

# PLANT & PEST ADVISORY

A RUTGERS COOPERATIVE EXTENSION PUBLICATION



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## Landscape IPM Pest Notes

*Steven K. Rettke, Ornamental IPM Program Associate*

✓ **TRUE LANDSCAPE ASSASSINS:** The **woodborers** represent a group of insects that can cause extensive damage to plants and are very difficult to control. Generally, the adult stage of most borer species does not cause any significant feeding damage. The damaging stage is the immature larva that feed (tunnel) inside roots, trunks, branches or twigs of a tree or shrub. Of the hundreds of borer species known, there are only 4 major families of **beetles** (metallic wood borers, longhorned wood borers, bark beetles, and snout beetles) and 2 major families of **moths** (clearwing moths and pine tip/shoot moths) that are a threat in the urban landscape.

✓ **PLANT STRESS & ARTHROPOD SUCCESS:** With the complexity and the variety of insect types, stress types, plant growth types and insect well-being traits, it becomes impossible to generalize and state that stressed plants are better food for “bugs” and cause them to increase. Such a simple generalization is incorrect and therefore, more variables need to be included.

However, research studies during the past decade do allow for some specific generalizations to be stated. The insect guilds (e.g., chewers, suckers, miners, gallers, and borers) are affected in numerous ways when they feed on stressed plants. For example, stressed conifers will have a more difficult time dealing with insects and mites than deciduous plants. Mature trees under stress will withstand insect attack better than younger trees under stress, with the exception of borers.

Who are the big winners and losers? Suckers and borers usually benefit when plants are stressed. Chewers and miners show no consistent response when plants are stressed. For example, it is not correct to state that gypsy moths will do better when oaks are under drought stress. Gallers generally suffer when plants are stressed.

✓ **CONTROLLING SPIDER MITES & PROTECTING PREDATORS:** The use of **Horticultural Oil** is still an excellent choice as a miticide when adequate coverage can be achieved and infestations are moderate. When the time and effort is taken to apply a thorough oil spray application against a population of mites, the results are usually satisfactory. Oil suppresses three stages of the mite life cycle (egg, immature, and adult). It also has less impact against predatory mites (as well as other predators) than do most traditional miticides.

When using miticides, the objective is to maximize your control of the pest mites and eliminate friendly fire to the predatory mites. Fortu-

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nately, several recently developed miticides have this unique ability. Examples of these new materials include **Hexygon** and **Tetrasan**. These materials are now registered for use on exterior ornamentals and they control the eggs and immatures of *only* spider mites (neither eriophyid nor predatory mites are affected). Both are “mite growth regulators” and inhibit the formation of chitin, the building block of the outer exoskeleton. **Floramite** is another miticide impacting only spider mite pests. It controls adult mites and provides egg suppression against two-spotted spider mites. Furthermore, all of these miticides have at least a three-week residual.

Hexygon and Tetrasan do have potential disadvantages since they do *not* control *adult* spider mites. Therefore, a large infestation of spider mites treated with these materials may continue to feed as adults and cause damage for two weeks or more before a majority of the population dies off. Observations using Hexygon indicate that treated adult female mites become sterile and any laid eggs do not hatch. Horticultural Oils are compatible with Hexygon and Tetrasan can be mixed together to provide reinforcements to suppress the adults.

**COMPROMIZED IPM PROGRAMS:** When considering long-term measurements, an IPM program can often be less expensive. However, because cultural methods are often given a high priority in IPM programs, they demand the most time and labor (e.g., pruning, mulching, irrigation, fertilization, aeration, design, plant selection, etc.). Therefore, these management methods can be the most expensive part of the IPM approach.

“Integrated *pesticide* management” is a compromised IPM approach involving monitoring and selective sprays. This approach attempts to keep expenses very competitive by reducing the number of monitoring visits. Those clients who want to keep costs low are then prime candidates for this monitoring and selective treatment management approach. Although not a true IPM practice (i.e., the number of alternative plant management options is greatly limited), the monitoring and selective pesticide treatment method is an alternative option for customers who cannot afford the more holistic philosophy.

**MARKETING IPM CLIENTS:** Studies have discovered that the clients most likely to desire the IPM approach are those that have a genuine personal concern for their landscape. They demand a high degree of personal communication with their landscape managers. They often ask many questions about their plants, desire education and usually will follow recommendations. Generally, most of the homeowners interested in IPM want more specific plant care information. This information includes insect and disease problems as well as the best cultural practices to improve the health and appearance of their landscape.

