

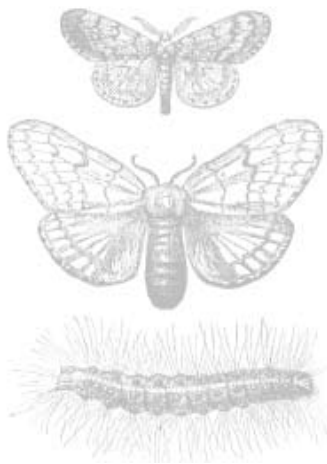
PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

OCTOBER 9, 2008

Estimating Gypsy Moth Populations for 2009

Steven K. Rettke, Ornamental IPM Program Associate



The gypsy moth caterpillar has made a dramatic revival in a number of “hot spots” within New Jersey and other surrounding states during the past few years. Recent history has shown that the NPV virus and Entomophaga fungus pathogens cannot always be relied upon to maintain adequate suppression levels every year. Therefore, in certain parts of the state your clients may request additional controls and it may be worth your effort to attempt to determine this fall what the infestation levels will be at certain sites next spring.

Late Fall is Best Time to Count Eggs

Estimating gypsy moth populations next spring by counting egg masses this fall can be a challenge. After leaf drop is considered to be the best time of the season to count gypsy moth egg masses. Fewer leaves on the trees will improve visual observation abilities. Furthermore, counting is best done in the fall before the egg masses become too weathered. This autumn, the coloration of egg masses laid last July is still easily distinguished between weathered egg masses laid a season of two earlier. Viable egg masses laid this past summer should still have a yellow to light brown coloration. Older, weathered egg masses that hatched a year or more ago typically change to a white or cream coloration. Observing egg masses before they become excessively weathered helps avoid the counting of non-viable eggs and improves the accuracy of spring hatch estimates.

To properly estimate gypsy moth egg mass populations from the ground, a good pair of binoculars is required. It can be particularly difficult on white oaks because of the lighter colored bark and since eggs can be hidden from view under exfoliating bark flaps. A few studies have indicated that on white oaks the gypsy moth egg mass counts from the ground are typically under-estimated by at least 25%. This problem is further compounded since gypsy moths are sometimes more numerous on the white oaks relative to red oaks.

Egg Mass Sizes

Under standard conditions, gypsy moth females will lay egg masses containing between 400 to 500 individual eggs with the long length of the mass measuring 1.5 inches or longer. The counting of egg masses can be complicated since the actual number of individual eggs within each mass can dramatically differ and affect defoliation potentials. In

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Plant Diagnostic Laboratory Highlights

Richard J. Buckley, Laboratory Coordinator

Turf

Anthracnose takes all the headlines for turfgrass submissions once again this week. Samples of putting greens diagnosed with anthracnose were submitted from golf courses in Connecticut, New Jersey, New York, and Pennsylvania. Other than anthracnose, the excitement in the turfgrass disease realm came from our first **bentgrass dead spot** sample since 2005. The sample was from a newer Hunterdon County golf course. The same golf course has been having ongoing problems with **fairy rings**. **Gray leaf spot** was diagnosed on perennial ryegrass from a college football field in Pennsylvania. **Rust** is also quite active at this time in perennial ryegrass and Kentucky bluegrass home lawns.

Landscape

In the landscape, samples of woody ornamentals with cankers were plentiful. Willow was submitted with **Cytospora canker**, **black knot** was identified on *Prunus*, **Botryosphaeria canker** was found on a rhododendron, and a boxwood sample had **Volutella stem blight**.

Several samples of dogwood, mostly the Kousa variety, have been sent to the laboratory in recent days. In each case, no disease or insect pest was identified. Our diagnosis indicates that these trees exhibited scorch, early fall color, and premature defoliation from site, cultural, and environmental stress. Dogwood generally needs deep, rich and well-drained soil to perform well. They also do best when provided with some protection from sun and winter wind. It seems these trees are frequently being used by contractors as foundation plants to anchor home landscapes or provide a focal point between the driveway and sidewalk. These highly disturbed sites are usually constructed of poor quality soil, often compacted or poorly drained; and in a location that provides the tree with plenty of heat and reflected light. It should not surprise you that a dogwood will suffer from extremes in moisture and temperature under those site conditions.

