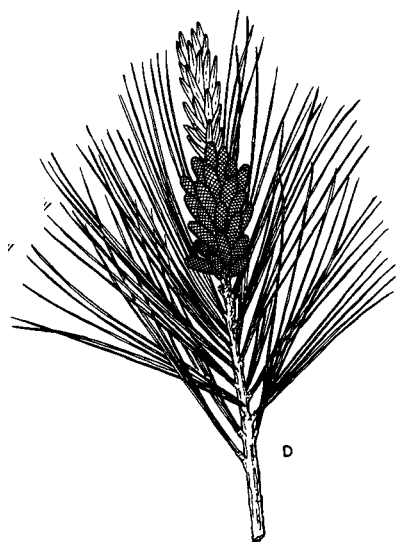


# PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

JUNE 28, 2007



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## Landscape IPM Pest Notes

Steven K. Rettke, Ornamental IPM Program Associate

✓ **AZALEA LACEBUGS (802-1029 = 2<sup>nd</sup> generation):** The second generation of the pest is in full swing at this time. Look for the presence of nymphs (spiny, black), adults (larger, lacy wings), fecal spots (brown, shiny spots) on the *underside* of leaves, and stippling (feeding damage from nymphs and adults) on the leaves. Remember that the yellow stippling damage persists on the leaves until they are dropped. Look for the presence of actively feeding nymphs or adults before treating. If found, use horticultural oil (only if a spray can contact the back of the leaves), or acephate (Orthene) if the shrub is too dense to allow effective use of oil. Imidacloprid (Merit) applied to soils now may require 2-3 weeks before they begin to control this second generation or the beginning of the third generation (longer if soils are dry). Remember that stressed azaleas in full sun are more prone to lacebugs.

✓ **PINE NEEDLE SCALE (1290-1917 GDD = 2<sup>nd</sup> generation):** This native armored scale can be found feeding on most needle-bearing conifers. Under heavy infestations (10 live scales per inch of candle shoot) needles turn yellowish, then brown with eventual dieback. From a distance, the foliage may look white to gray. The reddish, second generation crawlers are active throughout most of July and into August and feed only on the needles. The adults female covers are about 1/8 inch long and are white, oystershell shaped.

During July, turn over female covers and examine with a hand lens to determine if eggs or crawlers are present. Recently hatched active crawlers are flat and reddish in color. These clumsy crawlers move precariously to new parts of the tree in search of suitable needles to feed upon. Settled crawlers then insert hair-like mouthparts into a needle to feed and develop a yellow coloration. It then immediately begins to form a new protective waxy armor. This protective cover is quite thin at first and does not thicken-up until after the nymph completes its first molt (after 2 weeks). Therefore, the crawlers will continue to be highly vulnerable to sprays for a couple of weeks.

✓ **PINE SPITTLEBUG:** The native spittlebug attacks nearly all of our common pines, as well as Norway, white and red spruces, balsam fir, larch, eastern hemlock, and Douglas fir. Nymphs are covered with frothy honeydew called spittle. They are mostly black in color with a white abdomen and can be found under spittle on twigs in May and June. Inspect for adults feeding in the same locations in July and August

SEE IPM PEST NOTES ON PAGE 2

without the spittle covering. Adults are about 1/4 inch long and are mostly tan in color with whitish bands on the wings. Both adults and nymphs suck sap from the phloem vessels of twigs. Damage is usually not serious with light infestations and chemical controls are not warranted. On small pines, spittlebug populations may be manually removed. Adults are more active than the nymphs and may require an insect net to effectively keep them from twigs. If necessary, spray spittle masses with a residual insecticide in May.

✓ **SCALE CRAWLERS:** Numerous soft and armored scales have their crawler emergent periods during the mid-summer season. Many crawlers emerge over a 2 to 6 week period. To control scale crawlers, it is essential to time a control spray to peak crawler emergence or soon afterwards. This is difficult to do without counting the number of crawlers present at each monitoring visit.

