RUTGERS COOPERATIVE EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION $1.50 MAY 31, 2007

INSIDE

Landscape IPM Pest Notes

Steven K. Rettke, Ornamental IPM Program Associate

✔ **SPRUCE SPIDER MITES:** These tiny mites thrive in cool spring weather (although heavy rains can do them in!), and have been active all spring. Damage often does not become noticeable (bronzing, obvious stippling) until plants are stressed with hot weather and when this occurs it's typically too late to do much. They will continue to feed on spruce, arborvitae and other conifers until temperatures settle regularly into the mid to upper 80's, after which they will lay eggs that won't hatch until the fall. Spraying is only recommended if damage exceeds 10% of foliage (especially at this late point in their life cycle) or if 15-20 active mites are tapped (on average) from branches onto a beating tray. Use your hand lens to look for the small round eggs. Control with 2% horticultural oil (not on blue spruce) or Hexygon, both of which will kill eggs. Floramite, Avid, Talstar, DeltaGard, insecticidal soap, and Scimitar are some other miticide options. Non-ovicidal miticides often require more than a single application. Keep in mind that Orthene only suppresses mites at best.

✔ **BRONZE BIRCH BORER** (440-800 GDD): Adults of this metallic beetle will become active during the month of June. It prefers to lay eggs on birches (primarily European white, Asian white, paper, and gray birch) that are under stress (drought stress, heat stress, compacted soil, etc.). The bullet shaped, metallic black adult beetles (1/2") lays eggs on branches as well as the main trunk. Monitor for adult activity and last year's exit holes, which are shaped like the letter "D" (1/4"). Symptoms include dieback from the upper branch tips, working down the tree toward the base. Sometimes "ripples" are noticed beneath the bark.

Remember, a borer is present because the tree is already under stress. Relieve stress as much as possible by watering during drought conditions, mulching, fertilizing, controlling birch leafminer, and pruning out dead wood (but not just prior to adult emergence, since adults are attracted to wounds to lay eggs). Pesticide bark sprays are effective when timed to target newly hatched larvae as they chew through the bark into the tree. Astro (permethrin) insecticide treatments offer good control as long as the bark is wet thoroughly, since eggs are laid in many small cracks and crevices. Merit (imidacloprid) applied as a soil injection has also proven to provide effective suppression. Can you re-landscape the site with a resistant variety, the 'Heritage' birch?

SEE IPM NOTES ON PAGE 2

IPM NOTES FROM PAGE 1

✔ **COOLEY SPRUCE GALL ADELGID:** This pest has a two-year life cycle on Colorado spruce (especially green forms), Sitka and Oriental spruce. If noticed, its alternate host (Douglas fir) must be nearby. Over-wintering nymphs on spruce tip buds are migrating to new growth. The combined feeding and salivary secretions induce development of a bright green, oval "pineapple" gall on the terminals (as opposed to galls at the base of new growth on Norway spruce, which is the Eastern spruce gall adelgid). By midsummer, the gall will turn brown and crack open, as the adelgids within mature and emerge as adults. These winged adults migrate to Douglas fir (or another spruce) and spend the summer feeding on the needles, covered with cottony wax. Sometimes Douglas fir is so heavily attacked that needles are spotted, bent or distorted. Two or more generations can occur on Douglas fir through the following season (Christmas tree growers will actually treat Douglas fir when new growth is 3 to 4 inches). By the next fall, another winged generation flies back to spruce and lays eggs for the cycle to repeat itself.

Controls: prune out galls when seen (although galls act as natural pruning!). Place sticky traps out in late summer (Douglas fir) or fall (spruce) to determine timing to spray insecticidal soap + sticker. Dormant oil sprays on spruce in late April (not blue forms) can control over-wintering nymphs.

✔ **BAGWORMS** (600-900 GDD): This caterpillar is native to the United States and is easily identified by the spindle shaped sacks (or bags) that range in size from 1/8 to 2 inches in length depending on its maturity. The insects over-winter as eggs within the female bag. During early to mid-June the eggs hatch and the young caterpillars immediately spin a silken sack about themselves. As they feed, they attach bits of leaves to the bag, enlarging it as they grow. At this time, the bags are small enough to be carried on their backs in a pointed-up position.