Surveys have shown that there are a significant number of potential clients who desire “information specialists” who can provide high quality plant health care. IPM practitioners should be in an ideal position to meet these informational needs and will be viewed as true professionals. On the other hand, it needs to be recognized that there are certain landscape “customers” who seek many estimates from companies and then select the one that quotes the lowest price. These customers do not see quality as a major factor when making their decisions. The marketing strategy for attracting this low price demand is being the cheapest and the quickest. It is not likely that the more sophisticated IPM methods will be of high interest to bargain hunters. Furthermore, they may not be loyal to an IPM practitioner since they often change landscapers from year to year.

✓ **SCALE VS. SCALE:** The two most common families of scale insects found in the urban landscape are armored and soft scales. When physically removed from bark or leaf tissue both soft and armored scale species will leave a white ring of their outer margins. These white rings are waxy adhesives used to closely attach themselves to the plant host. This is an important sign that can be used to avoid making unnecessary treatments against non-scale look-a-likes sometimes seen in the landscape.

Soft scales are vascular feeders and secrete large quantities of honeydew that typically becomes associated with black sooty mold. Although the sooty mold is a fungus, it is not pathogenic and is mostly only an aesthetic concern. However, it can be a problem if large areas of leaf tissue become covered resulting in reduced photosynthesis. No leaf stippling is produced from soft scales since they do not remove green chlorophyll or cause individual plant cell death. As a result, soft scales are less damaging to plant hosts and healthy trees and shrubs can tolerate moderate infestations with little affect.

Alternatively, armored scales feed within individual mesophyll cells of plants and do create leaf stippling and typically cause more damage. They are more likely to generate individual branch dieback and can even kill trees. Since armored scales do not feed in vascular tissues they do not secrete honeydew and do not promote the corresponding black sooty mold. Armored scales typically are a highly persistent pest on woody plants and can continue for many years once established.

✓ **USING PHEROMONE TRAPS TO DETECT CLEARWING BORERS:** Clearwing borers comprise one of the most damaging groups of insect pests that attack shade trees and shrubs. Controls must be accurately timed, since larvae tunnel under the bark most of the year, where they are unreachable by most pesticides. Artificial pheromones, a synthetic of the sex attractant emitted by many insects, are commercially available and recommended for the IPM manager. Adult male moths are attracted to the pheromone-baited sticky trap that

SEE PHEROMONE TRAPS ON PAGE 3

helps determine: 1) *if* the borers are present in an area; and 2) *when* to apply insecticide sprays.

Pheromone traps enable landscape managers to more accurately determine the first emergence of these borers so that pesticides can be applied more effectively to susceptible hosts. Do not connect the use of clearwing pheromones with the problems associated with the use of Japanese beetle pheromones in the landscape. The clearwing pheromones only attract adult males. They are of no concern since they cannot lay eggs and do not feed on plants.

✓ **LADY BEETLES/APHIDS:** Lady beetle predators are out and feeding now on soft bodied insect pests (aphids, scale crawlers, mites). Look carefully among aphid populations to find either the larva or adult lady beetle somewhere on the plant. If there is a good size population of lady beetles, or if aphids are not significantly harming the plant, consider not spraying. Continue to monitor and knock down the aphid population with horticultural oil, if aphids are out-producing the lady beetles. Healthy leaves produced later in the season when aphid populations wane will hide any leaves damaged now.

✓ **HOLLY LEAFMINER (246-448 GDD):** The feeding larvae are pupating inside the leaves and have been emerging as adults. Adults fly around trees and lay eggs for a few weeks. Adults puncture leaves to feed on leaf sap, leaving tiny holes in the foliage (it was once thought this was damage from leaf spines puncturing foliage).

Place sticky traps out to monitor for adults, and where population levels are high treat with Orthene or Avid (translaminar activity). The beginning mines within the new leaves are serpentine, thread-like, and not obvious. Much of the feeding damage actually occurs during late summer and early fall. As a result, an August or September treatment is also effective.