To visually estimate population levels, a five-inch strip of double-sided transparent tape is wrapped around the affected branch, leaving the end of the tape doubled over to act as a handle. Two or three per plant are required. Branches marked with a tag (or tree marking tape) make it easier to find again. The first tape is placed when mature female scales begin laying eggs, and replaced with fresh tape once a week thereafter. When the crawlers emerge, they walk across the tape and get stuck.

The tapes can be preserved between white paper and a clear plastic sheet so they can be compared from week to week. When there is a sharp increase in crawler activity or when the peak emergence has been reached (there is a slight decrease in activity from one week to the next) the control tactic is applied. If in doubt, wait until all crawlers have emerged before applying a control.

✓ **MIMOSA WEBWORM (880 GDD = 1<sup>ST</sup> GENERATION LARVAE HATCH):** This tent/web-forming caterpillar has been actively feeding in mimosa and honeylocust (especially the thornless varieties of honeylocust such as 'Moraine'). The young caterpillars initially web leaflets together and then expand the web to include several branches as they grow. Older larvae actually consume foliage. The webbed foliage is unsightly, giving trees and ugly grey/brown appearance. The adults have the habit of laying their eggs on the old webs, so the second generation (due in early August) magnifies the damage, and large populations may defoliate the tree.

Since there may be many webs in one tree, hand pulling/pruning is usually ineffective. Monitor for the first signs of webbing of the second generation (1800-2100 GDD; when *Hydrangea paniculata* is blooming) and apply B.t. on small larvae. Spinosad (Conserve) may also be used with reduced impact on beneficials and non-target organisms. Residual pesticides, such as Orthene, Scimitar/Battle, Tempo 2, Mavrik, or Talstar may be used to control older larvae (be sure to drench

foliage thoroughly). The four pyrethroids listed above may cause a spider mite flare-up following application, so a miticide may be necessary.

✓ **FALL WEBWORM (1266-1795 GDD = 1<sup>ST</sup> generation larvae):** These caterpillars produce a web similar to the eastern tent caterpillars, except the web is at the tips of branches, and the fall webworm never leaves the protective webbing. When they need more food, the boundaries of web are extended to include more foliage. There are many hosts, but some are preferred (mulberry, walnut, elm, ash, apple, hickory, sweetgum). Unsightly webs can be pruned out, or ripped open with a stick or stream of water, usually destroying the caterpillars.

These are true caterpillars, so B.t. will control them if the application is applied now, in their early development. The biorational product called Conserve (a microbial extract) will do an excellent job of suppressing even the larger, later instar larvae. Numerous other labeled products include Scimitar, Tempo2, Sevin and others. Watch for a second generation in August.

✓ **TWO SPOTTED SPIDER MITES (1300-2000 GDD):** The list of host plants of this warm season mite is considerable. A partial list includes many perennials, winged euonymus, and occasionally juniper and dwarf Alberta spruce. Typically conifers are not the preferred hosts of two-spotted spider mite species. These mites can have an entire generation occur in less than 7-8 days if temperatures exceed 85° F. It is possible for 15 generations of two-spotted spider mites to occur during the summer.

Typical symptoms include stippling damage and webbing. Affected foliage yellows, then turns brown and dies if mites are not controlled. Damage does not recover, so early detection and timely control is the best management technique. Monitor with a beating tray (or white clipboard) by rapping foliage on the board and looking for the tiny mites that drop off. A hand lens can be used to note what life-stage is present (on the underside of foliage), but this is slower than the use of the beating tray. Very fast predatory mites may be seen, with light colored bodies and long legs. If predators are noted, keep monitoring to be sure they are reducing the spider mite population, and that the mites don't overwhelm the predators.

Control with horticultural oil (check the label for weather conditions and make sure the plant is not under drought stress) in order to kill eggs and active forms, as long as mites are contacted (on the underside of foliage). Hexythiazox (Hexygon) is a miticide that kills immature mites and eggs and prevents adults from laying eggs. Abamectin (Avid) provides a quick kill and a long residual (may need 2 applications since they only control active mites). Florimite is a miticide that can also provide excellent results. The list of effective miticides is extensive. Note that imidacloprid (Merit) is not a miticide.