Bagworms prefer evergreen conifers (Arborvitae in particular), but will also feed on many deciduous plants, leaving small "shot holes" in the foliage. During the early instar stages, control with B.t. (*Bacillus thuringensis*). By July, bags are large and caterpillar feeding causes defoliation. At this point treat with insecticides such as Conserve, Confirm, Orthene, Mavrik, or Tempo.

Researchers in Kentucky have determined that most newly hatched bagworms disperse away from the 'parental' host plant. This may be because the offspring from only a few bags have the potential to defoliate a small plant. About 75% of immature bagworms disperse by 'ballooning' into the wind, traveling up to 250 feet. Failure to control populations upwind from a susceptible host may leave a potential reservoir of the pest in the future. *(Reference: Cox and Potter, J. Arbor. 9/90)*

✔ **PEACHTREE BORER** (500-600 GDD = Initial Adult Emergence): The steel blue adult clearwing moths have started to emerge now through July. Look for gummy sap mixed with frass on top of the galleries at the base of tree trunks. Use pheromone traps to monitor adult male emergence. Time control measures to hit the young larval stage (i.e., about 10 days after the first adult male is captured) before it bores into the tree. If males are still present after 3 to 4 weeks, then spray again. Drench the trunk with permethrin (Astro T/O), a pyrethroid insecticide. The first peachtree borers were caught in pheromone traps over a week ago in southern New Jersey. Lesser peachtree borers, which attack trees at the lower scaffold branches, are also now active.

✔ **HOLLY LEAFMINER** (246-448 GDD = Larvae Treatment): This pest is an emerged adult, pupa or very young larva now. The presence of puncture type wounds on the new leaves indicates feeding by the adults. The adult female lays eggs in the new leaves that may presently be barely visible. A thread-like mine often starts at the mid-rib of the leaf and eventually meanders around. Little feeding occurs from late spring through much of the summer. The bulk of the damage is done next spring when the larva feeds voraciously, widening the mine considerably. Wait to spray systemic materials (e.g., Orthene) during late summer/early fall or early in the spring to prevent highly visible damage from occurring. Soil injection of imidacloprid (Merit) insecticide is also very effective. Injection timing is not critical as long as soil moisture is adequate.

✔ **JUNIPER SCALE** (707-1260 GDD = crawler emergence): This imported armored scale insect is found on the foliage and twigs of primarily juniper and occasionally arborvitae. The female covers are circular and white (1/16 inch in diameter). The male covers are white and elongated and are even smaller in size. Yellowish cast skins are attached to the surface of the waxy covering of both sexes. Adult females overwinter on the foliage and there is only one generation each year. With light infestations there are often no apparent symptoms. Significant populations of 10 or more scales per ½ inch of twig can result in yellowed foliage and needle drop. Populations that remain unabated will result in dieback and an unattractive plant. Scales usually build-up first on the south side of shrubs or on the side against buildings. With average seasonal temperatures, crawlers start hatching by mid-June and can continue well into July. Controls may not be required if many beneficials are present (i.e., monitor especially for dusty wing predators and for parasitoid emergence holes in scale covers). Dormant oil sprays can be used and summer oils or insecticidal soaps can be targeted against the crawlers. A late summer systemic insecticide such as acephate (Orthene) can be applied if the crawler stage is missed.

✔ **ALLERGIES & PLANT POLLEN:** Spring is the time when most people suffer from allergies because of plentiful pollen in the environment. However, some plants

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produce pollen later in the season: Summer = (aspen/cottonwood, some alders, tree-of-heaven, buckeye, lilac, elderberry, and privet; grasses produce the most pollen in summer); Fall = (pollinating weeds); and Winter = (cedars, junipers, elms, birch, and alder). Pollen is the number one allergen, causing more distress than dust, dust mites, and cats combined. *(Ref.: S. Seargeant, Tree Care Industry, 11/99)*

✔ **PESTICIDES ARE NOT ALWAYS THOUGHT AS UNDESIRABLE:** There is a misconception by some that IPM promoters should focus their marketing efforts toward clients who have pesticide concerns or sensitivities. Many clients who desire landscape services do not have these concerns and expect chemicals to be applied. Furthermore, a completely organic management program (i.e., no synthetic pesticides) may arguably be too limiting and difficult to market on a wide scale. However, although IPM receptive clients do not necessarily have an aversion to pesticides, many have expressed their support for targeted, selective sprays rather than the old, non-thinking traditional cover sprays.