✓ **ANDROMEDA LACE BUGS:** Foliar symptoms caused from this familiar landscape pest are apparent on the new leaves of infested andromeda shrubs. This host specific pest overwinters as eggs inserted into the lower leaf veins. The other lace bug species with evergreen hosts also overwinter as eggs (e.g., azalea & rhododendron lace bugs). Lace bugs with deciduous hosts overwinter as adults (e.g., oak & hawthorn lace bugs). Adult lace bugs that overwinter as eggs have oval-shaped wings with rounded corners. Alternatively, adult lace bugs that feed on 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 to a lesser degree the adults. 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. □

## Anthracnose Diseases of Flowering Dogwood

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

Foliar diseases of ornamentals in the landscape are abundant this month due to recent spring rains. Of note are the “anthracnose” diseases of dogwood, namely **spot anthracnose** and **dogwood anthracnose**.

**Spot anthracnose**, caused by the fungus *Elsinoë corni*, can be considered an ordinary springtime disease that affects the leaves, bracts, and shoots of flowering dogwood, especially white cultivars. Although unsightly, this foliar disease does not greatly impact the health of the plant, and chemical inputs are rarely necessary.

As in many other foliar diseases, *E. corni* overwinters as fruiting bodies (acervuli) in tissues (such as twigs and fruit) infected in previous growing seasons. During periods of abundant moisture in late winter to early spring, fungal spores released from acervuli infect the developing bracts to form small (about 1/25<sup>th</sup> of an inch), circular to elongate, purple-red spots. As the infection progresses, these spots merge together to form larger lesions. The fungus then spreads to other bracts, leaves, fruit, and small twigs. Leaf lesions, at first yellow-gray with purple borders, may eventually coalesce or drop out to leave a hole in the leaf (known as “shot hole”). Affected shoots and berries develop elongate lesions with purple borders that may be slightly raised or scabby. Heavily affected bracts and leaves are too small, distorted, and may fall prematurely from the plant.

Spot anthracnose is more troublesome when moisture (rainfall or high humidity) during the infection period is high. To manage this disease, avoid overhead irrigation in spring to reduce tissue wetness. In addition, dogwoods planted in full sun may be more susceptible to the disease, so choose cultivars that flower later in the season or plant the more susceptible cultivars (such as Barton White, Cloud, Cherokee Daybreak, Cherokee

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# Diseases of Turfgrass

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

## General

**Dollar spot**, **red thread** and **anthracnose** are all active at this time on susceptible turf. Dollar spot has just started to develop on golf course greens, tees and fairways during the last week. **Leaf spot** and **stripe smut** are still apparent on susceptible Kentucky bluegrass plantings.

## Anthracnose

This disease, caused by the fungus *Colletotrichum cereale* (previously known as *C. graminicola*), has started to develop on annual bluegrass greens in the region. This fungus typically attacks turf growing under stress (i.e., low nitrogen fertility, soil moisture stress, etc.). Low cutting height (e.g., below 0.125 inch) will also enhance disease development. To identify **anthracnose** in the field, look for small black fruiting bodies with protruding black spines on affected leaves or stems. Anthracnose can be suppressed by increasing turf vigor with light, frequent applications of nitrogen (e.g., 0.1 to 0.2 lb N every 7 to 14 days), and by maintaining adequate soil water. The application of a seedhead suppressant in April (e.g., Embark or Proxy-Primo) followed by sequential applications of Primo every two weeks from mid-April through September will not increase anthracnose and, in some cases, may reduce disease severity. Recent research at Rutgers University has also shown that anthracnose can also be significantly reduced and acceptable greens speed (i.e., ball roll distance) maintained by raising the cutting-height while increasing mowing frequency and/or rolling. For best results, apply Armada, Banner, chlorothalonil, Compass, ConSyst, Disarm, Eagle, Endorse, Headway, Heritage, Insignia, Spectro, Tartan, Trinity or thiophanate-methyl on a preventive basis and repeat every 14 days through September per manufacturer's recommendations. Chipco Signature, the phosphites, Medallion, and Chipco 26GT can also be used to effectively suppress this disease, but these products are most efficacious when applied in a tank mixture with one of the previously mentioned fungicides. To reduce the potential for fungicide resistance, tank mix or alternate fungicides with different modes of action as needed every 14 to 21 days when conditions are conducive for disease development.