SEE TSSM ON PAGE 3

**Control:** many lady beetles and wasp parasitoids feed on this pest. Look for holes in the covers that indicate the presence of these beneficials. To conserve beneficials, use horticultural oils or soaps against the crawlers or recently settled nymphs. Oils or soaps can also be combined together to achieve even better controls. Residual insecticides may be warranted if high populations exist and few beneficials are present.

✓ **BLACK VINE WEEVIL:** Nocturnal adults feed by notching the edges of leaves of broadleaf evergreens. Adults have started to lay eggs after maturation feeding during the past 3 to 4 weeks. There is only one generation per season, so best suppression results are achieved before the adults have had the opportunity to deposit eggs into the soil.

Trap adults with pitfall traps in order to time controls with Orthene (suppression), Tempo, Talstar, Scimitar (2-3 applications are needed). Underground grub control with beneficial nematodes (*Heterorhabditis megidis*) has shown greater than 70% controls (100% controls within containers).

✓ **COTTONY MAPLE SCALE (802-1265 GDD):**

This soft scale is common on many different shade trees, such as maple, elm, sycamore and linden, but primarily a problem on red and silver maples. The large white egg sacs may be obvious now, but crawlers are hatching. After hatch, the crawlers move to the undersides of the leaves to feed for the summer. In the fall they move back to the branches to overwinter. As with all soft scales, honeydew is produced and is a problem in heavy infestations, as is leaf yellowing and dieback of branches.

A summer oil (follow label precautions) or insecticidal soap contacting crawlers under the leaves can give good control. Acephate (Orthene) gives good control when crawlers are feeding on leaves. If the population is light, no action is recommended. It may take 1-2 summers for natural enemies to control the problem. A dormant oil application in late winter will control most scales.

✓ **COOLEY SPRUCE GALL ADELGID (1500-1775 GDD):** This pest is now active on Douglas fir. They feed on the needles for the summer before a percentage will fly back to spruce, where they will overwinter. Feeding causes the needles to become bent and misshapen on Douglas fir. Individual tufts of wax ("cotton") are noticeable on individual needles protecting the adelgid. This pest may go unnoticed in the landscape when infestations are light. Control with an insecticidal soap or oil (follow label precautions). □

## Plant Diagnostic Laboratory Update

Richard J Buckley, Laboratory Coordinator

### Turfgrass

**Anthracnose** becomes the disease of the week in golf turf this period. The disease, which we foreshadowed in the last newsletter - is increasing in frequency on poorly growing annual bluegrass. Samples of anthracnose were submitted from several golf courses in New York, New Jersey, and Virginia. What is interesting here is the number of samples of annual bluegrass that look like they have anthracnose, but don't. We are seeing a trend of poorly performing *Poa* in the area. It is hard to put a finger on the cause, but we have seen yellow and stunted grass that was highly growth regulated, abused by DMI fungicides, on sites with very low pH, and also yellow for no apparent reason. I would suspect that all of this turf will see some anthracnose as we move forward into summer.

Another theme this period was the transition from **take-all** samples in bentgrass to the **summer patch** samples in annual bluegrass (summer did start this week). Samples diagnosed with take-all were submitted from New York, New Jersey, and Delaware. Funny, but one super suggested that he had **brown patch** that wouldn't heal and that the rings formed in late May. Sounds like classic take-all to me! The summer patch samples are just starting to show up. High end courses from New York and Pennsylvania were diagnosed on Wednesday.

In landscape turf, we have seen some incurable **red thread** and a sample of **Pythium blight** from a newly seeded ryegrass turf.

Oops, almost forgot all of the nematode samples - lots of **lance** and **stunt** in all of the submissions.

### Ornamentals

Very cool sample of redbud with serious **leafcutter bee damage** takes the prize in the ornamental area. Leafcutter bees, uh, cut leaves. No really, they take large notches of leaf tissue from the edges of leaves to construct their nest in a cavity or hole in another location. It almost looks like the damage a giant weevil would do. Speaking of holes, we had **shot hole borer** in a cherry laurel sample from Mercer County. **Globose scale** was identified on samples of purple plum from two different landscapes in Middlesex County. Large populations of this scale can really do some damage. *Bactericera antennata*, the rudbeckia **psylliid**, was identified as first instar nymphs on a couple rudbeckia leaves submitted from Warren County. And last, but not least was the two samples of sunflower from Gloucester County with **downy mildew**. □

## English as a Second Language for New Jersey Farm Employees

The New Jersey Farm Productivity Enhancement Training Program announces another course offering for New Jersey's agricultural community. Most New Jersey farm owners employ workers who have a critical need to improve their English speaking skills.

