

PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

AUGUST 9, 2007

Ornamental IPM Pest Notes

Steven K. Rettke, Ornamental IPM Program Associate



✓ **MAGNIFYING HAND LENS (Don't Walk the Landscape Without One):** Of the many helpful tools that an IPM scout uses, arguably the most important may be a magnifying hand lens. Improving the abilities of the eyes to see the tiny world of insect and disease organisms will improve IPM decision-making in the field.

A hand lens is a tool that magnifies the small area of interest and can conveniently be placed in a pocket or worn around the neck, where it is always handy. Landscape pest managers *not* routinely using the aid of a hand lens are working at a great disadvantage. Once it is discovered how valuable the proper use of a hand lens is when monitoring, it soon becomes an indispensable tool.

Since the early detection of a plant pest is important in any IPM program, the use of a hand lens enables the pest to be detected before obvious damage appears on the plant. Also the pest population can more readily be evaluated when magnification is used.

✓ **MAGNOLIA & TULIPTREE SCALE:** Although most soft scale crawlers hatch and emerge during the late spring and early summer, the magnolia and tuliptree scale species have active crawlers during the early fall season. During the month of August, mating occurs and eggs are laid under the protective female cover. It is also at this time when large populations create copious amounts of honeydew which produce the black sooty mold and attract ants, bees and wasps. The egg laying and honeydew production continues to occur well into the month of September.

Unfortunately, many landscapers make the mistake every year of applying controls against these soft scales during the weeks of August and early September. During the final weeks of summer, the eggs are still present under the female and sprays are not effective. With small trees, it is possible to physically remove adults before eggs hatch and crawlers emerge. When this is not practical and treatments are required, wait until all crawlers have emerged and then apply horticultural oil or a residual insecticide. The next best timing of a spray material therefore may not be until next October. A dormant oil spray in late winter or early spring that targets the over-wintering black nymphs on the bark is also effective.

✓ **WARM SEASON SPIDER MITES:** The honeylocust mite, as well as the two-spotted mite, oak spider mite, and the boxwood mite are some of the common "warm season" landscape mites species most active during the summer season. The honeylocust, boxwood and oak

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mites are all primarily host specific to their namesake (the oak spider mite will also feed on chestnut). Alternatively, the two-spotted spider mite usually receives much of the attention during the summer months, because of its cosmopolitan nature. Its hosts include perennials, many shrubs (especially winged euonymus), shade and fruit trees, vegetables, roses, etc. The two-spotted mite is also a serious greenhouse pest.

The honeylocust mite is most prevalent on thornless varieties of honeylocust. The overwintering females are orange to red and found on the bark. These adults begin to feed and deposit eggs at or before budbreak. Actively feeding forms are light to dark green with dark sides (may closely resemble two-spotted mites). Populations peak in late spring and again in late summer after a collapse during the mid-summer period. Many over-summering eggs may be present during the hottest weeks of summer. These mites produce very little webbing.

The boxwood mite produces distinctive streaking or comma-shaped spots on the upper surface of the leaves. This linear streaking pattern is similar to the feeding damage done by thrips. Boxwood mites usually build populations during high temperatures with low humidity. With large numbers, their feeding damage can cause bronzing and eventual leaf drop. Boxwood mites can feed for long extended periods during the season. The eggs hatch in early April, and with 8 generations per year, may be active well into September. Overwintering eggs are lemon yellow in color and have a sculptured appearance.

The oak spider mite will feed on oak (especially English oak and members of the white oak group) and chestnut. The adults are dark green or reddish-brown (the color of any spider mite species is often dependent on the host plant and the quality of nutrition that the plant provides). The oak mite feeds only on the upper side of leaves (an exception to the rule), near the base and spins considerable amounts of webbing. The feeding damage produced is a bronzing of the leaves that from a distance is similar to the injury caused by the oak lace bug or from classic leaf scorch. Closer inspection will determine the identity of the problem.

During the hot summer months, two spotted mites can cause significant damage to winged euonymus/ burning bush (*Euonymus alatus*). Infestations began to build-up during the month of June on the lower leaves, causing a pale white discoloration. With high populations, foliage throughout the plant turns a reddish-brown coloration by July/August. Note that these same symptoms can be similar to plants experiencing physiological stress. When monitoring these plants, always check for spider mite presence by using a beating tray and a magnifier. Make sure live mites are present before treating!