Last, but not least, trees with **bacterial leaf scorch** (BLS) continue to be submitted to the laboratory from New Jersey and the mid-Atlantic region. There is still time to sample suspect trees, but your days are numbered as normal fall color changes and leaf drop begin to mask the damage on infected trees. □

ESTIMATING GYPSY MOTH FROM PAGE 1

areas experiencing explosive gypsy moth population increases, observations have shown that very large egg masses may contain over 1000 individual eggs. In other areas where the food quality is reduced and the population is crashing, the number of eggs per mass may only be 100. These small egg mass sizes also typically indicate that the fungus or virus pathogens are well established in the area. When egg mass sizes become this small, the length of the mass may be less than 0.5 inch.

Egg Mass Thresholds

When dealing with standard egg mass sizes (e.g., 400-500 eggs/mass) some possible threshold levels have been established for residential and urban park settings. These suggested thresholds are 250-egg masses/acre within residential landscapes and 500-egg masses/acre for urban park areas. The residential threshold is reduced by one-half, since other factors beyond tree health are important, such as sanitation and human aesthetics.

The urban park threshold was determined in order to avoid defoliation levels exceeding 50%. When defoliation levels exceed 50% repeatedly (2-3 years), then tree health is compromised and the two-lined chestnut borer or *Armillaria* root rot can move in and cause oak mortality.

Simplifying Egg Mass Counting

Counting egg masses within an area the size of an acre is extremely difficult. A more practical plot size is needed when counting and estimating gypsy moth populations at various locations. Performing counts within circular plots having a diameter of 37 feet (1/40th of an acre) greatly simplifies the procedure. Therefore, in residential areas only 6 or 7 standard sized egg masses counted within the 1/40th of an acre site will equal threshold levels. Within urban park settings the threshold count will correspondingly be 13 egg masses per 1/40th of an acre plot. If standard sized egg mass counts exceed 25 per 1/40th acre plot (e.g., 1000 egg masses per acre), then severe defoliation levels should be projected. When populations reach these density levels the use of B.t. (*Bacillus thuringiensis*) is no longer an effective control option and the use of standard chemical materials will be required. When estimating the potential gypsy moth pressures within larger land areas, it is important to draw a random transit through the area and perform counts on more than only one 1/40th acre plot. For example, when dealing with a grove of oaks within a 50-acre park, at least 5 plots of 1/40th acre size will need to be counted. It may also be important to consider that the wood lot edges containing oaks will typically have higher gypsy moth egg mass populations.

Gypsy Moth Ballooning

Even after accurate egg mass counts for an area have been determined, it is important to remember that after hatch, the 1st instar caterpillars have a ballooning period that can potentially blow for many hundreds of yards downwind (considerably further in the ridge and valley regions in northern parts of the state). Therefore, adjacent areas with infestations upwind could significantly increase defoliation levels on sites where the fall egg mass counts were estimated to be below thresholds. Be aware of the direction of the prevailing winds and where past gypsy moth problems have occurred. □

Diseases of Turfgrass

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

Pink Snow Mold

This disease, caused by the fungus *Microdochium nivale* (*Fusarium nivale*), will develop soon on golf and landscape turf. To prevent pink snow mold from developing on susceptible turf this fall, avoid excessive nitrogen applications, continue mowing turf until dormancy and apply Armada, Banner, Chipco 26GT, chlorothalonil, Compass, ConSyst, Eagle, Headway, Heritage, Insignia, Instrata, Medallion, PCNB, Spectro, Tartan, thiophanate-methyl, Trinity or vinclozolin. For best results, apply any of these fungicides now and then repeat in late-January if the snow cover recedes. Do not reapply PCNB after mid-January since this product has a three month residual and can yellow turf during warm (>80F) weather.

