

PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

MAY 29, 2008

Ornamental IPM Pest Notes

Steven K. Rettke, Ornamental IPM Program Associate



Boxwood Leafminer larvae
Source: Penn State Cooperative Extension
<http://woodypests.cas.psu.edu/>

INSIDE

Ornamental IPM Pest Notes1

Plant Diagnostic Laboratory
Highlights.....3

The Gymnosporangium
Rusts4

Diseases of Turfgrss.....4

Weekly Weather Summary5

✓ **BOXWOOD LEAFMINER (448-700 GDD):** The adults are laying eggs on new growth of boxwood. Larval feeding inside the leaves causes a blister-like appearance (look at the undersides of the foliage). Leaves will turn yellow and may drop by summer. Typically much of the feeding does not occur until late in the season with symptoms only becoming apparent in late September. If intolerable, control with imidacloprid (Merit) or acephate (Orthene). The higher rate of Orthene is required for adequate controls.

✓ **HOLLY LEAFMINER (246-448 GDD):** The feeding larvae are pupating inside the leaves and have been emerging as adults. Adults fly around trees and lay eggs for a few weeks. Adults puncture leaves to feed on leaf sap, leaving tiny holes in the foliage (it was once thought this was damage from leaf spines puncturing foliage).

Place sticky traps out to monitor for adults, and where population levels are high treat with acephate (Orthene). The beginning mines within the new leaves are serpentine, thread-like, and not obvious. Much of the feeding damage actually occurs during late summer and early fall. As a result, an August or September treatment is also effective.

✓ **WHITE PRUNICOLA SCALE:** The crawlers have hatched and become active in many areas of the state. This is the first of three generations. It attacks flowering cherry, and plants in *Prunus*, as well as lilac and privet. This scale species is particularly difficult to control, because the crawler generations can continue to emerge over prolonged periods of time throughout the season. The second and third generations occur during the mid and late summer periods. Soaps and oils (1%), targeting the branches and trunks will control crawlers when seen. Plan a dormant oil application for late winter next year.

✓ **COOLEY SPRUCE GALL ADELGID:** Colorado spruce (especially green forms), Sitka and Oriental spruce and Douglas fir share the two host life cycles of this pest. Mature adult females lay eggs at the tips of branches. These eggs hatch and the immatures move to new growth and start feeding. 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 from the Eastern spruce gall adelgids). 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.

SEE IPM NOTES ON PAGE 2

IPM NOTES FROM PAGE 1

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 3-4 inches). By next fall another winged generation flies back to spruce and lays eggs for the cycle to repeat itself.

Control by pruning out galls when seen; place sticky traps out in late summer (Douglas fir or fir) (1850-1950 GDD) to determine timing to spray adults with insecticidal soap (+ sticker).

✓ **ELONGATE HEMLOCK SCALE (299-400 GDD):**

An armored scale found on the underside of hemlock foliage, and sometimes on spruce, Douglas fir and yew. Female covers are oval, flat, tan/translucent; males are white. There may be six or more scales per needle. Yellow spots appear on needles under light feeding and foliage appears thin; in heavy infestations, needle drop occurs and trees may be killed. Adult females have a very long egg-laying period (lasting throughout the summer) with three overlapping generations. Crawlers (immatures) are noticeable in late May, in conjunction with new growth. Look for the tiny crawlers using a hand lens. Although oil, soap, and other insecticides are labeled, control may be mixed because all life stages are active at any one time. A systemic such as acephate (Orthene) that is translaminar in foliage can provide some suppression. Imidacloprid (Merit) is very effective controlling the hemlock woolly adelgid, but will NOT provide satisfactory control of elongate hemlock scales.

✓ **PINE BARK ADELGIDS:** These common aphid-like insects form a white, cottony coating on the bark of white pine and Scots pine. Eggs laid in May hatch this month and settle on the bark, branches and new pine candles. Damage is usually cosmetic (sometimes severe populations can kill small branches), yet customers may react negatively to their presence. Reduce this first generation with a strong blast of water, horticultural oil, or insecticidal soap.