Early detection of two spotted mites on burning bush is critical to prevent the discoloration and premature defoliation. Plants known to have had a history with this pest should be monitored at least every two

weeks throughout the summer months. Proper timing of chemical controls should give excellent results. The many-labeled contact miticides will usually work well when coverage is complete. Avid, a biorational product, is systemic in action, and has proven excellent results. Horticultural oil can be effective if used cautiously (be careful of drought stressed plants and hot/humid weather) and targeted to the under sides of leaves. Insecticidal soaps are generally considered less effective than oils, and typically require numerous weekly applications.

✓ **APHIDS:** Although most of the aphid species that were present this spring on the new growth of many plants (e.g., burning bush and *spirea*), they have long ago left to feed on alternate hosts. However, many shade trees (maples, oaks, lindens, birches, tulip poplars, etc.) still have populations of aphids. When encountered, first consider if the pest is presenting an aesthetic problem. Is the honeydew/sooty mold an eyesore on the tree or is it a nuisance, appearing on objects under the tree such as a car, patio furniture, or the house. Aphids rarely threaten the health of the tree, particularly later during the season. Action is only necessary if the customer is upset or inconvenienced by the presence of honeydew or sooty mold. If left alone, predators may maintain the population within acceptable levels.

✓ **BOXELDER BUG HOSTS:** Boxelder bugs are dark sucking insects with red wing markings/abdomens that build up large populations in late summer/early fall. Boxelder bugs are considered to be a nuisance pest because of their habit of gathering in large numbers in sunny southern locations (such as your front door) as well as overwintering inside dwellings (such as your attic). Many older publications state that the sole plant reproductive host of the boxelder bug is the female boxelder tree (a type of maple that often grows wild). Control measures were targeted at finding and removing this plant host, although this often resulted in poor long-term control.

For over a decade there have been many reports of boxelder bugs feeding and breeding on different plants. The following is a list of plant hosts documented as a food source for boxelder bugs: apple, cherry, plum, peach, pear, grapes, almond, pistachio, strawberry, tulip, ash, pin oak, tree of heaven (*Ailanthus*), mulberry, elderberry, iris, hollyhock, peony, asparagus, ampelopsis, geranium, cacti, lilies, coleus, ageratum, pigweed, crabgrass, and foxtail grass. (Reference: R. Rosetta, Oregon State; D. Shetlar, Ohio State)

✓ **Is it Necessary to Control Cooley Spruce Gall Adelgids within Nurseries and Christmas Tree Farms Every year? :** The damage done to Douglas firs from the Cooley Spruce Gall Adelgid (CSGA) is typically a major concern within both nurseries and especially Christmas tree farms. The distortion and white webbing on infested needles of the Douglas fir is aesthetically unacceptable to the buyer. Nevertheless, studies have shown that this

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pest does not affect growth and vigor of the trees. Also, the feeding injury by the CSGA does not cause premature needle drop. In production settings the appearance of the ornamentals to be sold is not critical until the year of sale. Therefore, it only becomes necessary to apply control materials against the CSGA until a season or two before the projected year of sale. Two seasons of undamaged needles will more than adequately mask the damage done to the inner foliage during previous years.

The Colorado spruce (especially the blue colored forms) is the alternate host of the Cooley spruce gall adelgid. The feeding by the insect produces a gall that forms at the twig terminals and makes pruning-out of the "pineapple" shaped galls relatively easy. The gall formations begin in the spring during twig elongation. During June, the green colored galls may grow to a size of two inches in length. By July, the galls begin to open-up and typically become brown in color. Removing and disposing the galls before they open can provide effective physical controls.

✓ **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.

✓ **Start-Up IPM Programs Should Not Attempt Too Much Too**

Soon: An over commitment to IPM too early can lead to financial risks and poor results. Most beginning programs should probably start slowly the first year and on only a small percentage of the total client base (i.e., perhaps only 5% or less). This conservative approach is particularly important if doubts and reservations exist about the success and profitability of the IPM philosophy. As confidence and knowledge increase over the years, then the percentage of total clients having their landscapes managed with IPM methods can and should gradually increase.

✓ **REDHEADED PINE SAWFLY:** These caterpillar-like pests will be active through mid-October on 2 and 3 needle pines (e.g., mugo, Scots, Japanese). Larvae feed in groups on individual branches and may cause defoliation. Prune out clusters of small sawfly larvae or drench with soap. Oil can be effective on young instars. Orthene and other contact materials also work well. Remember, B.t. (*Bacillus thuringiensis*) will not control sawflies.

