Crane Flies in New Jersey Turfgrass
Albrecht M. Koppenhöfer, Ph.D., Turfgrass Entomology

There are many native crane fly species of which a few may occasionally cause limited damage to turfgrass. However, two crane fly species, accidentally introduced from Europe, have the potential to cause serious turfgrass damage. The European crane fly (Tipula paludosa) and the common crane fly (Tipula oleracea) are already established in the Pacific Northwest from British Columbia south into northern California, and in eastern Canada (Nova Scotia, Quebec, Ontario). Both species were detected in upstate New York in 2004 and have since spread east and southwards. The common crane fly was also detected in Nassau and Suffolk counties on Long Island in 2006. In 2009, a European crane fly infestation was for the first time confirmed in New Jersey. It is likely that both species will eventually become widespread throughout the region.

The larvae of crane flies, because of their tough skin also called leather jackets, attack all cool-season turfgrasses, as well as grasses in pastures and hayfields. They prefer moist, thatchy turf and wet soil high in organic matter. They use their rasping mouthparts to feed on roots, rhizomes, crowns, and leaf blades of grasses and various other plants. Damaged turf appears sparse, with missing foliage and bare patches. Heavily infested turf may contain more than 100 larvae per ft². On golf course greens the turf may be scalped. In addition, the turf may be disrupted by foraging skunks and peck-holes of birds, especially crows. The larvae are found mostly in the top 1¼" of soil feeding on roots and crowns but larger larvae may emerge to the soil surface on damp, warm nights or on dark, cloudy days to forage on stems and blades.

The larvae are worm-like, cylindrical in shape, ranging in color from olive-gray to greenish-brown, growing up 1” in length. The head is small and black-pointed and is withdrawn into the front part of the body when the larva is disturbed. A plate-like structure on the larva’s tail end bears two breathing holes and is surrounded by six fleshy, finger-like lobes. The pupa is greenish-brown translucent with developing legs, wing pads, and antennae glued to the sides. Backward-pointing spines on the last five segments enable the pupa to wriggle to the soil surface when the adult is ready to emerge.

Adult crane flies look like giant mosquitoes with extra long legs. The body is brownish-tan and slender about 3/4 to 1” long, with one pair of narrow, smoky-brown wings. The two introduced species have no pigmented areas or pattern on their wings. Wings of the European
crane fly also have a narrow dark-colored band along the leading edge of the wing adjacent to a light-colored band. However, definitive species identification requires a specialist.

Adults of common and European crane fly emerge from late July to September over a period of a few weeks at any given site. After mating the females lay 200-300 eggs at or near the soil surface. The eggs are shiny black, elongate-oval, and about 3/64” long. Gravid females are poor fliers and lay most of their eggs in one batch within one day (European crane fly) or mediocre fliers and lay their eggs over 3-4 days in several batches (common crane fly). Eggs require wet conditions to survive and hatch in 1-2 weeks. Development through the four larval stages is also favored under moist conditions. By the time cold temperature force them to overwinter deeper in the soil most larvae will have reached the third (European crane fly) or fourth (common crane fly) stage.

Most turfgrass damage is caused in spring by the rapidly growing fourth stage that completes its development in spring. Common crane fly larvae will pupate and emerge as adults in spring (late April to mid-May) and go through a second generation during summer. European crane fly larvae will stop feeding in late May, move deeper in the soil (up 3”) to be inactive through the summer, and pupate in late summer to complete only one generation per year.

Monitoring for crane flies can be done in several ways. Because gravid European crane flies are such poor fliers and do not move far, sites with abundant adults, larvae, or pupal cases protruding from the soil (in low-mown turf) should be monitored as they are likely areas for egg deposit. Irritant solutions (dish soap or dilute pyrethroid solutions) don’t seem to be very effective and are likely to underestimate populations. More accurate estimates can be obtained by going through soil/thatch samples taken to about 3” depth. Samples can be taken with a golf hole cup cutter, a flat blade spade, or similar tools. Suggested damage thresholds range from 15 to 50 larvae per ft². Generally, vigorous turf can tolerate high larval densities. Mild winters, cool summers, and wet, poorly drained turf favor crane flies.

