), $50 (non-members). On site registration will be $45 (member of NJTA, GCSANJ, or SFMANJ), $60 (non-members). For directions to the field days or to access the registration form go to www.njturfgrass.org. Contact: Michelle Rickard, Executive Director, NJTA, PO Box 340, Milltown, NJ 08850, phone (215) 757-6582, or FAX (215) 741-6582. ❑

Turf Problems from Wet Weather

James A. Murphy, Ph.D., Specialist in Turfgrass Management

Recent rains have help with the drought stress brought on by the previous dry hot weather. However, the rain and humidity has stimulated the development of a numbered of other stresses over the last week or so.

There has been a rapid emergence and development of annual grassy weeds, most notable is crabgrass. For more information see Rutgers Cooperative Research & Extension (RCRE) publication E233, Crabgrass and Goosegrass Control in Cool Season Turfgrass available through your County Extension office or on the web at: http://www.rcre.rutgers.edu/pubs/publication.asp?pid=E233

I have observed some aggressive sod webworm feeding activity (damage) on unprotected turf. For more information see RCRE factsheet FS1007, An Integrated Approach to Insect management in Turfgrass: Sod Webworms from your County Extension office or on the web at: http://www.rcre.rutgers.edu/pubs/publication.asp?pid=FS1007.

Japanese Beetle on the Rebound?

Albrecht M. Koppenhöfer, Ph.D., Specialist in Turfgrass Entomology

The **Japanese beetle** (JB) was introduced acciden tally into New Jersey in 1916 from Japan where it is not a major pest. In the eastern USA it found a favorable climate with plenty of grass for the developing grubs, diverse food plants for the adult beetles, and an absence of effective natural enemies. Since then it has spread into every state east of the Mississippi except Florida and Mississippi and into southeastern Canada.

During the nineties and until recently Japanese beetle seemed to have been generally at low numbers in most areas in New Jersey. It is not known why, and it is probably due to a number of factors. Maybe introduced or endemic natural enemies finally had caught up to them, and probably the widespread use of preventive white grub insecticides contributed to the decline. This year, however, the JB seems to be showing up in many areas in New Jersey in higher numbers than for many years. I can only hypothesize that it has to do with the relatively moist last two summers. Eggs of JB and other white grubs need moisture to develop, and the young larvae are also susceptible to desiccation. Thus, populations of JB and other white grub species may have built up over the last two years. I doubt that the JB will rebound to the numbers people used to see 20 or so years ago. Rather, we are just seeing a peak in the typical

See Japanese Beetle on page 5

Table 1. Preferred and non-preferred food plants of Japanese Beetle adults among landscape plants

Favored	Occasional light feeding	Seldom damaged
American Chestnut	American elder	Boxwood
American linden	American sweetgum	Common lilac
American mountain ash	Black oak	Euonymus (all species)
Black walnut	Boxelder	Flowering dogwood
English elm	Butternut	Green ash
Gray birch	Persimmon	Holly (all species)
Hollyhock	Red oak	Magnolia (all species)
Horsechestnut	Scarlet oak	Ornamental pears
Japanese maple	Shagbark hickory	Red maple
Lombardy poplar	White oak	Red Mulberry
London planetree		Silver maple
Malus species: flowering crabapple, apple		Tuliptree
Norway maple		White ash
Prunus species: cherry, plum, peach, etc.		White poplar
Rosa species: Roses		
Rose of Sharon		
Sassafras		
Vitis species: Grape		

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fluctuation of any insect population over the years.

At the latitude of New Jersey adult JB start emerging after mid-June, will reach maximum abundance after mid-July, and will be nearly gone around mid-September. Adult JB feed on foliage, flowers, and/or fruit of almost 300 plant species. However, certain plants are preferred for feeding and will almost always sustain damage, whereas other plants are only occasionally or even seldom damaged (Table 1). In addition to the damage the attractive plants sustain they will also draw in more egg-laying female JB that may lay eggs in nearby turfgrass areas which may subsequently suffer grub damage. Where possible, replace the favored food plants with less attractive plants.

Physical removal of the beetle is an option for smaller plantings with not overly high beetle numbers. In the morning when the beetles are sluggish on the plants they can be shaken into a bucket with soapy water where they will drown. High value plants can also be covered with fine netting material during peak beetle flight.

Trapping using the commercial JB traps will not protect landscape plants. The traps will draw in more beetles from some distance away and only a portion will end up in the traps. The remainder will feed on surrounding plants and the females may end up laying eggs in adjacent grass areas. Only if everybody in a neighborhood would use the traps, and a good number of them, could trapping significantly reduce JB numbers. If traps are used they should be placed well away from gardens and landscape plants.