## Ascochyta leaf blight

**Leaf blight**, caused by the fungus *Ascochyta*, often appears on Kentucky bluegrass plantings during cool, wet weather in mid-to-late-May. Turf that has a thick thatch layer (2 to 3 inches) is most susceptible to attack. Upon close inspection, both healthy and diseased leaves are evident within blighted areas. Infected blades typically appear white from the leaf "tip down". Under certain conditions, lesions may extend all the way

down to the leaf sheath. As lesions age, prominent black pycnidia (fruiting bodies) develop along the bleached portion of affected tissue. Unlike anthracnose fruiting bodies, these structures lack black spines. During moist conditions, spores are released and infect healthy turf. Since *Ascochyta* enters grass through wounds, infection is most common just after the grass is mowed. For best results, avoid frequent mowing, mow when the turf canopy is dry, raise the height of cut, use a "sharp mower blade" to avoid excessive leaf shredding, water as deeply and infrequently as possible without causing moisture stress, water in the early morning hours, avoid excessive applications of nitrogen, and remove excess thatch. This disease was recently added to the 3336 (thiophanate-methyl) label; however, fungicides are rarely warranted since affected turf typically recovers with proper maintenance and warmer weather.

## Brown Patch

We have seen **brown patch**, caused by the fungus *Rhizoctonia solani*, developing to a limited extent on golf and landscape turf recently. This disease will get more severe on susceptible turf as the weather gets hot and more humid during the summer months. To reduce disease severity, avoid heavy applications of nitrogen fertilizers when conditions are hot and humid (i.e., night time temperatures above 68° F), water in the early morning hours to reduce the leaf wetness period (e.g., 12 midnight to 8 AM), and apply Armada, Chipco 26GT, chlorothalonil, Compass, ConSyst, Disarm, Endorse, Headway, Heritage, Insignia, mancozeb, Medallion, Pro-Star, Spectro, Tartan, or thiophanate-methyl on a preventive basis in areas with a previous history of this disease.

## Dollar Spot

**Dollar spot** is now apparent on golf course greens, tees and fairways in the tri-state region. To prevent this disease from causing severe damage to susceptible turf again in 2009, maintain adequate nitrogen fertility, water in the early morning hours (to reduce the leaf wetness period), reduce thatch, avoid the sole use of any fungicide for prolonged periods of time (to limit the possibility of fungicide resistance), and apply Armada, Banner, Bayleton, Chipco 26GT, chlorothalonil, ConSyst, Eagle, Emerald, Headway, mancozeb, Rubigan, Spectro, Tartan, thiophanate-methyl, Tourney, Trinity or vinclozolin per manufacturer's recommendations. Repeat fungicides as needed through late-October.

## Red Thread

This disease, caused by the fungus *Laetisaria fuciformis*, is very active at this time on landscape turf (i.e., susceptible cultivars of perennial ryegrass, fine fescues, tall fescues and even Kentucky bluegrass. Current outbreaks were delayed due to the dry weather over the last few weeks, but the disease should become more prevalent because of the recent cool damp weather. Infections are characterized by the appearance of short red threads

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(1/16-1/4 inch long) emerging from tan-colored leaf blades. Affected patches are typically pink in color and range from 1 to 6 inches in diameter. **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 Armada, Banner, Bayleton, Chipco 26GT\*, Compass, Curalan\*, Eagle, Endorse, Headway, Heritage, Insignia, ProStar, Rubigan, Tartan, Trinity or Touche per manufacturer's recommendations (\*not for use on residential properties).

### Stripe Smut

This disease, caused by the fungus *Ustilago striiformis*, is still apparent 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 of a penetrant fungicide such as Armada, Banner, Bayleton, Eagle, Rubigan, Tartan, or thiophanate-methyl. Follow label directions carefully for best results.

### Summer Patch

Although it's still spring, now is the time to initiate an effective chemical and cultural control program for **summer patch**. This disease, caused by the fungus *Magnaporthe poae*, can be controlled through the use of good cultural practices and the application of a penetrant fungicide. For best results, maintain soil pH at or slightly below 6.0, fertilize turf with ammonium sulfate (during cool weather to avoid phytotoxicity) or sulfur-coated urea, avoid the use of nitrate-based fertilizers (which can enhance symptom severity), and aerify (before symptoms develop) to reduce compaction and decrease disease severity. Fungicides are most effective when applied in mid- to late-May (i.e., when the soil temperatures at a 2 inch depth exceed 65 °F for 5 to 6 consecutive days) and then repeated two additional times at 28 day intervals. To optimize control, apply Armada, Banner, Bayleton, Compass, Disarm, Eagle, Headway, Heritage, Insignia, Rubigan, Tartan, thiophanate-methyl or Trinity in 4 to 5 gal water/1000 ft. If products are delivered in lower water volumes (e.g., 2 gal water/1000 ft<sup>2</sup>), irrigate with 1/8 inch of water immediately following application to enhance disease control.