In chronically infested areas, improving drainage and withholding irrigation during egg-laying (especially in late August and September) may reduce survival of eggs and young larvae. Maintaining a vigorous turf stand will increase the turf’s tolerance to larval feeding. In localized infestations raking up larvae when they come to the surface to feed can alleviate the problem.

The following insecticides have been tested against the European crane fly (data from D. Peck, NYAES, Geneva, NY; data shown are averages of 3-15 treatments/tests). For preventive applications against the first and second stage larvae in early to mid-October, clothianidin (Arena) and bifenthrin (Talstar) (both 93%) have provided the best control followed by chlorantraniliprole (Acelepryn; 85%), imidacloprid+bifenthrin (Allectus; 79%), imidacloprid (Merit; 76%), carbaryl (Sevin; 76%), indoxacarb (Provaunt; 76%), and cyfluthrin (Tempo; 68%). Some biorationals like Azadirachtin (Ornazin) (52%) and biologicals like the fungus Beauveria bassiana (BotaniGard) and the nematode Steinernema feltiae (e.g., Nemasys) (43%) have given limited control.

For curative applications against the third and fourth larval stage in mid-May, no product has given very good control: dinotefuran (69%), carbaryl (64%), imidacloprid (59%), clothianidin+bifenthrin (Aloft; 58%), chlorantraniliprole (52%), clothianidin (52%), indoxacarb (42%), thiamethoxam (Meridian; 42%), imidacloprid+bifenthrin (35%), and bifenthrin (24%). In choosing products for curative applications one should also consider any other pests that might have to be targeted in the affected turfgrass area later in the season. Thus, applications of products containing chlorantraniliprole, clothianidin, imidacloprid, or thiamethoxam would also protect from white grubs for the rest of the season and chlorantraniliprole would protect from sod webworms and cutworms at least well into the summer.

It can be assumed that similar efficacies apply to control of larvae of the common crane fly in fall. In spring, however, the common crane fly larvae would have to be targeted before they pupate (before late April) which may make curative application difficult and probably also less effective.

Crane Flies from page 1
Diseases of Turfgrass
Bruce B. Clarke, Ph.D., Specialist in Turfgrass Pathology

General
Dollar spot, gray leaf spot and crown rust are all active at this time. Most turf areas are starting to recover from anthracnose, brown patch and Pythium blight with the return to cool and less humid weather. Refer to past issues of this newsletter for additional information about the identification and management of these diseases.

Crown Rust
This disease is prevalent on perennial ryegrass lawns at this time. Affected turf prematurely yellows and orange pustules called uredia (reproductive structures) appear on the leaf blades. To control crown rust, maintain adequate fertility and soil moisture, and mow turf frequently to ensure that infested leaf tissue is cut off before uredia mature. Where infestations are severe and fungicides are required, apply Armada, Banner, Bayleton, chlorothalonil, Compass, Disarm, Eagle, Headway, Heritage, Insignia, mancozeb, Tartan, thiofanate-methyl, Tourney, Trinity, or Triton, per manufacturer's recommendations. In most cases, adequate fertilization and frequent mowing is all that is required to keep this disease in check.

Gray Leaf Spot
As predicted in the last issue of this newsletter, we have seen an increased incidence of gray leaf spot on perennial ryegrass in the tri-state area over the last two weeks. Many “new” plantings of unimproved varieties have been severely damaged by the causal agent Pyricularia oryzae. Extensive foliar blighting is likely to continue as long as the daytime temperatures stay within the 70-85°F range and the nights do not fall below 60°F. Symptoms appear as tiny, brown leaf and stem lesions within a 1 to 2 inch area. When the disease is severe, the leaves twist and curl in a “J-shape” and lesions may extend the entire width of the leaf blade. As gray leaf spot progresses, affected areas coalesce into large (1 to 2 ft diameter) patches of blighted turf. The pathogen can produce abundant one to two celled, pear-shaped spores (conidia) when conditions are conducive to disease development. Newly established seedings (4-5 weeks post emergence) are more susceptible to infection than mature plantings, so be sure to use a mixture of perennial ryegrass cultivars with improved resistance to this disease (e.g., 1G Squared, All*Star 3, Apple GL, Charismatic II GLSR, Dart, Derby Xtreme, Exacta II GLSR, Fiesta 4, GL-2, Harrier, Manhattan 5 GLR, Palmer IV, Palmer V, Panther GLS, Paragon GLR, Regal 5, Repell GLS, Revenge GLX, Secretariat II GLSR, Soprano, SR 4600, and Stellar GL). To suppress this disease now, avoid high rates of nitrogen (i.e., do not apply more than 0.25 lb of water soluble N per 1,000 sq ft) and avoid extended periods of leaf wetness (i.e., do not water between 6 PM and midnight). Armada, Compass, ConSyst, Disarm, Headway, Heritage, Insignia, Spectro, Tartan, and thiofanate-methyl are most effective when applied on a preventive basis every 14 to 28 days from mid-July to late-September. 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 DMIs have been reported in New Jersey, so alternate or tank mix with different fungicide chemistries whenever possible to reduce the potential for fungicide resistance. For additional information and pictures of gray leaf spot symptoms, access Rutgers Cooperative Extension Fact Sheet #1048 at: www.turf.rutgers.edu/outreach/rcepublications.html.