Heavily infested plants may have to be protected with insecticide sprays. Carbaryl (Sevin) is the standard for homeowners while professionals can also use pyrethroids. With high beetle numbers, weekly sprays may be necessary. Insecticidal soap will only kill beetles that are directly hit and gives no residual effect on the plants. Products containing neem or pyrethrum are not very effective, and sprays made from ground-up beetles and other home-made concoctions are useless.

Lawn areas where high JB activity has been observed may require white grub treatments. For details on white grub biology and management check Rutgers Cooperative Research & Extension fact sheet FS1009, An Integrated Approach to Insect management in Turfgrass: White Grubs (available through your County Extension office or on the web at: http://www.rcre.rutgers.edu/pubs/publication.asp?pid=FS1009) and previous articles on white grub control in this newsletter (e.g., 6-12-03 and 8-19-04 issues available on the web at: http://www.rcre.rutgers.edu/pubs/plantandpestadvisory). However, grub treatments will not prevent reinfestations from JB adults in surrounding areas next summer. ❑

Asian Ambrosia Beetles in New Jersey Nurseries

Richard Buckley, Plant Diagnostic Lab; Jim Lashomb, Ph.D., Nursery Crop Entomologist and Richard Obal, Monmouth County Agricultural Agent

The **Asian Ambrosia Beetle** (AAB), *Xylosandrus crassiusculus*, was first detected in the US near Charleston, South Carolina in 1974. This tiny beetle has become a pest on many woody ornamental trees, in nurseries and landscapes throughout the southeast from Texas to the west and Maryland to the north. There were three reported findings in 2004 in New Jersey. In 2005, several nurseries in various parts of the state have reported tree mortality due to AAB. Oddly, different trees were attacked at each site and damage ranged from 5% to 90% of the particular species at each nursery. Unlike the many other ambrosia beetles in New Jersey that attack damaged or stressed trees, the ABB will attack apparently healthy trees, which was the case at the various nursery sites.

Asian Ambrosia Beetle has a very wide host range. Branches and trunks of thin bark ornamental trees; 1 to 3 inches in diameter are most commonly attacked. Maples, elm, zelkova, cherries, dogwood, magnolia, beech, linden, redbud, sophora, golden rain, yellowwood, and viburnum; have been observed as hosts in New Jersey nurseries and occasionally on landscape sites. Peach, plum, styrax, and sweetgum are also common hosts in southern states.

DAMAGE: The tiny (3/32″) brownish black female beetles bore into the sapwood of susceptible host trees in early spring. Though attracted to stressed, damaged or transplanted trees; they will also attack apparently healthy trees. Wilted foliage and the appearance of toothpick-like strands (1 to 3 inches long) of sawdust protruding from the small boring holes of the beetle are the characteristic symptoms of an AAB infested tree. Up to 50 beetles can be found in individual trees. The beetles excavate galleries in the wood and introduce a fungus that grows in the tunnels to provide food for the beetles and their larvae. As with other ambrosia beetles, AAB do not eat the wood. Heavily infested trees are killed when the fungus clogs the conduction system. Plant parasitic fungi will also invade the tree through the insect wounds. Larger trees may survive and even recover but small trees are killed. Research from Tennessee indicates that the AAB will complete its life cycle in about 55 days. It is not known if there is a second generation here in New Jersey. Beetle flight has been observed via traps in the fall but tree entry in the nursery or adjacent landscape trees has not been observed.

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New RCRE Factsheet Available

Now available through your Rutgers Cooperative Research and Extension County office or ordered from the web at: http://www.rcre.rutgers.edu/pubs/publication.asp?pid=E302 is Publication E302 - "Irrigation Management Options for Containerized-Grown Nursery Crops", authored by Dr. Gladis Zinati, Extension Specialist in Nursery Management. This is an eight page publication and costs $2. ❑

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Where and how they overwinter is the object of ongoing research.

CONTROL: Heavily infested trees should be removed and destroyed. Beetles can not be killed once they are in the tree and fungicides are ineffective against the internal fungi. Alcohol traps can be used to determine when the adults are emerging in early spring and potential host trees should be scouted and sprayed as needed. The synthetic pyrethroids (bifenthrin or permethrin) have been shown to be highly effective in deterring AAB attack when applied at the highest labeled rate in early spring. Trees are most susceptible to attack when they are breaking dormancy. More than one application may be necessary at three week intervals. Trees in full leaf will not attract AAB. ❑

Plant Diagnostic Laboratory Highlights

Richard J. Buckley, Laboratory Coordinator

Golf Turf

We were starting off the month at a pretty slow pace – for July anyway – in regards to turf samples. Well, that was the way I was going to start this week's newsletter; however, after taking a day off yesterday, I walked into the lab with nearly 50 cup cutter plugs sitting here! To date for July, we only had 100, so it looks like we are off to the races! **Anthracnose** samples have begun to be submitted to the laboratory in earnest. Samples with anthracnose were submitted from Atlantic, Bergen, Burlington, Middlesex, Morris, and Ocean Counties. Out of state anthracnose samples were submitted from Ohio, Maryland, Pennsylvania, and New York. **Summer patch** is also quite active at this time. Samples of dead and dying annual bluegrass diagnosed with summer patch were submitted from golf courses in Ohio, New York, Connecticut and Pennsylvania. On home lawns **brown patch** is the disease of the week!