✓ **TWO-BANDED JAPANESE WEEVIL (1644-2271 GDD = 1st adult emergence):** This flightless weevil prefers shrubs such as privet, azalea, rhododendron, mountain laurel, euonymus, and many others. Adults chew notches in leaf margins similar to the black vine weevil, except the two-banded Japanese weevil typically feed deeper toward the mid-rib. Another difference is that they feed during the day (the black vine weevil feeds at night, especially during dusk).

Adults are about 3/16 inch long, round, and are brown to gray with two darker bands across the wing covers. Look for leaf notching damage on lower leaves beginning in late July. Control with acephate (Orthene) or a pyrethroid (e.g. Talstar) when the adults are actively feeding, and/or handpick or trap by laying a white sheet under the affected shrub and shaking the shrub. □

Yellow Tuft

This disease, caused by the fungus, *Sclerophthora macrospora*, is present on greens and irrigated landscape turf at this time. **Yellow tuft** (=Downy Mildew) occurs on almost all cool-season turfgrasses; however, it is usually only a serious problem on turf maintained at a low cutting height. Poorly drained or heavily irrigated sites are often associated with disease development. Infected turf appears stunted, off color (yellow to light green), and may exhibit slightly broadened leaf blades and dense clusters of shoots. Patches ranges in size from 0.25 to 1 inch in diameter for bentgrass and red fescue turfs, and 0.5 to 3 inches for Kentucky bluegrass and perennial ryegrass areas. Tufts are easily removed from the soil due to the absence of adventitious roots. To control, improve drainage, avoid over-watering, mow only when the grass is dry, apply iron sulfate to mask symptom expression, and spray turf with Chipco Signature, Insignia, Prodigy, or Subdue MAXX now or on a preventive basis from late March to early June. □

Treating pruning wounds:

- Wound dressings are primarily cosmetic and do not stop decay. A product called Lac Balsam is used by some arborists and may stimulate callus formation. Otherwise, painting over wounds is generally not recommended.

Treating old wounds:

- If callus (wound-wood) has begun to form, carefully remove the old bark until the wound-wood zone is found. Do not cut into the fresh growth or shape the wound.
- If wound-wood is absent, treat the wound as if it were a recent injury.

Submitted by Ann B. Gould, Ph.D., Specialist in Plant Pathology. □

Diseases of Turfgrass

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

General

Anthracnose, brown patch, gray leaf spot, Pythium blight, dollar spot, Bipolaris leaf spot, summer patch, fairy ring, and slime mold are all active at this time. Refer to recent issues of this newsletter for complete disease control information.

Brown Patch

This disease, caused by the fungus *Rhizoctonia solani*, is very common on tees, greens, and home lawns due to the recent hot, 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 Armada, Banner, Chipco 26GT, chlorothalonil, Compass, ConSyst, Curalan, Disarm, Eagle, Endorse, Headway, Heritage, Insignia, mancozeb, Medallion, Prostar, Spectro, Tartan, thiophanate-methyl, Trinity, or Touche per manufacturer's recommendations.

Fairy Ring

This disease, caused by a group of fungi known as *basidiomycetes*, is visible on many golf greens and home lawns at this time. Symptoms typically appear as continuous or interrupted rings of dark-green turf. Mushrooms, which are often associated with fairy ring, usually develop in the spring and fall. Although fungicides are not effective against all species of the fungi that cause fairy ring, Prostar, Headway, Heritage and Insignia have provided good control in many university tests. For best results, maintain adequate soil moisture and fertility to mask symptom expression. Spike affected turf prior to irrigation and the application of fungicides to enhance water movement into the soil profile. The use of surfactants may enhance fungicide efficacy and aid in symptom suppression.