Turfgrass Expo
This year’s Turfgrass Expo will be held at the Trump Taj Mahal Casino/Resort on December 7-9, 2010. This is a great opportunity to receive the latest turf management information from nationally renowned speakers. For additional information, please contact Cece Peabody (973) 812-6467, e-mail execdirector@njturfgrass.org or Anne Diglio (732) 932-9400 ext. 339, e-mail diglio@aesop.rutgers.edu.


**Plant Diagnostic Laboratory Highlights**  
*Richard J. Buckley, Laboratory Coordinator*

**Turf**

Not much going on in turfgrass at this time. It is still quite dry, so there is not much disease. We also see turf managers throw in the towel and start their yearly aerification, fertilization, and recovery processes. I suspect there is a lot of seeding going on! After an insane summer for dead grass a little peace and quiet is welcome in the laboratory.

This week we had a couple samples from landscape turf that contained grubs (*oriental beetles*). We also had a sample with *chinch bugs*. I was surprised to see the grubs, but not the chinch bugs — dry conditions are very good for chinch bugs, but not so good for white grubs. We’ve also seen *sod webworm* on our turf farm in recent weeks. It is not uncommon to see insect problems in turfgrass in late summer and early-fall as dormant turfgrass areas recover. The grass that isn’t greening up may have some unwanted guests. *Heat and drought* killed most of the grass this summer, but it is always best to take a closer look before coming to any conclusions.

One disease we are seeing plenty of is *fairy ring*. Most fairy ring fungi create hydrophobic conditions in the root zone of a turf stand. Grass in the dry spots wilts and dies and fairy ring control often centers on preventing the dry spots with wetting agents and surfactants. The consequences of hydrophobic soils are enhanced during heat and drought, which is why we are seeing more damage in the field and getting more samples in the lab.

**Landscape**

Samples of landscape plants always seem to pick up at this time of year. This year trees and shrubs damaged by *heat and drought* dominate the submissions. Our submission forms ask the question: “when did the symptoms occur?” and to a sample all respond with dates in mid-July, which was just after a streak of 100°F+ days! It is remarkable how many arborvitae samples we got from trees that simply cooked in July. We have also had a string of cooked red maples, some dogwood, a few spruce samples, a couple rhododendron twigs and a bunch of transplants of various types of plants. The summer stress most certainly doomed anything transplanted this spring or summer to failure. It is still pretty dry and looks the same going forward. Be careful with your fall transplants and be sure to give your valuable landscape plants a nice drink before winter or I will be writing about all the winter damage in the March newsletter!

**Environmental Stress or Bacterial Leaf Scorch?**

**How to Tell the Difference**  
*Ann B. Gould, Ph.D., Specialist in Plant Pathology*

Recent dry weather has caused quite a bit of leaf scorch in shade trees around the state. Leaf scorching in landscape trees and shrubs occurs when leaves lose water faster than the roots can supply it. When moisture is lacking, the margins tend to dry out first, hence the marginal scorch pattern typically associated with stressed plants. Symptoms of scorch may become evident any time water flow is disrupted within a plant.

Leaf scorching in plants is usually attributed to both biotic (living) and abiotic (environmental) agents. Why is it important to tell the difference, and how does one do it?