This grant-funded class will present the basics of spoken "American" English to Spanish-speaking farm employees. The course is comprised of six (6) four-hour sessions (8:30 am - 12:30 pm) and will be held at the Cumberland County office of Rutgers Cooperative Extension in Millville, N.J. Course dates are September 11, 18, 25 and October 2, 9, and 16, 2007.

Program topics are tailored for workers in agricultural and farm-related industries. The vocabulary and phrases introduced are agricultural and will include interpersonal, day-to-day job-related communication in English. The course assumes that attendees have little or no knowledge of English and will introduce basic expressions, sounds, pronunciation and sentence structure.

Registration fee is \$35 for the entire six days of training (24 hours total), course materials and breakfast at each session. To receive a Rutgers University certificate of completion participants must attend all six sessions.

For further information please contact Keith Wilson at (732) 932-9271 (ext. 617) or via e-mail at [kwilson@cook.rutgers.edu](mailto:kwilson@cook.rutgers.edu).

If you'd prefer to register by mail or fax, simply download the registration form at: <http://www.cookce.rutgers.edu/brochures/intros/farm.html>. □

## Diseases of Turfgrass

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

### General

We are beginning to see typical summer time diseases on landscape and golf course turf throughout the region. **Brown patch**, **Pythium blight**, **dollar spot**, **anthracnose** and **fairy ring** are all evident at this time. **Summer patch** has just started to develop on susceptible Kentucky bluegrass lawns and annual bluegrass greens. Maintain preventive fungicide applications in areas where these diseases have been troublesome in the past. Refer to recent issues of this newsletter for cultural and chemical control management information to combat these persistent problems.

### Anthracnose

This disease, caused by the fungus *Colletotrichum cereale* (formerly *C. graminicola*) is apparent on annual bluegrass greens at this time. The fungus typically attacks turf growing under low fertility and/or heat or drought stress. Low cutting height and extensive seedhead production can weaken turf and enhance disease development. To identify anthracnose in the field, look for small black fruiting bodies with protruding black spines. For best results, increase turf vigor with frequent, light applications of nitrogen, raise the cutting height (whenever possible), provide adequate irrigation, and maintain acceptable ball-roll distances (i.e., putting speed) through increased mowing frequency and/or rolling. Recent research at Rutgers University has shown that the use of mefluidide (Embark) or ethephon (Proxy) in April to reduce seedheads followed by sequential applications of trinexapea-ethyl (Primo) every 7 to 14 days throughout the growing season can significantly reduce anthracnose severity on golf course greens. Additional control can be obtained with preventive applications of Armada, Banner, chlorothalonil, Compass, ConSyst, Disarm, Eagle, Endorse, Headway, Heritage, Insignia, Spectro, Tartan, thiophanate-methyl, or Trinity. Resistance has been reported in the tri-state region for the QoI (strobilurin) and benzimidazole fungicides and reduced sensitivity has been noted on some courses for the DMI (sterol-inhibiting) fungicides. To reduce the potential for the development of fungicide resistance and to improve efficacy, apply tank mixtures or alternate between products with different modes of action. Since Prostar may enhance the severity of this disease, restrict the use of this fungicide to sites that do not exhibit symptoms of anthracnose.

### Brown Patch

This disease, caused by the fungus *Rhizoctonia solani*, has been present on golf and landscape turf for the past few weeks. To reduce the incidence and severity of **brown patch**, avoid large applications of quick release nitrogen sources (e.g., not more than ¼ lb actual N/1000 sq. ft) during hot weather, irrigate between midnight and 8 a.m. to minimize the leaf wetness period, and spray turf now with Armada, Banner (preventive only), 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.