Stripe Smut

This disease, caused by the fungus *Ustilago striiformis*, will soon develop on sensitive Kentucky bluegrass cultivars. Symptoms typically appear as long black streaks (striations) between the veins of infected blades. These areas eventually rupture releasing abundant black smut spores. Research at Rutgers has shown that one well-timed application of a systemic fungicide in early to mid-October offers excellent control and is, therefore, far superior to multiple applications in the spring (mid-May). For best results, apply Armada, Banner, Bayleton, Eagle, Rubigan, Tartan or thiophanate-methyl now per manufacturer's recommendations.

Take-all patch

We have received reports of take-all patch, caused by the root and crown infecting fungus *Gaeumannomyces graminis* var. *avenae*, on bentgrass fairways in the region. Although this disease is most prevalent from April through June, late-summer and fall outbreaks are not uncommon on greens, tees or fairways. Infection takes place during cool, wet weather and symptoms are most striking after stress. Infected grass first appears bronze to reddish-brown in color and then fades to a dull brown. Patches are usually circular or ring-shaped and range in size from several inches to two feet or more in diameter. The centers of affected turf are frequently colonized by bluegrass (*Poa* spp.), fescue (*Festuca* spp.) or weed species. Upon close examination, decaying roots and leaf sheaths appear black and dark strands of mycelium often develop parallel to the root surface. The disease is enhanced by poorly drained, light-textured and high pH soils.

Although take-all patch is difficult to control, best results have been achieved through the use of acidifying fertilizers (e.g., ammonium sulfate) during cool

weather and preventive applications of Banner, Bayleton, Headway, Heritage, Insignia, Trinity or Rubigan in October and November. If the disease has been particularly severe, fungicides should be reapplied twice next spring at 21 to 28-day intervals beginning in early April. Chemicals should be applied in 4 gal water/1000 sq ft or lightly irrigated into the root zone (1/8 to 1/4" of water) for maximum effectiveness. Whenever practical, overseed infested areas with less susceptible grasses such as fine fescue, Kentucky bluegrass or perennial ryegrass to mask symptom expression. Maintain soil pH at approximately 6.0 since the disease is enhanced in alkaline soils. Manganese (@ 2 lb Mn/A), applied once in the spring as a foliar spray (e.g., manganese sulfate or another water soluble source of manganese), can reduce the severity of take-all patch on sites deficient in this nutrient.

Green Industry Expo

This year's Green Industry Expo will be held at the Trump Taj Mahal Casino/Resort on December 9-11, 2008. This is an excellent opportunity to receive the latest turf management information from nationally renowned speakers. For additional information, please contact Cece Peabody (973) 812-6467 or e-mail execdirector@njturfgrass.org or Marlene Karasik (732) 932-9400 ext. 339 or e-mail mkarasik@aesop.rutgers.edu. □

Diseases of Ornamentals: End of Season Notes

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

The 2008 growing season is winding down. A recent tour of ornamental trees and shrubs planted in the New Brunswick area revealed many of the “old standby” diseases common in landscapes each year. Evident were **leaf spot** (trees, shrubs, and ground-covers); **crabapple scab**; **cedar-apple or quince rust** on rosaceous (crabapple or hawthorn) and juniperous (juniper and cedar) hosts; **oak leaf blister**; **horsechestnut leaf blotch**; **shade tree anthracnose** (especially on sycamore); **juniper tip blight**; **Diplodia tip blight** (2- and 3-needle pines); **black spot of elm**; **anthracnose of English ivy**; and **pachysandra leaf and stem canker**. Many of these diseases are “springtime” diseases; the fungi that cause them are active during cool, moist weather, and newly developing host tissues are more vulnerable to infection this time of year.