**Abiotic agents**

Abiotic (or environmental) agents that can cause scorching in leaves include drought, dehydrating winds, salt, flooding, chemicals, air pollutants, toxic metals, and nutrient extremes. Scorching can also occur when plants are placed in sites where roots do not develop normally (such as in planting islands or in soils with a hardpan layer), or when roots are physically damaged (such as occurs during construction). In most cases, this type of scorching is fairly uniform around leaf edges, affects newer leaves as well as older leaves, and will appear on vast expanses of the canopy. In addition, scorch symptoms may develop soon after a known stress (such as drought or an application of de-icing salt) occurs.

On the other hand, scorching can also occur in plants affected by living or *biotic* agents. Organisms that can cause this symptom include fungi, bacteria, nematodes, viruses, and insects. Leaf scorching due to biotic agents is not clearly defined. The scorch symptoms on leaves are often irregular in shape, and frequently a yellow or red “band” will appear between green and scorched tissues. In addition, symptoms may appear first on the older leaves of one or more branches, and then spread to other parts of the tree.

This growing season, the leaves of many landscape plants throughout New Jersey are exhibiting the uniform “scorch” consistent with an abiotic stress. Drought stress is the likely culprit for many trees, especially seedlings and shallow rooted and recently planted trees and shrubs that lack extensive root systems which cannot absorb water from deeper in the soil profile.

**Biotic agents: Bacterial leaf scorch**

Some trees in the New Jersey landscape, primarily oaks in the red oak group, are also affected by a biotic agent that causes leaf scorch. Bacterial leaf scorch (BLS), caused by the bacterium *Xylella fastidiosa*, is very prevalent in many localities and is particularly troublesome in the more

*See Leaf Scorch on page 5*
Leaf scorching due to abiotic agents:
- Is fairly uniform around leaf margins
- Affects newer as well as older leaves on a branch
- Appears on vast expanses of canopy (e.g., one side of the tree or the other)
- Develops soon after a known stress (such as prolonged drought or an application of de-icing salt) occurs
- Can often be associated with poor sites or root injury due to construction
- Often affects more than one species of plant on a landscape.

Leaf scorching due to biotic agents (particularly in the case of BLS):
- Is not uniform around leaf margins; often, a dull red or yellow “band” appears between green and scorched tissues
- May affect older leaves first, although sometimes affects all leaves on a branch
- Appears on selected branches throughout the canopy
- May spread to new branches as time progresses, leading to tree decline
- Develops in mid- to late-summer
- Is host specific
- Is enhanced by abiotic stresses (such as drought), other diseases, and insect problems

Summary
In summary, leaf scorching in landscape trees and shrubs can be due to a wide variety of agents. The cause of the scorch determines how the plants should be cared for. Keep the following tips in mind when trying to discern the difference between the abiotic and biotic causes of leaf scorch. If unsure about your diagnosis, contact your local County Agricultural and Resource Management Agent (http://njaes.rutgers.edu/county).
Landscape IPM Pest Notes
Steven K. Rettke, Ornamental IPM Program Associate

✔ ERIOPHYID MITES ON PINES: Very small, light-cream colored eriophyid mites that feed at the base of pines (e.g., Scots Pines) can cause an abnormal growth typically called the “short needle syndrome.” The mites are sometimes only discovered after separating the needles from their bundle sheath and observing at the needle base with a magnifying hand-lens. With high populations, the infested needles are often significantly shorter than other needles on the same branch not infested. Furthermore, these shorter needles can usually be pulled off the new twig growth very easily. The feedings from these eriophyid mites can soften-up the needle to twig attachment.

A cynical client may jump to the conclusion that the “short needle syndrome” was caused from a spray application. Be aware of the possible effects from these tiny mites and look for them if incorrect accusations are being stated. Controls with horticultural oil applications can be attempted, but may be unsatisfactory since adequate coverage will be difficult.