### 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. □

# Verticillium Wilt in Maple and other Shade Trees

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

The Rutgers Plant Diagnostic Laboratory has recently received samples of maple with symptoms characteristic of **Verticillium wilt**. This disease is caused by one of two fungal species that disrupts the uptake and flow of water and minerals in xylem tissues. The species that affects maple and other woody species, *Verticillium dahliae*, is found in cultivated soils all over the world. *V. dahliae* forms small survival structures known as **microsclerotia** that resist degradation and can persist in soil for many years. Microsclerotia germinate when exposed to plant exudates from nearby developing roots. The fungus penetrates the epidermis of these roots, moves into xylem tissues, and is carried up to the canopy. Vascular tissue becomes clogged, and affected branches wilt and die.

## Host Range

Many woody plant species are susceptible to Verticillium wilt (Table 1). In New Jersey, we see this disease most often on maple and tulip trees. Plants that are immune or somewhat resistant to Verticillium wilt are those that limit the spread of the pathogen in the plant. These species include all gymnosperms and all monocots; other species resistant to this disease are also listed in Table 1.

## Symptoms

In woody hosts, Verticillium wilt is first noticed as a sudden wilt, scorch, or premature leaf drop on a single branch or on several branches within a portion of the canopy. Leaves may appear light green, yellow, or red, and are small in size. Through the growing season, affected branches progressively wilt throughout the canopy and die, and branches infected late the previous growing season may fail to leaf out the following spring. In nursery stock, seedlings, grafted liners, and 2- to 3-inch caliper trees are often affected by Verticillium wilt. Severely affected trees die.

In some trees, infected plants may not exhibit symptoms each year, or the disease may progress very slowly over a period of years. In these chronically infected hosts, branch growth is reduced, leaves are sparse, and buds fail to develop. Since the disease reduces the vigor of the host, plants become more susceptible to other diseases, insects, and drought stress. Symptom expression among different species is highly variable and is affected by environmental and soils conditions. In general, Verticillium wilt is more troublesome in sandy loam, loam, and clay soils high in organic matter.

A diagnostic feature of Verticillium wilt common

to many hosts is a brown, green, or gray streaking in the wood just beneath the bark of infected branches. In green ash, however, streaking is often absent, making diagnosis difficult. Note that other disease agents can cause streaking in wood, so affected branches must be sent to a laboratory for positive diagnosis. Keep in mind that the symptoms of Verticillium are very similar to those caused by drought stress.

## Disease Management

In nurseries, Verticillium wilt can be a serious problem, so steps should be taken to avoid its introduction to field sites or to reduce inoculum levels in already infested fields. These include:

- rotate all fields regularly
- do not plant susceptible species in nursery sites where *V. dahliae* is known to exist
- eliminate weeds that serve as hosts to *V. dahliae* and increase inoculum levels in soil
- avoid stock from wholesalers with a history of this disease

In both the nursery and the landscape, Verticillium wilt is best managed by planting disease resistant species and cultivars in sites where the disease has been diagnosed. In addition, high levels of nitrogen fertilization may exacerbate disease development. Fungicides are not effective for management of this disease and are, therefore, not recommended.

**Table 1. Woody plant species that are susceptible or resistant to Verticillium wilt.**

<b>Susceptible</b>	ash, azalea, boxwood, brambles, buckeye, catalpa, cherry and other stone fruits, Kentucky coffee tree, currant and gooseberry, elm, golden-rain tree, hibiscus, honeysuckle, horse-chestnut, India-hawthorn, lilac, black locust, magnolia, maple, Russian olive, osage orange, osmanthus, Japanese pagoda tree, peony, persimmon, photinia, privet, redbud, rose, sassafras, serviceberry, smoke tree, spirea, sumac, tree-of-heaven, tulip tree, viburnum, <u>wiegela, and yellowwood</u>
<b>Resistant</b>	apple and crabapple, beech, birch, boxwood, butternut, dogwood, eucalyptus, firethorn, hackberry, hawthorn, hickory, holly, Katsura tree, linden, honey locust, mountain ash, mulberry, oak, oleander, pawpaw, pear, pecan, plane tree and sycamore, poplar, quince and flowering quince, rhododendron, sweet gum, walnut, willow, and Japanese zelkova