✔ **THE MAGNIFYING HAND LENS IS AN ESSENTIAL TOOL:** 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 insects 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.

✔ **WOOLLY BEECH APHIDS** (350-700 GDD): Woolly beech aphids are found feeding on twigs or the undersides of leaves of beech (especially the European varieties of beech). Aphid bodies are covered with long, white waxy filaments that extrude from their bodies. Look for cast "skins" (old aphid skeletons) attached to the leaves that may give foliage a whitish appearance. Infestations cause leaves to be small, distorted, stunted, and new growth may stop completely. Honeydew and superficial sooty black mold may also be prevalent.

Natural enemies often hold these pests in check, and typically large populations do not cause significant damage, even after consecutive years. Insecticides may be necessary at times. Treatments include horticultural oil, imidacloprid (Merit), and some of the pyrethroids such as Scimitar and Mavrik. Note that the Orthene label states that phytotoxicity often occurs when sprayed onto beech foliage.

✔ **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. ❑

LAB HIGHLIGHTS FROM PAGE 5

Be aware that the tree can create new cambium over infected tissue, so you might have to dig a little to find streaking. Observe the butt end of the branch and you might find previous seasons' disease as discolored rings. Remember no streaks = no disease. The dieback is probably just drought related. ❑

The Relationship of Plant Stress to Plant Disease

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

The pathogen-host relationship

A plant disease is really a relationship, or "dance," between a host plant and an organism that causes disease. Genes in both the pathogen and the host determine whether or not a microorganism becomes pathogenic to a particular plant. These genes also determine how a given host reacts to a given microorganism. These reactions are called **immunity**, **susceptibility**, and **resistance**. Plants can defend themselves in many different ways, and these mechanisms may be in place before the pathogen attacks (**constitutive defense**) or may be "turned on" afterward (**induced defense**) (Table 1).

Immune: cannot be infected by a given pathogen
Susceptible (n. susceptibility): prone to develop disease when infected by a pathogen
Resistant (n. resistance): possessing properties that prevent or impede disease development

Most species of higher plants are immune to the vast majority of microbes with which they come in contact. This type of immunity is called "**non-host**" because the pathogen does not recognize the plant as a source of food. In susceptible and resistant relationships, however, the pathogenic organism does recognize the plant as a food source. During the attack process, the pathogen excretes enzymes and toxins which start to degrade plant cell walls. Small molecules released as a result of this early infection serve as "signals" to both the pathogen and the host plant: the pathogen produces more enzymes and toxins, and the host plant may or may not respond by turning on its host defense response.

Impact of the environment

The plant-pathogen "dance" is strongly influenced by the environment. Environmental conditions can either promote or interfere with the entry process (or invasion) of a microorganism into plant tissues. Environmental conditions can also impact the well-being of the host itself. Since plant defense is a biological process, the stress from the environment can affect the manner in which a host plant reacts to a given disease agent.

Many environmental factors serve to predispose a plant to disease. **Predisposition** is defined as the tendency of external, non-genetic factors (such as the environment), acting prior to infection, to affect the susceptibility or resistance of a plant to a disease agent.

So what are the most common environmental factors that predispose plants to disease? The list includes drought, excess moisture, temperature extremes, nutrient imbalance, wounding, and chemicals such as weed killers and pollutants.

Temperature. Plants grow best from 1 to 40 C (optimum at 15 to 30 C). This optimum varies with plant species, stage of growth and plant part. It is very common for plants to be exposed to temperatures outside their normal range. Low temperature stress (freezing or chilling) interferes with cellular processes and can cause frost damage. Fluctuation in temperature can impact plant acclimation to cold temperatures. High temperature stress, which most often occurs in an artificial environment, affects the action of enzymes and can denature proteins.