✔ HACKBERRY GALLS: Hackberry (Celtis) is a common native plant found growing in open fields, along roadsides, and in many types of soil. It is admirable that this hardy genus is especially able to grow well in dry soils. However, over 10 types of gall-making insects attack hackberry foliage. A common one is the hackberry nipple gall, which causes small, oblong protrusions on hackberry that are pale green to red in color. These galls are raised from the leaf surface, somewhat shaped like a nipple. They are most prevalent on shrubby forms of hackberry. The hackberry blister gall, on the other hand, forms small round blister-like galls on the surface of hackberry.

Adults of both species are psyllids, about 3 inches in length, black in color, and have a jumping habit. Adults begin emerging in September and can continue to emerge well into the fall season. They can be extremely annoying to people, as they alight by the hundreds on cars, buildings, and other objects near large hackberry trees.

They will overwinter inside of homes or in cracks and crevices of tree bark before becoming active again next spring. Eggs will be laid just as new growth emerges and then nymph feeding will cause new galls to form. As is the case with many types of leaf galls, they are a curiosity to many, but rarely are chemical sprays warranted.

✔ PEAR LEAF BLISTER MITES: These eriophyid mites are considered to be a major pest of pears grown in orchards, yet they also attack ornamental pears such as Callery Pear. Although pear fruit is attacked, most IPM monitors notice the blistering of the foliage. Generally 1/8 to 1/4 inch blisters are produced on new growth, appearing red to whitish-green initially before fading to black in color. Large numbers of blisters may coalesce and cover most of the leaf. Heavy blistering can impair the leaf function and is an eyesore, although defoliation often does not occur.

This mite overwinters beneath buds as adults, reproducing all winter long. By spring, they attack developing buds, fruit, and leaves in masse, producing red blisters. Female mites lay eggs in the blisters, and new generations feed over several overlapping generations within the blisters throughout the summer. Fresh blisters are produced in the fall on new leaf growth flushes. Mites leave the blisters prior to leaf drop, migrating to the buds to overwinter.

Orchard research shows that when 1 or 2 shoots during the dormant season show blister, a damaging population exists. Since most mites are present on tree buds in the fall, this is the best time of year for control. Spray in October and/or November with a 1% to 2% horticultural oil. After November, mites move deeper into the buds to overwinter and control becomes challenging. Note: Alternate plants hosts include mountain ash and shadbloss (Amelanchier).

✔ BOXELDER BUGS & HOSTS: Boxelder bugs are dark sucking insects with red wing markings/abdomens that build-up in late summer/early fall. These insects are considered to be a nuisance pest because of their habit of gathering in large numbers in sunny southern location (such as your front door) as well as overwintering inside dwellings (such as your attic). Many older publications state that the only reproductive plant host for this 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.

Over the past couple of decades 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, amelpopsis, geranium, cacti, lilies, coleus, ageratum, pigweed, crabgrass, and foxtail grass. (Ref. R. Rosetta, Oregon State: D. Shetlar, Ohio St.)

✔ BANDED ASH BORER: In late August and all of September, this clearwing moth is mating and laying eggs on ash trees, especially green ash street trees (trees in open areas). Look for sawdust frass accumulat ing on the trunk, or small piles beneath the tree. Light brown pupal “skins” protrude from the trunk as a result of adult emergence. Pheromone traps are the best tools for judging when to apply controls. When the first male is caught in the trap (possibly around Labor Day), count.
10 days and then apply trunk sprays (e.g. Astro) before eggs hatch. Spray the trunk bark and major branches thoroughly. Research has also shown greater than 50% control by spraying tree bark with beneficial nematodes in October or late spring.

**YELLOWJACKETS & HORNETS:** During the spring and summer, hornets and wasps are considered to be beneficial insects. These carnivorous predators can especially be effective against a variety of caterpillar pests.

During the late summer, the decreasing daylight hours signal yellowjackets and bald-faced hornets to produce new queens and drones. When these reach maturity, their diets change from high protein to high carbohydrate food sources. This change causes the workers to stop preying on insects and instead to forage for sugars (such as sodas and other sweets commonly found at picnics). They therefore can become a major nuisance during late summer and early fall. To avoid defensive stinging, don’t swat at yellowjackets.