Gray Leaf Spot

Gray leaf spot, caused by the fungus *Pyricularia oryzae*, has been reported in Southern and Central Jersey during the past two weeks. This disease has devastated many new 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 twist and curl in a "J-shape" 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°F days and 60-75°F nights), wet weather. Newly established seedings are more susceptible to infection than mature plantings, so be sure to use perennial ryegrass cultivars (e.g., APR 1668, Barlen-

nium, Palmer IV, Palmer GLS, Panther GLS, Paragon GLR, Peregrine, Pinnacle II, Prelude GLS, Prelude IV, PST-2AM, PST-2MNG, SR4220, SR4550, Silver Dollar, or Repell) with improved resistance to **Gray Leaf Spot** when overseeding or establishing new areas. When conditions are conducive to disease development the pathogen produces abundant one to two-celled, pear-shaped spores (conidia). To suppress this disease, avoid high rates of nitrogen (i.e., do not apply more than 0.25 lb per 1,000 sq ft) during July and August and avoid extended periods of leaf wetness (i.e., do not water between 6 PM and midnight). Fungicide studies have shown that Armada, Compass, ConSyst, Disarm, Headway, Heritage, Insignia, Spectro, Tartan, and thiophanate-methyl have been 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 (e.g., Banner or Bayleton), may provide effective control when disease pressure is moderate. Isolates of *P. oryzae* resistant to the QoI (Strobilurin) fungicides and strains with reduced sensitivity to the DMI's have been reported in New Jersey, so alternate fungicide chemistries to reduce the potential or fungicide resistance.

Pythium Blight

Pythium blight continues to be reported on golf and landscape turf. Since **pythium** thrives in low or poorly drained areas, especially when the night temperatures are above 68°F, we should see more of this disease if the "hot, muggy" weather continues this summer. For best results, improve drainage, water in the morning hours, avoid over fertilization, and apply Alude, Banol, Chipco Signature, Disarm, Headway, Heritage, Insignia, Koban, Magellan, mancozeb, Prodigy, Quell, Subdue MAXX, Terrazole or Vital Sign according to the manufacturer's recommendations.

Summer Patch

This has been one of the worst years for summer patch since the late 1980's due to the extremely hot, humid weather. Summer patch can be troublesome on Kentucky bluegrass, annual bluegrass, and fine fescue turf. To control existing infections, apply Armada, Banner, Bayleton, Compass, Disarm, Eagle, Headway, Heritage, Insignia, Rubigan, Tartan, Trinity, or thiophanate-methyl in 4 to 5 gal of water/1000 ft². Repeat every three to four weeks (every two weeks if using thiophanate-methyl). If fungicides cannot be applied with this much water, irrigate them into the thatch immediately with 1/16 to 1/8 inch of water. Aerification (when symptoms are not present) and improved drainage will also aid in disease suppression. Soil pH should be maintained at or slightly below 6.0 for optimum disease control.

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Wounds and Wood Decay of Trees

John Hartman, Ph.D., Extension Plant Pathologist, University of Kentucky

Reprinted from *Kentucky Pest News No. 1138, University of Kentucky College of Agriculture, July 30, 2007.*

Windstorms, snow loads, and layers of ice can occasionally result in many broken tree limbs and downed trees in the landscape. Much of the fallen wood comes down because the interior of the branch or tree was decayed, but branches with no decay also break and fall. Wood decay in trees almost always begins with an injury to the tree.

Wounds of many types can occur on landscape trees. Weather-related broken branches are significant, but bark injuries, pruning stubs, “too flush” pruning cuts, and cut or damaged roots are also associated with decay problems. One of the most frequent causes of damage to trees in the landscape comes from lawn equipment. Mowers and string trimmers can damage the bark, and if continued, will result in visible wounds at the base of the trunk. Besides restricting the movement of water and nutrients, these wounds become points of entry for insects and wood decay microorganisms.

When an injury or break in the bark exposes the underlying wood, bacteria and fungi in the air, in nearby soil, and on the bark contaminate the wound surface. At the same time, the tree responds to the wound by producing chemical and physical barriers in an attempt to block the invasion of microorganisms and to seal off the damaged area. Organisms which are able to overcome these protective barriers can then colonize and invade the wounded tissues. Among these organisms are the wood decay fungi.

Not all wounds result in extensive decay since trees are frequently able to successfully “compartmentalize” or “wall-off” the decayed area. In many cases, the formation of internal barriers to fungal movement and infection can prevent the decay fungi from spreading. The ability of a tree to internally compartmentalize decay differs from one individual tree to another, although it is also influenced to some extent by tree vigor. Wound-wood provides an external barrier to decay once the wound has completely closed over. The formation of wound-wood may be an indicator of relative tree vigor but it is not necessarily indicative of the tree’s resistance to the internal spread of decay. Extensive internal decay may exist behind a well-sealed wound.