State-wide, these and other diseases were commonly reported. The beginning of the season was troubled with excessive moisture in the landscape from early spring rains. Many plantings suffered from “wet feet,” especially those in poorly drained soils. During the spring and summer, diseases in the landscape included **black spot** (rose), **fireblight** (ornamental pear), **Verticillium wilt** (maple), and **powdery mildew** (hosts commonly affected by this disease include ash, azalea and rhododendron, flowering dogwood, elm, lilac, oak, sycamore, and rose). Although powdery mildews were everywhere, I was disappointed that the peonies in my backyard were not severely affected this year. By late August, symptoms of **bacterial leaf scorch of oak** were very striking on pin and red oaks. Diseases reported by producers at various points during the growing season included **foliar nematode**, **downy mildew**, **root rots** caused by *Rhizoctonia* and *Phytophthora*, **Rhabdocline needlecast of Douglas fir**, and several virus diseases.

Most of the landscape diseases mentioned above are merely cosmetic and do not significantly impair plant growth. Of greater concern are moisture extremes (excessive moisture in poorly drained areas as well as mid-season drought). Landscape trees throughout New Jersey have been stressed in previous years by prolonged moisture extremes, and it often takes trees five or more years to recover. Not only does moisture stress impact the immediate growth and development of plants, it also predisposes them to other diseases (especially cankers caused by *Cytospora*, *Botryosphaeria*, and *Nectria*) and insect pests (such as borers). Keep this in mind during the next few years when monitoring landscape trees and shrubs for plant health. □

Botryosphaeria Canker: Troublesome to Plants in Dry Weather

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

Botryosphaeria canker is a commonly occurring disease that affects woody plants in over 100 genera. Although the disease is very important in fruit and nut crops, it can be troublesome in ornamental species such as ash, birch, cotoneaster, crabapple, dogwood, elm, firethorn, hop hornbeam, mountain laurel, locust, magnolia, mimosa, photinia, pieris, privet, rhododendron, and wax myrtle. The causal agent, *Botryosphaeria dothidea*, is an opportunistic fungus that attacks trees and shrubs wounded or weakened by environmental stress, particularly drought. The disease can result in a branch dieback that may kill trees or severely reduce their aesthetic value. Indeed, Botryosphaeria canker is quite evident now on older, stressed rhododendrons.

Symptoms

Symptoms of Botryosphaeria canker vary with the species and age of the host and the severity of the predisposing stress. The fungus kills bark and sapwood tissue, causing areas of dead tissue called cankers to form. Cankers range from small, elliptical lesions that coalesce into large diffuse areas of blighted tissue, to large, elongate cankers delimited by callus tissue. Affected bark turns dark, rough, and may peel away. Multiple cankers of various sizes often develop on branch tissue, growing slowly until the limb is girdled and killed. The entire plant may be killed once the canker moves from the branch into the main stem.

Disease cycle

Botryosphaeria survives the winter in small, round “fruiting bodies” (or structures that produce spores) embedded near the surface of cankered tissue. Infections occur when spores called conidia are splashed by rain from these fruiting bodies to susceptible tissue. Spore dispersal can occur during most of the year, but is most extensive during late spring and early summer. Infection occurs when fungal spores penetrate wounds or other openings in the bark. Pruning wounds, cracks, leaf scars, sunscald lesions, and senescent branches are all good entry sites for the fungus. Symptom development can take anywhere from 3 months to a year.

Control

Most healthy, vigorous plants are resistant to Botryosphaeria canker. Environmental stress, however, can readily predispose plants to attack. Healthy trees and shrubs can resist infection and will readily slow or prevent spread of the disease throughout the branch. When planting new trees and shrubs, choose a site that is suitable to the horticultural requirements of the species. For ex-

SEE BOTRYOSPHERIA CANKER ON PAGE 5

Report from Department of Plant Industry, NJ Department of Agriculture

Gypsy Moth

An aerial survey for the permanent impacts of gypsy moth defoliation was conducted in cooperation with the NJDEP Parks & Forestry. Data from areas which experienced multiple years of gypsy moth defoliation was compiled and analyzed; 30,902 acres of dead trees in portions of southern, central and northwestern New Jersey were identified in the aerial mortality survey.