Avoid wearing brightly colored and patterned clothing, since a wasp will likely explore further if a shirt looks like a flower or plant. Furthermore, body odor or bad breath can aggravate bees and wasps. If a person smells like one of the common predators of wasp nests (such as a bear or raccoon), then it becomes more likely that a wasp or hornet will react defensively. Therefore, wear plain, light-colored clothing, brush your teeth and use unscented deodorant when in the area of foraging wasps and hornets. (Source: Ohio St. Univ. Ext.; P.E.S.T. Newsletter).

**OAK LACE BUGS:** Every summer many oak trees throughout the area will show characteristic feeding damage from the oak lace bug. From a distance, the symptoms are similar to those of oak spider mites or classic leaf scorch. Closer inspection determines the identity of the pest.

Look for a batch of 30 to 50 tiny black “spikes” arranged in a circular area of ¾ inch diameter or less. This is not fecal material from the lace bugs, but actually are the eggs of the oak lace bug. Adult females from the first generation laid second generation eggs in mid-summer. These hatched a few weeks ago and most are now maturing nymphs or adults.

Even though the leaf discoloration from foliage feeding symptoms by the oak lace bug can be alarming (to the extent that action seems necessary), spraying is generally not recommended. Tall landscape oaks would require a large volume of spray material (an exception can be argued for valuable trees in high visibility areas). Tree trunk injections with systemic insecticides may be of questionable value since the injection holes may do much more damage than the lace bugs. This pest primarily creates an aesthetic concern, since it is doubtful the insect is significantly reducing the tree’s ability to store starches and sugars for the next season.

**WHITE PINE SAWFLY:** The second generation of this lesser known sawfly feeds primarily upon eastern white pines during September and October. Larvae are distinctive in color, having a cream body with a black head and 4 rows of black spots. As with all sawfly larvae, they have more than 5 pairs of abdominal prolegs.

The feeding damage is usually not as severe as compared to the European pine sawflies on 2-3 needle pines. Larvae feed in groups on both the older, inner needles as well as the current year’s growth. Early feeding activity causes needles to appear scorched brown and twisted. When larvae consume all the needles on one branch, they move to another one. When monitoring, look for signs of defoliated white pine branches.

Manually remove and destroy larvae in light infestations affecting only a few branches. They can be knocked to the ground and stepped on if you don’t mind gumming up your shoe bottoms (they are full of pine pitch). Thoroughly spraying small larvae with insecticidal soap or horticultural oil will provide good control. When necessary, harsher materials such as Scimitar, Tempo, or Sevin will provide immediate kill.

**COOL SEASON SPIDER MITES:** As cooler temperatures begin to set in during the next few weeks, the common cool season spider mites will start their fall season activity. Southern red spider mites will begin to hatch and feed on many species of broadleaf evergreens (especially azaleas, holly and pieris), while spruce spider mites will begin feeding on various conifer species. Both spider mite species are well known for the stippling damage they cause during the spring months, but late season control of the fall populations are also very important.

Keep in mind that the spruce and southern red mite eggs that hatch late in the summer and fall months typically have a higher percentage of unfertilized eggs. This results in more males during the fall season, creating a higher percentage of fertilized overwintering eggs. This in turn results in more females hatching the following spring. Therefore, fall season control of these mites is emphasized, since the number of reproducing females will be less next spring.

Spider mites can develop resistance to chemical pesticides faster than most other pests, because of their rapid reproductive rates and multiple generations per year. Resistance is curtailed by rotating with 3-4 materials with different modes of action. Horticultural oils and insecticidal soaps are two “biorational” controls where resistance by mites is generally not known.

**SOFT SCALE CRAWLERS:** Although the species of most soft scale crawlers hatch and emerge during the late spring and early summer weeks, the magnolia and tuliptree scale species have active crawlers during the early fall. Magnolia scale is the largest soft scale in North America and feeds only on magnolia trees. Tuliptree scale, on the other hand, feeds on both tulip and magnolia trees.

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**IPM FROM PAGE 6**

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Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much above normal, averaging 74 degrees north, 77 degrees central, and 76 degrees south. Extremes were 99 degrees at Pomona and New Brunswick on the 1st, and 45 degrees at Belvidere and Flemington on the 6th. Weekly rainfall averaged 0.01 inches north, 0.04 inches central, and 0.01 inches south. The heaviest 24 hour total reported was 0.15 inches at Toms River on the 3rd to 4th. Estimated soil moisture, in percent of field capacity, this past week averaged 73 percent north, 63 percent central and 51 percent south. Four inch soil temperatures averaged 72 degrees north, 75 degrees central and 71 degrees south.