✓ **JUNIPER SCALE (707-1260 GDD):** This imported armored scale insect is found on the foliage and twigs of juniper (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. With light infestations there is often no apparent symptoms. Significant populations of 10 or more scales per 1/2 inch of twig can result in yellowed foliage and needle drop. Dieback can occur with high populations. Scales usually build up first on the south side of shrubs or on the side against buildings.

Adult females overwinter on the foliage and there is only one generation each year. Crawlers start hatching by mid-June and can continue well into July. Controls may not be required if many beneficials are present (monitor for parasitoid exit holes in covers and for dusty-

wings and ladybeetles). 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.

✓ **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.

✓ **SLUG FEEDING:** Damage on herbaceous plants often appears 'suddenly.' Look for irregular holes in the middle of the leaf and not the edge of the leaf. If new growth emerges twisted or ragged, slugs may have fed on dormant buds. Carefully monitor hosta, daylily, and any annual/perennial bed that is heavily mulched. Consider removing some of the mulch to reduce slug habitat. Apply slug bait if necessary. Often during the summer months, slug feeding on herbaceous plants is suspected, when Asiatic garden beetle adults are actually causing the damage.

✓ **TICK WARNINGS:** During the weeks ahead, the peak activity for the immature stage of the Deer tick (Black legged tick) will commence. This stage is the vector of 70% of all cases of Lyme disease. The nymph is very small, about the size of a poppy seed. The tick is picked-up by brushing against low (4"-6") vegetation. Since ticks don't fly or drop from trees, they crawl up and wait on vegetation for a person to walk by and then grasp onto clothing to crawl up. Tucking your pants into your socks (so they don't crawl up your leg undetected), wearing high rubber boots (too slippery to crawl up?), and wearing a repellent (to kill them upon clothing contact) are thus all precautionary recommendations to prevent a tick bite. The nymph stage will feed for 3 to 5 days, swelling with blood to the size of a sesame seed before it drops off.

The nymph prefers to live in the woods, or in adjacent vegetation, not in properly mowed lawns. A lawn is simply too hot and dry for nymphs to survive. Research shows that 84% of nymphs are found in the woods, 13% along wood-edged vegetation, and only 3% in the lawn.

Reliable control of Blacklegged tick nymphs currently involves one application of a granular insecticide

SEE TICK WARNINGS ON PAGE 3

TICK WARNINGS FROM PAGE 2

(e.g., Sevin G) broadcast 8-12 feet into the woods. Shaded turf adjacent to the woods is also treated. One application during late May or the first week of June has given >95% control of nymphs. Liquid insecticides are also labeled, but thorough coverage, by drenching foliage until runoff, must be performed. Only one pesticide application is necessary, because nymphs rarely move more than 10 feet from where they molted from a larva. Once they are killed within an area, they won't re-infest again until the adult moves in via animal activity during the fall season. (Ref.: D. Smith-Fiola; Landscape IPM Notes; Jn'97)

✓ ALLERGIES & PLANT POLLEN:

Spring is the time when most people suffer from allergies because of plentiful pollen in the environment. However, some plants 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. Sergeant, Tree Care Industry, 11/99)

✓ BEST MULCH TO CONTROL

WEEDS? Several years ago, researchers at NC State tested 5 organic mulches (pine bark, hardwood bark, cedar chips, longleaf pine needles, and shortleaf pine needles) over a two year period to determine their durability, attractiveness, and weed control. Mulches were applied and maintained at a 3.5-inch depth, with or without either black plastic or a polypropylene weed barrier blanket. All organic mulches applied alone reduced total weed counts by only 50%. Applying black plastic under any organic mulch resulted in 100% weed control. The polypropylene blanket under the organic mulches gave excellent control of tall fescue, vetch, wild violet, and wild garlic. However, polypropylene was ineffective in controlling yellow nutsedge and bermudagrass. Pine bark was the next most durable mulch, requiring the least replenishment (retaining 70% initial volume) after 630 days. The greatest loss was observed with shortleaf pine needles. Longleaf pine needles were considered the most attractive mulch. (Ref.: Skroch et al, J. Envir. Hort. 10(1):43-45, Mar'92) □