Although there were plenty of diseases to look at, we are also seeing a number of plugs with problems due to various cultural, site related, and environmental factors. Of particular note is the number of plugs with grass that have been scalped or damaged by mowers. As the rains increased through most of our area over the last three weeks, superintendents began to report puffy grass, growth spurts, and an increased need for mowing. One gentleman told me he double cut in the early morning and then had to cut again at 10 AM. We can speculate over the cause of the increased growth with everything from extra water, pent up fertility, growth regulators, high soil temperatures, or whatever, but the result is soft grass that is easily damaged by traffic and turf culture. The numbers of collars we see that are completely dead is alarming. Furthermore, many of these plugs are subsequently colonized by algae, or opportunistic fungi like *Curvularia*, or *Leptosphaerulina*. I would bet that a lot of our current **anthracnose** samples also started as water logged and scalped turfgrass. One more thing about these wet greens, we had a couple awesome examples of slime mold. It looked like red snot – very cool!

Landscape

In the landscape, we had several spruce samples with damage from **spruce spider mite**. The mite does most of its damage in late-spring and was favored by the above average temperatures and dry period. **Black canker of willow** is also quite active. This disease causes leaf blight and branch dieback of willow and in some trees I've seen in the landscape blighted nearly 50% of the canopy. Last but not least, the **Japanese beetle** invasion has caused significant damage to susceptible landscape plants. Favorable hosts like linden, rose, or plum, have been nearly completely skeletonized. The canopy is still intact, but there is no tissue between the leaves. It almost makes the trees translucent. ❑

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal, averaging 71 degrees north, 73 degrees central and 73 degrees south. Extremes were 93 degrees at Long Branch on the 10th, and 52 degrees at Charlotteburg on the 5th. Weekly rainfall averaged 2.21 inches north, 1.86 inches central, and 2.24 inches south. The heaviest 24 hour total reported was 2.13 inches at Cape May on the 8th to 9th. Estimated soil moisture, in percent of field capacity, this past week averaged 89 percent north, 88 percent central and 86 percent south. Four inch soil temperatures averaged 72 degrees north, 73 degrees central and 74 degrees south.

Weather Summary for the Week Ending 8 am Monday 7/11/05

	RAINFALL			TEMPERATURE				GDD BASE50		MON
WEATHER STATIONS	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	2.24	14.63	-2.15	91	58	72.	0	1180	99	93
CANOE BROOK	1.85	16.72	-1.17	92	59	73.	0	1367	289	94
CHARLOTTEBURG	2.62	19.61	1.53	87	52	68.	-1	1100	239	96
FLEMINGTON	2.20	20.73	3.53	89	59	72.	-1	1273	159	97
NEWTON	2.15	16.06	-.36	89	57	71.	1	1199	246	96
FREEHOLD	1.61	19.75	2.97	90	60	73.	-1	1287	74	96
LONG BRANCH*	1.46	19.08	2.32	93	62	74.	1	1255	116	83
NEW BRUNSWICK	2.67	19.55	3.02	92	59	74.	0	1342	54	96
TOMS RIVER	1.55	19.59	2.69	92	60	73.	-1	1201	53	83
TRENTON	2.00	19.76	4.17	90	59	73.	-2	1349	7	84
CAPE MAY COURT HOUSE	2.38	17.01	2.19	87	57	71.	-3	1022	-205	86
DOWNSTOWN	2.00	15.74	.41	89	59	73.	-2	1259	-98	86
GLASSBORO	2.38	17.06	.63	91	62	75.	0	1464	128	85
HAMMONTON	2.32	16.84	.64	91	61	74.	-1	1318	-12	83
POMONA	1.63	17.34	2.71	90	61	74.	0	1219	-9	83
SEABROOK	2.71	17.50	2.71	88	61	74.	-1	1483	118	92
SOUTH HARRISON	2.69	18.07	1.55	89	61	73.	NA	1383	NA	NA

*SOME CUMULATIVE VALUES ESTIMATED DUE TO MISSING PAST DATA
WES KLINE — GDD BASE 40 PINEY HOLLOW
Last Week* 249 (Ending 7/4/05)
This Week 230 (Ending 7/11/05)
* February total base 40 equals 32 units

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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 RCRE in your County.

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