Weather Summary for the Week Ending 8 am Monday 9/6/10

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<th>WEATHER STATIONS</th>
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* some estimated data

WES KLINE -- GDD BASE 40 PINEY HOLLOW LAST WEEK 212 (ENDING 8/30/10) THIS WEEK 249 (Ending 9/6/10)

Rutgers Degree Day Calculator - New Tool for Ag Decision Making

Robert Muldowney, Research Computing Consultant, Rutgers NJAES

Growing Degree Day (GDD) measurements are increasingly relied upon for making decisions related to insect management, weed control, and crop harvesting. This past spring a new web-based GDD tool (http://benedick.rutgers.edu/Blueberryweather/) for crop management in New Jersey was introduced. The tool was developed for blueberry production, but the temperature information can be applied to any crop.

A growing degree day is when the air temperature remains 1 degree above the base temperature for 24 hours. For example, if the air temperature averaged 50 degrees for 24 hours and the base temperature was 40 degrees, the total growing degree days for the day would be 10.

See Degree Day Calculator on page 9

Soft Scale Crawlers from page 7

Egg laying by both scales has begun and will continue throughout most of September. During the middle of October, the hatching is completed and black crawlers settle on branches to overwinter. Unlike many soft scale species, neither tuliptree nor magnolia scales will ever leave tree bark to feed on foliage. Growth and feeding on bark continues through the spring and summer. It is during this time period when most of the tree damage is done. By August, mating occurs and eggs are laid again (only one generation occurs each year). During this period large populations produce much honeydew (with the corresponding sooty mold) which attracts ants, bees, and wasps.

Controls: In August and September, eggs are present under females and sprays are not effective. With small trees, hand-pick adults before eggs hatch and crawlers emerge. When treatments are required, wait until all crawlers have emerged and apply a horticultural oil or residual insecticide in October. A dormant oil spray in late winter or early spring is also effective, and will have the lowest impact on beneficials.

Growing Degree Days for Crop Management

Robert Muldowney, Research Computing Consultant, Rutgers NJAES

Growing Degree Day (GDD) measurements are increasingly relied upon for making decisions related to insect management, weed control, and crop harvesting. This past spring a new web-based GDD tool (http://benedick.rutgers.edu/Blueberryweather/) for crop management in New Jersey was introduced. The tool was developed for blueberry production, but the temperature information can be applied to any crop.

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See Degree Day Calculator on page 9
Fertilizer Vigilance

Joseph Heckman, Ph.D., Specialist in Soil Fertility

I recently saw a stack of Ironite 1-0-0 bags on display for sale at a local farm supply store. This product has been shown to contain high levels of heavy metals lead and arsenic. In 2005, the New Jersey Department of Agriculture issued a “Stop Sale” on Ironite 1-0-0. Several other states (WA, MN, ME, and CT) have also taken action to ban its sale. Unfortunately, despite the efforts of state agencies, this product is still appearing on the retail shelf in garden centers and farm stores.

Be advised not to use this product on your garden or farmland. If you ever need to fertilize with iron, there are many safe and effective products to use to add iron without contaminating the soil with lead and arsenic. Refer to Rutgers Cooperative Extension fact sheet “Iron Needs of Soils and Crops in New Jersey”. http://njaes.rutgers.edu/pubs/publication.asp?pid=FS971

Fertilizer laws in most states typically only regulate nutrient content. Non-nutrient contaminating substances are generally not regulated and so do not need to be listed on the fertilizer label. Thus, constant vigilance is necessary for avoiding suspect products. The Washington State Department of Agriculture has a useful website for monitoring fertilizer brands:
http://agr.wa.gov/FAQ/FAQ.aspx

For further information about public health concerns relating to hazardous materials in fertilizers see The Soil Profile newsletter from 2006 posted at New Jersey Agriculture Experiment Station on the web:

In New Jersey, fertilizer registration fees provide funds to have commercial fertilizers tested. The New Jersey Department of Agriculture can be called upon when fertilizers need to be sampled and tested.
http://www.state.nj.us/agriculture.