Plant Diagnostic Laboratory Highlights

Richard J. Buckley, Director, Soil Testing and Plant Diagnostic Services

Turf

We hope the turn in the weather to summer-like conditions is causing a change in course for turfgrass submissions. This season has been quite slow on the turf disease front, so I am counting on some heat and drought stress to kill some grass for me. The last remaining **yellow patch** (a.k.a.: **cool season brown patch**) was diagnosed on golf turf samples this week. In recent days, however, most of our samples were from residential turf. **Red Thread** has been very active on perennial ryegrass turf stands from the mid-Atlantic to Long Island. We are also seeing **leaf spot** in Kentucky bluegrass. The older varieties of bluegrass seem to suffer the worst damage.

Ornamentals

Shade tree anthracnose is the disease of the week for ornamentals. An oak sample, submitted from a Mercer County landscape, was diagnosed with the disease yesterday. If you look around; however, you will see significant defoliation in the sycamore and plane trees. Timely spring rains really got this disease going. Be aware that fungicide control needs to be applied to protect the new growth before the fungus is active. There is nothing you can do at this point, but rake leaves. Don't worry; an occasional defoliation by anthracnose won't kill a shade tree. In fact, a healthy tree will shrug off the disease and replace the damaged leaves by mid-summer.

Another common disease, **cedar apple rust**, has manifested itself in spectacular fashion this spring. Heavy rains since Mother's Day stimulated the formation of the classic orange telia on local red cedars. Many trees had so much disease they appeared to be decorated for the Christmas season. Other related *Gymnosporangium* rusts – **quince rust** and **hawthorn rust** – were also quite active. The telia for those diseases are not as spectacular, but can be found if you look closely at the interior branches of susceptible cedars for swollen limbs covered in orange slime. Rust diseases are not fatal and rarely damage the juniperous host, so take a minute to enjoy the view before you cut them off and toss them into the trash.



Pseudosclerotia (red threads) of Laetisaria fuciformis grow from the tips of affected leaves.



Red thread of Lolium perenne

The Gymnosporangium Rusts

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

Rusts caused by fungal species in the genus *Gymnosporangium* are some of the most interesting of diseases that affect landscape trees and shrubs.

The alternative hosts of this group of fungi include rosaceous hosts such as apple, crabapple, hawthorn, and quince, and juniperous hosts, such as eastern red cedar and juniper.

Gymnosporangium rusts overwinter in galls on the juniperous host. Galls of the cedar-apple rust fungus grow to several inches in diameter, whereas galls of the quince rust fungus are small and spindle-shaped.

Bright orange, gelatinous "horns" of spores (teliospores) ooze from galls during rainy weather in the spring. Teliospores give rise to basidiospores which can only infect rosaceous hosts and are spread by wind to newly developing tissues. By mid-summer, rusty orange pustules (called aecia) containing aeciospores appear on infected leaves (cedar-apple rust and quince rust) and young stems, petioles, and fruit (quince rust). By mid- to late-summer, the aeciospores are carried by the wind to infect cedar and juniper. Although these rusts are rarely destructive on cedar and juniper, they can cause premature defoliation, stunted growth, swollen and distorted twigs and petioles, and poor quality fruit on susceptible rosaceous hosts.

If desired, protect susceptible rosaceous hosts with chlorothalonil, ConSyst, fenarimol, flutolanil, mancozeb, myclobutanil, propiconazole, Quali-Pro TM/C WDG, Spectro, sulfur (dusting, flowable)*, thiophanate-methyl, triadimefon, trifloxystrobin, triflumizole, or TwoSome (no commercial uses) applied at 7- to 21-day intervals (see label for specific timing) from pink-bud until two weeks after petal fall. With the exception of triadimefon, these compounds may also be used to manage apple scab on susceptible hosts (check the label before use). When possible, use cultivars of crabapple and other rosaceous plants that are resistant to rusts. To help protect valuable landscape plantings, do not plant juniperous species near rosaceous hosts such as crabapple, hawthorn, or quince.