A total of 127 towns have requested egg mass surveys for the 2009 program. Those surveys are underway and should be completed by the end of the year.

Asian Longhorned Beetle

The final 40 sq. miles of grid survey in Passaic, Hudson and Monmouth counties for Asian longhorned beetle, *Anoplophora glabripennis* and Emerald ash borer *Agrilus planipennis* was completed, all with negative findings. Staff began compiling a list of high risk industries in preparation for pathway-based pest surveys in 2008/2009. The list focuses, on but is not limited to, industries such as green-wood pallets makers; pallet recyclers, saw mills and marble/granite importers.

USDA APHIS PPQ and USDA tree climbers, along with Davey Tree Expert Company continued climbing in Middlesex and Union Counties as part of the Verification Survey; 2,302 trees were climbed, no signs of Asian longhorned beetle were found.

USDA inspectors visited two wood recycling sites in Cumberland and Warren Counties, which received shipments of wood accidentally shipped from within the NY ALB quarantine area. 317 host trees at the sites were examined; no evidence of Asian longhorned beetle was found.

Plant Pest Survey

Insect trapping surveys for Sirex Wasp, Emerald Ash Borer (EAB) and Light Brown Apple Moth (LBAM) continued this month. The 150 insect traps are being serviced regularly and several suspect insects have been detected. Two suspect LBAM samples were sent to USDA for detailed analysis and further identification.

Soil samples are being collected from nurseries planning to ship to Canada to support exports of NJ grown nursery stock. Soil will be tested for the presence/absence of soybean cyst nematode (SCN); nurseries found contaminated with SCN may not ship to Canada.

Rhinoncomimus latipes Releases on Mile-A-Minute

A total of 38,029 *Rhinoncomimus latipes* adult weevils have been released this season into 24 new sites. During 2007, a total of 30,054 *R. latipes* were released. Thus, the total number released to date has already exceeded last year's total; with about three weeks left to go in the season. Recoveries of *R. latipes* have been made from all 29 of the 2007 release sites. Field staff are currently surveying for new mile-a-minute infestations throughout New Jersey. □

BOTRYOSPHAERIA CANKER FROM PAGE 4

ample, planting sun-loving plants in shady locations or placing plants outside their natural range can predispose these plants to canker disease. With older, established trees, maintain or improve plant vigor with proper pruning, fertilization, and irrigation. Since drought stress predisposes trees to canker development, watering trees during times of drought is particularly important.

Since *Botryosphaeria* is an opportunistic fungus that infects stressed plants through existing openings, it is important to protect plants by carefully avoiding all unnecessary wounding. Closely monitor and control insects, mites, and other potential disease problems. Through careful monitoring and early detection, *Botryosphaeria* canker can be eradicated before a significant reduction in the aesthetic value of the tree occurs. Branches with symptoms of canker should be promptly pruned during dry weather at least 6 to 8 inches below affected tissue. If possible, remove the branch from the tree by properly cutting the limb flush to the branch collar, not flush to the trunk. To prevent the spread of this disease on pruning tools, surface-sterilize tools between cuts with denatured alcohol or 10% bleach. Since the fungus can persist and sporulate in dead plant material for extended periods, branches cut from diseased trees should be taken from the site and, if possible, composted. Fungicides or wound paints have not proven to be an effective control of most canker diseases and are not recommended. □



Nursery Twilight Meeting

October 16, 2008, 4:30 – 7:00 PM
Hluchy Farms (Middlesex County)
313 Spotswood Gravel Hill Road
Monroe Twp., NJ 08831

AGENDA

- Brief Tour of Operation
- Pesticide Safety Tips
- IPM Weed Management Options
- IPM Disease Management – Key Disease Pests
- IPM Insect Management – Key Insect Pests

- ✓ Pesticide credits will be available.
- ✓ Pesticide Safety presentation will include a Spanish translator.
- ✓ Light refreshments will be provided.