Moisture. Both insufficient moisture and excess moisture can harm plants. Drought stress occurs when water loss from the leaves exceeds water uptake in the roots. This stress is the most damaging to plants and is responsible for more plant troubles than any other environmental factor. Drought can do both short-term and long-term damage to plants by reducing photosynthesis, shrinking tissues, impacting water transport (which results in wilt and scorch), and impairing root function. In the long-term, plants stressed by drought are predisposed to attack by many organisms that cause plant disease. Drought stress combined with temperature stress can cause summer drying or winter burn.

When excessive soil moisture occurs in the root zone, oxygen is reduced in soil pores. Fibrous roots die-off, which leads to symptoms of water stress. Such roots are invaded by pathogens in soil. In addition, populations of anaerobic organisms increase in soil, which leads to a buildup of toxins (organic acids, methane, and alcohols). Denitrifying bacteria convert nitrates in soil to N_2, causing nitrogen deficiency in plants.

Wounding, **mechanical injury**, and **human activities** can impact plant growth and predispose plants to disease. Many opportunistic organisms, such as those that cause cankers in plants, require wounds to invade plant tissues. Human activities,

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PLANT DISEASE FROM PAGE 4

such as poor planting practices as well as improper placement are all predisposing factors for plant disease.

Nutrients. All plants require 20 essential nutrients for growth and reproduction. C and O_2 are supplied in the air, the rest are supplied in water or in soil. **Macronutrients** (N, P, K, Ca, Mg, S) are required in large quantities as part of plant structure or in regulatory functions. **Micronutrients** (B, Cl, Cu, Fe, Mn, Mo, Zn) are required in small quantities as part of plant structure or in enzyme complexes. Symptoms due to extremes in soil nutrients depend on the functions of a particular element within a plant. Extremes in nitrogen predispose plants to many diseases.

Chemicals. These include pollutants (ozone, sulfur dioxide, nitrogen oxide, fluoride, or ethylene), herbicides, salts, and other agricultural or household compounds.

Table 1. How plants defend themselves.

I. Constitutive (passive) plant defenses

- **Structural**
  - o bark
  - o bud scales
  - o collenchyma/sclerenchyma (protect vascular bundles)
  - o defense trichomes (hairs)
  - o position, size, and shape of stomata on lower leaf surface
  - o the suberized outer layers of bulbs, corms, and tubers
  - o waxy cuticle
  - o suberin (similar to waxy cuticle) on primary roots (however, root hairs and root apical meristems are extremely vulnerable to attack)
- **Chemical** (these are secondary metabolites, which are not necessary for growth of the plant)
  - o cyanogenic glucosides (cyanide bound to sugar molecules)
  - o phenolic glucosides (phenols bound to sugar molecules)

II. Induced (active) plant defenses

- **Structural**
  - o abscission layers (infected portions of leaves drop out and block further invasion of the pathogen)
  - o cork layers (block further invasion of the pathogen)
  - o gums or resins (create barriers against invading pathogens in wounds or vascular tissue)
  - o papillae of callose (thickenings that prevent entry of a pathogen into a cell)
  - o thickening or lignification of cell walls
  - o tyloses
- **Chemical**
  - o pathogenesis-related (PR) proteins (enzymes and other proteins produced as defense compounds)
  - o phytoalexins (defense compounds toxic specifically to the pathogens of the host plant)

Plant Diagnostic Laboratory Highlights

Richard J. Buckley, Laboratory Coordinator

Turf

The sudden turn in the weather to summer-like conditions caused a drastic change in course for turfgrass submissions. The last remaining **yellow patch** (aka: **cool season brown patch**) was diagnosed on golf turf samples from an eastern Pennsylvania golf course the day after the last newsletter. In recent days, however, samples reflect the current summer-like conditions and included a vigorous **anthracnose basal crown rot** from an Ocean County golf course and several very dry examples of residential turf. Despite the recent thunder showers, unirrigated turf is already looking dry and dormant. **Take-all**, which normally manifests as distinct patches or "frog-eyes" of dead, dying, wilted, or thinning turf at this time of year is starting to show up on bentgrass turf stands as well. Our most recent sample was from Wyoming, but if you have newer bentgrass, now is the time to scout for the disease.