The severity of the wound, the tree’s vigor and the tree’s inherent ability to compartmentalize are important factors in determining the rate the tree is able to seal off the wounded area. Other factors such as time of the year, type of organisms present, and position of the wound also play a role. A healthy tree will normally

respond more quickly than one that is stressed. Small wounds may take a growing season to close, while larger wounds may require several growing seasons to close.

The presence of mushrooms at the base of the tree, or conks (bracket or shelf-like fungal structures) on the trunk or branches are the most certain indicators of decay. The absence of these obvious fungal structures (also referred to as “fruiting bodies”), however, does not mean the tree is free of decay; fruiting bodies of some decay organisms do not appear until decay is well advanced while others may go unnoticed because they are small, short-lived, hidden or produced infrequently. Other indicators of decay include old wounds, hollowed out areas, and abnormal swellings or bulges. Decayed wood is usually soft, white, spongy, stringy, and friable; or brown and brittle. Since decay structurally weakens the wood, affected trees become susceptible to wind or other storm damage.

Control. There are no controls or cures once wood decay has begun. Decaying trees should be removed when they become potentially hazardous.

Preventive measures.

- Protect trees and shrubs from injuries due to human activities: Choose a planting site that is away from potential causes of wounds (i.e., away from walkways, driveways, roads). Give the tree plenty of space for growth to maturity. Protect the tree from lawn equipment by controlling the grass and weed growth at the base of the tree. Hand weeding is good, but labor intensive; applying a layer of mulch around, but not against the trunk is most helpful. A plastic tree guard will also protect the trunk, but it should be removed when the trunk diameter approaches that of the tree guard.
- Use proper pruning techniques: Prune out injured and diseased branches as soon as they are found. Prune as close as possible to the connecting branch or trunk without cutting into the branch collar. Never leave pruning stubs because these will seldom close over. Do not top trees.
- Practice sanitation: Remove prunings from the tree and do not leave dead wood nearby.

Treat wounds properly and immediately. Treating recent incidental wounds:

- If immediately after the wounding event, the bark and cambium are still moist, carefully press the bark back onto the trunk, making sure the pieces are fitted into their original positions on the tree. If possible, cover the wound with plastic and shade it from the sun to keep it from drying. Secure the bark piece(s) in place using soft cloth strips tied around the tree.
- Carefully break away any dry, loose, injured bark. Using a sharp knife, cut back to healthy bark. Make a clean edge between the vigorous bark and exposed wood; even if the wound shape is irregular, avoid cutting into healthy bark.

SEE WOOD DECAY ON PAGE 3

Plant Diagnostic Laboratory Update

Richard J Buckley, Laboratory Coordinator

Turfgrass

Aha! Finally we get some dog days of summer. Heat and humidity, heavy rains and high night temperatures caused an explosion in turf disease over the last week to ten days. Too bad it is looking like these dog days are going to be short lived during this unusually easy summer for most of us managing turf stands. I am trying to enjoy each moment of the carnage because I think it will be over as fast as it started.

Picking up where we left off last time, **gray leaf spot** is our most interesting submission. Gray leaf spot was diagnosed yesterday on samples of perennial ryegrass from a local professional baseball field. The bluegrass field was being overseeded with ryegrass to repair the areas the outfielders tore up standing around between plays. The new seedlings were subsequently hammered by the disease.

Otherwise, we have had the typical summer cavalcade of golf turf samples with **summer patch** (New York, Pennsylvania, and Burlington, Somerset, Middlesex Counties); **pythium root dysfunction** (Atlantic, Ocean, Somerset Counties, and New York); **take-all** (Virginia); **anthracnose** (Passaic, Bergen, Union Counties, and Wyoming); **dollar spot** (Middlesex, Passaic Counties, and New York); **brown patch** (Burlington and Somerset Counties); and **slime mold** (Staten Island).

In home lawns we are seeing **dollar spot**, **brown patch**, **red thread**, and **slime molds**. Each rain also brings a fresh crop of **crab grass** in most lawns!

Ornamentals

Samples of ornamental plants are usually slow at this time of year. I did notice the oaks in Central Jersey suddenly are exhibiting symptoms of **bacterial leaf scorch**. If you suspect that disease, submit samples for verification now. In elm, a sample was submitted with **black spot**, which is caused by the fungus *Stegophora ulmea*. Black spot used to be the main problem with elm before **Dutch elm disease** came along. A new planting of white pine from Somerset County landscape was infested with **white pine weevils**. This weevil attacks pine, spruce, and Douglas fir and is quite fond of new plantings. Cankers were represented in the lab with **nectria canker** identified on beech from Mercer County, **botryosphaeria canker** on Prunus also from Mercer, and **cytospora canker** on a Leyland cypress from Long Island. □

Cream Ridge Nursery Research & Extension Meeting

Thursday, August 16, 2007

1:30 p.m. to 6:30 p.m.