### 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 Adelpia Research Farm, Freehold, NJ). Additional information and directions to each location will appear in future issues of this newsletter. □

## Plant Diagnostic Laboratory Update

Richard J Buckley, Laboratory Coordinator

### Turfgrass

It slowed down considerably in the turfgrass arena as the cold and wet weather of the last month turned summer-like in recent days. We did have a couple more **yellow patch** samples before the change in the weather, but at this point, we think that this is the end of the run for that disease. Bentgrass samples from north-Jersey and Connecticut were diagnosed this week with **take-all**. We also had samples of suspect take-all from golf courses in Colorado and Virginia that turned out to be **fairy rings**.

### Ornamentals

Ornamental plants are the big story this week. The cavalcade of winter damage has waned and been replaced by the leaf diseases. It rained extensively during the budbreak period this year and we have reaped the glory of disease.

**Anthracnose** diseases on shade trees are prevalent. In my travels, I have seen anthracnose on sycamore, dogwood, maple, and ash, but the real severe disease this season can be found on the oaks. Red and pin oaks, mostly from central-Jersey counties, were submitted with vigor over the last week that all had spectacular cases of anthracnose. A red oak here on the turf farm is already partly defoliated.

**Fire blight** is the other extremely severe disease this spring. Last season was a good year for the disease, but this year it is amazing. Ornamental pears everywhere I look have extensive spur blight and many have significant branch dieback from last season's infections.

Last report we talked about the large numbers of samples with **scale insects** in the laboratory. That trend has continued with samples of **juniper scale**, **white peach scale**, and **oystershell scale**. We also identified several plant samples with damage from borers. **Bronze birch borer** was found in a white birch sample from Somerset County; and **roundheaded appletree borers** and lots of **shot hole borers** were identified in a serviceberry sample from Atlantic County.

### Nursery and greenhouse

In the nursery, a **downy mildew** was found on sweet woodruff and **botrytis** caused cankers and twig dieback on rose samples submitted from Cumberland County. Anthracnose was diagnosed on a sample of vinca from a Gloucester County operation. Most spectacular of all were the samples of **Swiss needlecast** from a Burlington County Christmas tree nursery. Swiss needlecast is a disease of Douglas fir caused by the fungus *Phaeocryptus gaumanni*. The disease is relatively rare in New Jersey production because it is easily controlled by the treat-

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ment program for **Rhabdocline needlecast**. In the last couple years; however, we have begun to see the pathogen with increasing frequency. According to the folks at the Pennsylvania Department of Agriculture Christmas Tree IPM program, good control of Swiss needlecast usually takes one more fungicide application than we normally use for Rhabdocline. Most Christmas tree growers in New Jersey don't add the extra treatment, which I believe is why we are starting to see the disease creep into our plantations. Swiss needlecast looks a lot like winter injury or some other abiotic stress when looking at an entire tree. Take a closer look at the needles and the fruiting bodies of the fungus can be clearly seen on the undersides of the scorched needles. Needlecast diseases do just that - cause the needles to cast. Subsequent defoliations of your trees will



kill them. It might be prudent at this point to simply add the extra spray to your program and prevent the problem from building on your farm. □

ANTHRACNOSE FROM PAGE 3

Princess, and Ozark Spring) in shaded sites. If desired, compounds such as azoxystrobin, Junction, maneb, mancozeb, Spectro, Stature, and SysStar are labeled for spot anthracnose management and may be applied on a preventive basis. Consult pesticide labels for timing and rates.

**Dogwood (or Discula) anthracnose**, caused by the fungus *Discula destructiva*, is a more serious disease of flowering dogwood. This disease has been evident in New Jersey landscapes for more than 20 years and appears to be particularly troublesome this spring. Like spot anthracnose, dogwood anthracnose spreads as spores from previously infected tissues are splashed to new growth in the spring. The fungus is also spread by insects and birds. Dogwood anthracnose is favored by cool (65 to 75°F), wet weather and is more severe on trees in heavily shaded sites.

Unlike spot anthracnose, however, dogwood anthracnose can be lethal to affected trees. Symptoms of dogwood anthracnose include extensive lower branch dieback and noticeable leaf spots and blotches that appear as tan lesions with purple borders. Diseased trees often have clusters of water sprouts on the main trunk. Leaves on these trunk sprouts can become infected by the pathogen, which then grows down the sprout to enter the main stem, forming a canker. As anthracnose progresses, branches die from the ground upward and the tree is eventually killed. Drought stress and winter injury can increase disease severity.