To manage the Gymnosporangium rusts on cedar and juniper, prune affected branches 6 to 8 inches below galls during dry weather with surface-sterilized pruning tools. Fungicides such as azoxystrobin, copper (salts), ferbam, flutolanil, Junction, mancozeb, myclobutanil, sulfur (dusting, flowable)*, thiophanate-methyl, triadimefon, or Zyban may be applied on a preventive basis to these hosts beginning in July. □

Diseases of Turfgrass

Bruce B. Clarke, Ph.D., 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°F), water in the early morning hours (e.g., 12 midnight to 8 AM), and apply Armada, Chipco 26GT, chlorothalonil, Compass, ConSyst, Disarm, Endorse, Headway, Heritage, Insignia, mancozeb, Medallion, Prostar, Spectro, thiophanate-methyl, or Tartan, on a preventive basis in areas with a previous history of this disease.

Fairy Ring

This disease, caused by a group of fungi known as *basidiomycetes*, is apparent 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, Insignia, 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.

General

Red thread is very active now on landscape turf.

Dollar spot has just started to develop on golf course greens, tees and fairways. **Leaf Spot** and **Stripe Smut** are still apparent on susceptible Kentucky bluegrass plantings.

Turf Field Day

Mark your calendars now for this year's Rutgers Turfgrass Research Field Days which will be held on Tuesday, July 29, 2008 (Golf and Fine Turf Research Field Day at Horticultural Farm II, New Brunswick, NJ) and Wednesday, July 30, 2008 (Landscape Turf Research Field Day at the Adelpia Research Farm, Freehold, NJ). Additional registration information and directions to each location can be obtained at <http://www.njturf.org/>. □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much below normal, averaging 54 degrees north 56 degrees central and 57 degrees south. Extremes were 80 degrees at Canoe Brook on the 26th, and 36 degrees at Flemington on the 20th. Weekly rainfall averaged 0.54 inches north, 0.61 inches central, and 0.59 inches south. The heaviest 24 hour total reported was 0.68 inches at Glassboro on the 20th to 21st. Estimated soil moisture, in percent of field capacity, this past week averaged 98 percent north, 95 percent central and 92 percent south. Four inch soil temperatures averaged 55 degrees north, 56 degrees central and 57 degrees south.

Weather Summary for the Week Ending 8 am Monday 5/26/ 8

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.48	12.93	2.13	78	37	55.	-7	313	46	91
CANOE BROOK	.54	12.50	.57	80	38	56.	-6	312	70	94
CHARLOTTEBURG	.58	13.18	1.43	77	37	53.	-7	250	91	93
FLEMINGTON	.59	12.25	.94	77	36	55.	-8	304	47	92
NEWTON	.49	12.63	2.17	77	38	54.	-7	353	158	94
FREEHOLD	.68	9.24	-2.04	77	37	55.	-9	311	-3	94
LONG BRANCH	.61	11.12	-.52	73	41	57.	-6	247	-25	84
NEW BRUNSWICK	.62	10.95	-.13	78	37	56.	-8	320	-23	92
TOMS RIVER	.54	11.02	-.24	75	40	56.	-7	319	24	79
TRENTON	.60	10.43	.23	76	40	56.	-9	393	13	82
CAPE MAY COURT HOUSE	.54	8.53	-1.36	74	43	57.	-7	369	32	78
DOWNSTOWN	.56	10.45	.30	78	40	55.	-10	410	17	83
GLASSBORO	.75	10.37	-.42	79	45	59.	-6	461	84	83
HAMMONTON	.54	8.85	-1.65	79	40	57.	-8	441	72	77
POMONA	.57	10.31	.50	76	39	56.	-8	398	85	78
SEABROOK	.56	10.45	1.16	75	44	58.	-7	466	68	83
SOUTH HARRISON	.59	11.11	1.09	76	46	58.	NA	453	NA	NA
WES KLINE -- GDD BASE 40 PINEY HOLLOW										
LAST WEEK 131 (Ending 5/19/08)										
THIS WEEK 110 (Ending 5/26/08)										