Please pre-register with our office by calling Middlesex County Cooperative Extension at 732-398-5262. ☐



Poinsettia Open House

Dec. 3 - Dec. 5, 2007
From 9:00 a.m. until 3:00 p.m.
Floriculture Greenhouses
School of Environment and Biological
Science (formerly known as Cook College)
New Brunswick, NJ 08903

Approximately 100 Poinsettia cultivars provided by Fischer, Dummen, Oglevee, Selecta First Class, and the Paul Ecke Ranch, will be on display during our annual Poinsettia open house. The Open House will take place from Dec. 3- Dec. 5 between the hours of 9:00 a.m. to 3:00 p.m. at the Floriculture Greenhouses that are located behind Blake Hall, directly off Nichol Avenue on the Cook College Campus. Regardless of whether you sell them, buy them, or just enjoy a colorful display, it will be a chance to see what's new, exchange ideas, and learn more about growing, handling, and marketing this important crop.

This year, the finishing of the crop under two different temperature regimes to evaluate energy conservation and potential may be of particular interest. One regime will be the traditional day and night temperatures the other will be a temperature regime characterized as "cold production" touted as a way to save on energy costs. While there is information about responses it should be interesting to see how 100 different cultivars respond to this adjustment.

The program is informal and free of charge. It is an educational opportunity open to anyone interested in learning more about this important floricultural crop. For more information call Ms. Nickie Graf at 732-932-9301. ☐

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal, averaging 56 degrees north, 60 degrees central and 62 degrees south. Extremes were 77 degrees at Cape May Courthouse and New Brunswick on the 1st, and 36 degrees at Charlotteburg on the 5th. Weekly rainfall averaged 0.37 inches north, 0.24 inches central, and 0.19 inches south. The heaviest 24 hour total reported was 0.48 inches at Piney Hollow on the 30th to 1st and Belvidere on the 4th to 5th. Estimated soil moisture, in percent of field capacity, this past week averaged 97 percent north, 92 percent central and 88 percent south. Four inch soil temperatures averaged 60 degrees north, 63 degrees central and 64 degrees south.

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

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.65	25.00	-4.13	73	40	57.	1	2976	327	98
CANOE BROOK	missing									
CHARLOTTEBURG	.38	32.37	1.36	71	36	55.	1	2678	576	98
FLEMINGTON	.11	26.05	-3.16	73	39	57.	0	2855	122	95
NEWTON	.33	27.43	-1.02	72	37	56.	2	3009	651	96
FREEHOLD *	.30	22.47	-5.90	75	43	60.	1	2753	-170	94
LONG BRANCH	.34	24.59	-4.12	75	46	60.	1	2939	70	86
NEW BRUNSWICK	.18	33.59	4.76	77	43	60.	1	3253	199	93
TOMS RIVER	.07	27.26	-2.16	75	41	60.	2	3171	306	72
TRENTON	.33	27.46	.22	73	45	59.	-1	3386	205	86
CAPE MAY COURT HOUSE	.11	19.77	-5.72	77	45	61.	-1	3373	428	77
DOWNSTOWN	.53	23.87	-2.79	75	43	61.	0	3374	168	87
GLASSBORO	.11	22.88	-5.23	74	49	61.	1	3444	281	79
HAMMONTON	.11	21.85	-6.20	76	46	62.	2	3527	359	75
POMONA	.11	25.43	.16	76	45	62.	3	3505	562	75
SEABROOK	missing									
SOUTH HARRISON	.08	24.22	-3.27	73	48	62	NA	3407	NA	NA
WES KLINE -- GDD BASE 40 PINEY HOLLOW										
LAST WEEK 171 (Ending 9/29/08)										
THIS WEEK 148 (Ending 10/6/08)										
* SOME DATA IS MISSING AND THEREFORE CUMULATIVE AND AVERAGE VALUES WILL BE OFF FOR THIS STATION ESPECIALLY FOR PRECIPITATION SINCE SIGNIFICANT RAINFALL OCCURRED DURING THAT PERIOD.										

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PLANT & PEST ADVISORY

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Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The pesticide user is responsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCE in your County.

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