Ornamentals

Verticillium wilt is the disease of the week for ornamentals. A maple sample, submitted from a Mercer County landscape, was diagnosed with the disease. In recent years we have seen plenty of branch dieback in the local maple stands. By our accounting, the dieback is primarily due to the drought period between 1997 and 2003. It is not uncommon to see decline in shade trees for up to ten years after a drought period and we had nearly five years of it. Our local maples took that time period very hard. Invariably, we get lots of samples of branch dieback from maples with the Verticillium question. I am proud to note that we actually get the disease now and then. It was especially exciting during this rather slow spring. If you suspect Verticillium wilt, carefully remove the bark to reveal olive green streaks in the cambium tissue.

SEE LAB HIGHLIGHTS ON PAGE 3

Turf Update

James Murphy, Ph.D., Specialist in Turf Management

Spring conditions albeit on the cool side have been good for cool season turf growth. However, the cool weather delayed green-up of warm season zoysiagrass turfs. Timely and ample rains limited the need for irrigation. The need for spring fertilization should be minimal if adequate fertilization was done during the fall of 2006.

We are entering a time of the spring when any fertilization should be done at low to moderate rates of nitrogen with the objective to maintain turf vigor at a low to medium level. Generally, aggressive fertilization at this time of year can result in extremely rapid shoot growth that could compromise plant health once the weather becomes warmer and the soil becomes drier.

Spring is a critical time to mow at the correct frequency. The general rule of thumb is to remove no more than ⅓ the length of the leaf blade in a single mowing. For example, you should mow the turf when it reaches 3 inches if you mow at 2 inches (1 inch from 3 inch high leaves or ⅓ Cutting more than ⅓ of the leaves stresses the grass plants and ultimately makes the turf more susceptible to weed invasion and damage from environmental stress and pests. Turf mowed at 2 to 3 inches should be cut at least once a week when the grass is growing rapidly; cutting twice a week will improve the beneficial effects of mulching mowers and enhance the health of the turf.

Many grasses have entered the flowering portion of the yearly growth cycle so seed stalks can be visible on many turfs imparting a stemmy appearance. This could continue for a few more weeks in some cases. Low rate N fertilization can be used to restore the leafiness of the turf if the stemminess becomes objectionable; however, avoid over-fertilization and apply no more than ½ pound of nitrogen per 1000 square feet within a 2 two to four week period.

See Turf Management on page 7

Diseases of Turfgrass

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

Brown Patch

We should see **brown patch,** caused by the fungus *Rhizoctonia solani*, developing soon on golf and landscape turf. To reduce disease severity, avoid heavy applications of nitrogen fertilizers during hot humid weather (i.e., night time temperatures above 68^{0}F), water in the early morning hours (e.g., 12 midnight to 8 AM), and apply Armada, Chipco 26GT, chlorothalonil, Compass, ConSyst, Endorse, Headway, Heritage, Insignia, mancozeb, Medallion, Prostar, Spectro, thiophanate-methyl, Tartan, or Touche on a preventive basis in areas with a previous history of this disease.

Dollar Spot

Outbreaks of dollar spot, caused by the fungus *Sclerotinia homoeocarpa*, have been observed on greens, tees, and fairways for the past two weeks. To prevent **dollar spot** from causing severe damage on susceptible turf, remove dew, maintain adequate nitrogen fertility, water in the early morning hours, reduce thatch, avoid the sole use of any fungicide for prolonged periods of time (to reduce the possibility of fungicide resistance), and apply Armada, Banner, Bayleton, Chipco 26GT, chlorothalonil, ConSyst, Curalan, Eagle, Emerald, Headway, mancozeb, Rubigan, Spectro, thiophanate-methyl, Tartan, Trinity, or Touche per manufacturer's recommendations. Repeat fungicide applications as needed through mid-October.

Fairy Ring

This disease, caused by a group of fungi known as basidiomycetes, is starting to show up on golf greens and home lawns at this time. Symptoms typically occur during periods of stress (e.g. heat or drought stress) and may appear as continuous or interrupted rings of dark-green turf. Mushrooms, which are often associated with fairy ring, usually develop in the spring and the fall. Although fungicides are not effective against all of the fungi that cause fairy rings. Headway, Heritage and Prostar have provided good control in many university tests. Moreover, Endorse now has a 2 ee label for the suppression and short term control of this disease. For best results, maintain adequate soil moisture and fertility to mask symptom expression. Spike affected turf prior to irrigation or the application of fungicides to enhance water movement into the soil profile. The use of surfactants on affected areas may enhance fungicide efficacy and aid in improved water penetration and symptom suppression.