Rutgers Fruit Research & Extension Center
283 Route 539, Cream Ridge, NJ

Agenda

- 1:00 Registration
- 1:30 "Variable Costs of Producing Nursery Crops" by Dr Robin Brumfield, Specialist Farm Management, Rutgers University
- "Mycorrhizae and their Function" by Dr. John Dighton, Soil Ecologist, Director Rutgers Pinelands Field Station
- "Intergration of Mycorrhizae in Nutrient Management Schemes for Nursery Crops by Dr. Gladis Zinati, Specialist, Nursery Management, Rutgers University
- "Emerging Insect and Disease Pests of Concern to New Jersey Nurseries by Carl Schulze, Division of Plant Industry, NJDA
- "Nursery IPM Scouting - The Fundamentals" by Steve Rettke, IPM Program Associate, Rutgers University
- "Pesticide Record Keeping Update" by Dr. George Hamilton, Specialist, Pest Management, Rutgers University
- 4:00 Outside Field Tour - where you will see:
- Nursery Crop Research
 - Plant Variety Trials
 - Ornamental IR-4 Trials
 - Field Pest Diagnostics and more
- 5:30 Pesticide Credits, Evaluation, SOCIAL TIME AND FOOD (sandwiches, salads & beverages)

COST: FREE!

Pesticide License Recertification Credits: (anticipated) CORE-1, PP2-4, 3A-4

**Pre-registration is required, deadline is August 14, 2007

** To register, call Monmouth County Extension Office 732-431-7260 or 7261 by Tuesday, August 14, 2007

This program is sponsored by Rutgers Cooperative Extension of Monmouth County in cooperation with the New Jersey Nursery and Landscape Association. □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much above normal, averaging 77 degrees north 78 degrees central and 80 degrees south. Extremes were 96 degrees at Hammonton, Seabrook and Pomona on the 3rd, 4th and 5th, and 59 degrees at Newton on the 6th. Weekly rainfall averaged 0.59 inches north, 0.01 inches central, and 0.66 inches south. The heaviest 24 hour total reported was 1.04 inches at Cape May Courthouse on the 30th to 31st. Estimated soil moisture, in percent of field capacity, this past week averaged 82 percent north, 72 percent central and 56 percent south. Four inch soil temperatures averaged 76 degrees north, 77 degrees central and 78 degrees south.

Weather Summary for the Week Ending 8 am Monday 8/ 6/ 7										
WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
CANOE BROOK	.91	34.69	13.09	95	65	79.	6	2107	417	78
CHARLOTTEBURG	.92	25.85	4.07	91	60	75.	4	1826	506	80
FLEMINGTON	.07	27.16	6.26	95	62	78.	5	1988	252	76
NEWTON	.45	21.42	1.40	89	59	75.	3	1796	258	74
FREEHOLD	.00	27.52	7.23	94	63	77.	3	2166	308	71
LONG BRANCH	.00	27.51	7.26	91	63	77.	3	1947	168	52
NEW BRUNSWICK	.05	30.75	10.44	93	63	78.	4	2095	152	77
TOMS RIVER	missing									
TRENTON	.00	24.25	4.84	94	66	79.	3	2186	159	36
CAPE MAY COURT HOUSE	1.46	13.80	-4.18	92	66	78.	2	2072	172	67
DOWNSTOWN	.10	17.36	-1.64	96	64	79.	3	2197	158	39
GLASSBORO	.60	21.44	1.47	95	69	82.	6	2435	422	58
HAMMONTON	.77	17.60	-2.43	96	65	80.	4	2259	247	55
POMONA	.07	17.45	-.70	96	66	79.	5	2193	315	39
SEABROOK	.42	17.79	-.54	96	67	81.	5	2433	387	49
SOUTH HARRISON	.46	20.73	.63	95	67	80	NA	2341	NA	NA
WES KLINE -- GDD BASE 40 PINEY HOLLOW										
LAST WEEK	239 (Ending 7/30/07)									
THIS WEEK	279 (Ending 8/6/07)									