## Computer Spreadsheet Skills for Greenhouse and Nursery Farmers

Don't miss the opportunity to attend this one-day hands-on class designed specifically for the farmer working at greenhouses and/or nurseries. Through demonstrations and in-class exercises, you will learn how to use Excel to set up your own farm cost analysis spreadsheets for use in determining the profitability of your plant materials in future sales, either to the public or wholesale distributors. The morning session will explain the basic concepts behind an Excel spreadsheet. You will learn how to create a worksheet, develop simple math formulas, understand how to set up and establish rows, columns and cell addresses, and gain a basic understanding of what it takes to set up business worksheets.

During the afternoon session, taught by Dr. Robin Brumfield, (Extension Specialist, Rutgers Cooperative Extension) you will apply skills learned in the morning session to create a customized cost analysis spreadsheet to fit the precise needs of your business. Specific topics will include:

- Learning to allocate your farm's variable costs into your individual plant cost analysis
- Exploring how to determine whether a set of plantings will yield a profit or loss
- Becoming familiar with the tools required for financial and production management
- Understanding how and where to reduce your costs

## NJ Christmas Tree Growers Annual Summer Meeting

July 21, 2007, Saturday  
8:30a-3:00pm

Exley's Christmas Tree Farm  
Sewell, NJ (Gloucester County)

Topics: Insect control, herbicide test plots, pesticide storage, farm tour.

Core credits will be available!!

For more info contact Andy Alpaugh at 609-397-0096 or [www.njchristmastrees.org](http://www.njchristmastrees.org). □

The fee for the Computer Spreadsheet Skills course is \$20. The class will run from 8:00 a.m. to 4:00 p.m., with registration from 7:30 am to 8:00 am. Copies of Dr. Brumfield's greenhouse cost accounting software will be available for an additional fee of \$50, make checks payable to: Rutgers, The State University of New Jersey.

Register on-line for any date:

- [September 12, 2007](#)
- [September 17, 2007](#)
- [September 24, 2007](#)

If you'd prefer to register by mail or fax, simply download our registration form at: <http://www.cookce.rutgers.edu/brochures/intros/farm.html> or call (732) 932-9271 (ext. 617). □

### Weather Summary for the Week Ending 8 am Monday 6/25/ 7

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
CANOE BROOK	.82	24.36	8.62	88	48	70.	0	1048	310	90
CHARLOTTEBURG	.91	17.70	1.82	86	45	66.	-1	898	327	80
FLEMINGTON	1.14	22.02	7.00	92	46	69.	-1	982	216	88
NEWTON	1.14	13.80	-.49	87	46	67.	-1	873	228	87
FREEHOLD	1.14	18.07	3.30	87	46	68.	-3	1141	286	91
LONG BRANCH	1.37	17.90	3.04	82	52	69.	-1	936	149	81
NEW BRUNSWICK	1.22	23.96	9.53	87	49	70.	-3	1059	153	93
TOMS RIVER	.56	15.20	.52	84	47	68.	-3	991	209	58
TRENTON	1.19	19.08	5.66	92	51	71.	-2	1108	151	75
CAPE MAY COURT HOUSE	.21	10.35	-2.68	82	51	70.	-1	992	131	52
DOWNSTOWN	.19	15.18	1.89	89	49	70.	-2	1106	130	51
GLASSBORO	.79	17.28	2.91	90	50	73.	1	1258	303	62
HAMMONTON	.38	15.01	1.02	87	50	70.	-3	1143	195	52
POMONA	.24	15.23	2.52	84	51	69.	-2	1086	219	49
SEABROOK	1.14	16.36	3.65	91	52	72.	-1	1261	278	81
SOUTH HARRISON	.24	16.65	1.48	90	53	72	NA	1209	NA	NA
WES KLINE -- GDD BASE 40 PINEY HOLLOW LAST WEEK 199 (Ending 6/18/07) THIS WEEK 209 (Ending 6/25/07)										