Slime Mold

Although slime mold is not actually a disease, inquiries have been received recently about the appearance of yellowish tan to black colored clumps on turf, flowerbeds, and home gardens. In many cases, this material has been reported to occur virtually overnight on plant stems, grass blades, soil mounds, or other vertical objects and is easily removed with light pressure. Leaf tissue underneath these clumps is green and healthy. Upon close examination, these mysterious structures are actually clumps of the common **slime mold** fungus *Fuligo*. Fuligo is not injurious to plants and will soon disappear on its own. However, it can be easily dispersed with a rake or steady stream of water. No fungicides are required.

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Turf Management from page 6

Any repair of turf areas with seed or sod should be complete; if not, this work should be done as soon as possible. The approaching warm weather increases the probability that areas repaired after mid-May will struggle and possibly fail. Seeding and sod transplanting after mid-May are very likely to require routine irrigation to be successful. Keep this in mind if you considering late spring repairs of turf.

Those applying compost or organic fertilizers should apply this material in the spring before the warm weather arrives. Generally, a large volume of these materials has to be applied to be effective and it can take time for the material to filter through the turf canopy to the underlying soil. Smothering damage is more likely to occur with these materials when the weather is warm or hot. Brushing or drag-matting the turf after the application can avoid this smothering damage. Also soil test before you apply more compost or organic fertilizer; these materials are not only high in organic matter but also phosphorus and many soils in New Jersey already have adequate amounts of phosphorus. Soil testing will be able to determine whether your soil needs additional phosphorus or organic matter. ❑

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Turf Field Days

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

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much above normal, averaging 67 degrees north, 68 degrees central and 68 degrees south. Extremes were 92 degrees at Canoe Brook on the 26th, and 38 degrees at Newton and Charlotteburg on the 22nd. Weekly rainfall averaged 0.09 inches north, 0.34 inches central, and 0.18 inches south. The heaviest 24 hour total reported was 0.60 inches at Glassboro on the 27th to 28th. Estimated soil moisture, in percent of field capacity, this past week averaged 87 percent north, 77 percent central and 68 percent south. Four inch soil temperatures averaged 62 degrees north, 64 degrees central and 64 degrees south.

Weather Summary for the Week Ending 8 am Monday 5/28/07

	RAINFALL			TEMPERATURE				GDD BASE50		MON
WEATHER STATIONS	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.00	.00	.00	0	99	0.	0	0	0	0
CANOE BROOK	.05	19.73	7.54	92	42	69.	6	467	200	79
CHARLOTTEBURG	.00	14.98	2.97	88	38	66.	6	402	223	76
FLEMINGTON	.29	18.91	7.37	89	39	68.	5	441	158	86
NEWTON	.00	10.95	.27	87	38	65.	4	368	151	76
FREEHOLD	.28	14.35	2.83	89	57	72.	8	604	262	74
LONG BRANCH	.05	14.61	2.72	89	46	67.	4	419	121	60
NEW BRUNSWICK	.37	19.17	7.84	89	43	68.	3	495	123	86
TOMS RIVER	.81	12.49	1.00	90	44	67.	4	465	144	87
TRENTON	.19	16.02	5.60	89	47	68.	2	519	107	60
CAPE MAY COURT HOUSE	.00	7.80	-2.30	89	46	66.	2	452	87	55
DOWNSTOWN	.06	13.07	2.70	90	44	67.	1	531	106	58
GLASSBORO	.84	13.14	2.12	90	49	70.	4	621	213	85
HAMMONTON	.02	11.96	1.23	91	43	68.	2	550	150	51
POMONA	.00	10.11	.10	91	44	68.	4	511	170	51
SEABROOK	.17	13.46	3.96	89	49	69.	3	638	208	59
SOUTH HARRSION	.17	14.75	3.21	89	48	68	NA	590	NA	NA

WES KLINE -- GDD BASE 40 PINEY HOLLOW LAST WEEK 149 (Ending 5/21/07) THIS WEEK 194 (Ending 5/28/07)

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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 RCE in your County.
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