For best results, remove dead or cankered branches during dry weather, control borers and leaf infecting fungi, and maintain growing conditions that reduce drought stress (such as mulching and watering during dry periods) but also keep leaf wetness to a minimum (planting in partly sunny locations and avoiding overhead irrigation). To control the leaf spot phase of this disease, apply chlorothalonil, copper (hydroxide, metallic, oxychloride, salts, sulfate), Junction, mancozeb, maneb (when buds open, when bracts fall 4 weeks later, and in late summer), myclobutanil, propiconazole, or Stature according to label timing and rates. Consider also using resistant plant material. The flowering dogwood Appalachian Spring is considered resistant to dogwood anthracnose, and under normal growing conditions, Kousa dogwood (*Cornus kousa*) is less susceptible to the disease and may offer an alternative. Some *Cornus florida* x *Cornus kousa* hybrids in the Stellar series (Aurora, Celestial, Constellation, Ruth Ellen, Stardust, and Stellar Pink) also have some degree of resistance to dogwood anthracnose. □

# Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal, averaging 62 degrees north, 63 degrees central and 63 degrees south. Extremes were 87 degrees at several locations on the 23rd and 24th, and 32 degrees at Flemington on the 19th. Weekly rainfall averaged 0.60 inches north, 0.19 inches central, and 0.01 inches south. The heaviest 24 hour total reported was 1.26 inches at Belvidere on the 24th to 25th. Estimated soil moisture, in percent of field capacity, this past week averaged 89 percent north, 78 percent central and 71 percent south. Four inch soil temperatures averaged 56 degrees north, 57 degrees central and 61 degrees south.

Weather Summary for the Week Ending 8 am Monday 5/25/ 9										
WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	1.32	8.83	-1.86	84	33	62.	0	370	115	100
CANOE BROOK *	.00	5.94	-5.86	87	36	65.	3	299	69	82
CHARLOTTEBURG	.25	7.82	-3.81	78	38	58.	-1	329	180	78
FLEMINGTON	.54	10.39	-.80	86	32	63.	1	439	195	93
NEWTON	.87	6.80	-3.54	85	34	61.	1	365	181	93
FREEHOLD	.12	10.31	-.84	86	37	64.	0	454	154	74
LONG BRANCH	.12	11.26	-.25	84	39	62.	0	352	93	66
NEW BRUNSWICK	.26	10.03	-.93	86	34	64.	0	441	112	80
TOMS RIVER	.06	10.11	-1.03	87	36	62.	-1	375	93	66
TRENTON	.39	8.66	-1.43	84	37	63.	-2	500	135	68
CAPE MAY COURT HOUSE	.00	10.14	.36	82	39	61.	-2	460	137	59
DOWNSTOWN	.00	8.73	-1.32	87	35	63.	-2	480	102	59
GLASSBORO	.05	12.27	1.59	86	36	64.	-1	493	131	67
HAMMONTON	.00	8.04	-2.35	87	37	64.	-1	539	185	53
POMONA	.00	11.01	1.30	86	39	63.	0	521	221	51
SEABROOK	.00	9.20	.02	84	37	63.	-2	496	113	59
SOUTH HARRISON *	.00	2.66	-7.24	85	39	65	NA	NA	NA	NA

\* missing several weeks of data  
WES KLINE -- GDD BASE 40 PINEY HOLLOW LAST WEEK 149 (Ending 5/18/09) THIS WEEK 164 (Ending 5/25/09)  
TOTAL UNITS BASE 40 FOR FEBRUARY=55

Belvidere Bridge	Warren
Canoe Brook	Essex
Charlotteburg	Morris
Flemington	Hunterdon
Newton	Sussex
Freehold	Monmouth
Long Branch	Monmouth
New Brunswick	Middlesex
Toms River	Ocean
Trenton	Mercer
Cape May Court House	Cape May
Downstown	Gloucester/Atlantic county line
Glassboro	Gloucester
Hammonton	Atlantic
Pomona	Atlantic
Seabrook	Cumberland
South Harrison	Gloucester

Note: The table to the left provides the counties where the weather stations are located in the Weekly Weather Summary.

FIRST CLASS  
POSTAGE PAID  
PERMIT #576  
MILLTOWN, NJ 08850

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### **Newsletter Production**

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**RUTGERS**

**Pesticide User Responsibility:** Use pesticides safely and follow instructions on labels. The pesticide user is responsible 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.

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