

PLANT & PEST ADVISORY

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Basics of IPM:

A Magnifying Hand Lens - Don't Walk the Landscape without One

Steven K. Rettke, Ornamental IPM Program Associate

A Useful Tool

Of the many helpful tools that an IPM scout uses, arguably the most important may be a magnifying hand lens. Improving the abilities of the eyes to see the tiny world of insect and disease organisms will improve IPM decision-making in the field.

A hand lens is a tool that magnifies the small area of interest and can conveniently be placed in a pocket or worn around the neck, where it is always handy. Landscape pest managers *not* routinely using the aid of a hand lens are working at a great disadvantage. Once it is discovered how valuable the proper use of a hand lens is when monitoring, it soon becomes an indispensable tool.

Since the early detection of a plant pest is important in any IPM program, the use of a hand lens enables the pest to be detected before obvious damage appears on the plant. Also the pest population can more readily be evaluated when magnification is used.

Identification

Another component of landscape IPM is the actual identification of the pest. Without the help of a hand lens, it often becomes difficult to distinguish between the different species of mites, scales, whiteflies and other pests. For example, eriophyid mites are notoriously small pests that have baffled many landscapers for years. These tiny mites are very difficult to see without magnification and hence, a wrong diagnosis is typical when a powerful hand lens is not available (at least a 15x to 20x power is recommended). Although fruiting bodies of some disease organisms can be seen with only a 10x lens, many pathogen signs are typically beyond the capabilities of even the highest magnifying hand lens. Therefore compound microscopes and laboratory analysis are often necessary.

Another major factor in IPM is the proper timing of a pesticide treatment. A hand lens not only helps to ID the pest, but can also be invaluable when determining the pest life stages present on the plant (e.g., egg, immature or adult). Seeing and learning the different life stages of pests improves the decision-making abilities of the IPM technician. Visually verifying scale crawlers emerging from under the female scale,

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or the number of overwintering mite eggs on leaves, are just two examples of important information about pest life stages a hand lens can provide the plant manager. Improved control timing can now be utilized, and then the efficacy of the treatments can be measured, again with the aid of the hand lens.

Proper Use & Selection

Whenever magnification is used in the landscape, a potential limiting factor is adequate light on the subject under examination. Even during bright and sunny days, observations can be compromised when shadows are cast from buildings and plants, as well as shadows from the hands, hat or body of the landscaper using the hand lens. Therefore, it is important that the object being studied be held so that light strikes it directly and is not in a shadow. Also a common mistake many novice hand lens users make is to hold it at arm's length and attempt to focus on the object. The proper method is to hold the lens close to and nearly touching the eye, and then with the other hand, bring the subject toward the eyepiece until it comes into focus.

A hand lens can be purchased in different powers (e.g., 10x, 16x, 20x, etc.), with magnification expressed as "x". For example, a 20x magnifier enlarges an object 20 times bigger than life. When choosing a magnifier, a 10x is a good general-purpose power with a broad, bright field of view. However, when observing spider mites it is best to use a lens with at least a 15x power. All powers have their good points, but since increased magnification decreases both "depth of field" and "field of view," it is best to select the least amount of magnification needed for the task. Therefore, use lower power when initially scouting for pests. Once a pest is located, then a higher power lens can be utilized to inspect it in greater detail and to finalize the identification. As the sophistication level of the IPM scout advances, then the number and range of magnifiers the scout uses will also usually increase.

Reference: F. Dinsmore, "Your Hand Lens and You—Use It Right and You Won't Be Without It"; PA Dept. of AG, (1997); and "Choosing a Magnifier"; GEMPLER'S – IPM Buyers' Guide, (1998). □

Diseases of Turfgrass

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

Gray Leaf Spot

This has been a banner year for **Gray leaf spot** on perennial ryegrass. Many new seedlings have been severely damaged by the causal agent *Pyricularia oryzae*. Symptoms start as tiny, brown leaf and stem lesions within a 1 to 2 inch patch. In severe cases, the leaves twist and curl in a "J-shape" and lesions may extend the entire width of the blade. As the disease progresses, patches coalesce into large (1 to 2 ft diameter) areas of blighted turf. Extensive foliar blighting may occur during warm (70-85 °F days and 60-75° F nights), wet weather. When conditions are conducive to disease development the pathogen produces abundant one to two celled, pear-shaped spores (conidia). Newly established seedlings are more susceptible to infection than mature plantings, so be sure to use a mixture of perennial ryegrass cultivars with improved resistance to **Gray Leaf Spot** (e.g., Apple GL, Charismatic II GLSR, Exacta II GLSR, Manhattan 5 GLR, Regal 5, Revenge GLX, Secretariat II GLSR, 1G Squared, Stellar GL, and Zoom). For a complete list of gray leaf spot resistant cultivars, access Rutgers Cooperative Extension Fact Sheet #1048 at: www.turf.rutgers.edu/outreach/rcepublications.html.

To suppress this disease now, avoid high rates of nitrogen (i.e., do not apply more than 0.25 lb 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 thiophanate-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.

Stem and Crown Rust

Both of these diseases are evident on susceptible Kentucky bluegrass and perennial ryegrass cultivars, respectively, at this time. As rust intensifies, the turf prematurely yellows and orange pustules called uredia (reproductive structures) appear on affected blades. To control both **stem and crown rust**, maintain adequate fertility and soil moisture and apply Armada, Banner, Bayleton, chlorothalonil, Compass, Eagle, Headway, Heritage, Insignia, mancozeb, thiophanate-methyl or Trinity per manufacturer's recommendations.

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@nj-turfgrass.org or Marlene Karasik (732) 932-9400 ext. 339 or e-mail mkarasik@aesop.rutgers.edu. □

Plant Diagnostic Laboratory Highlights

Richard J. Buckley, Laboratory Coordinator

Turf

It is back to school time for the kids and the end of summer as we know it names **summer patch** as the most common problem in the laboratory. Samples of the disease were sent to the laboratory from golf courses in New Jersey, New York, and Pennsylvania. It is not uncommon to see small runs of this disease around Labor Day as fungicide programs wane and summer stresses continue. Although we are still seeing summer patch, we also had our first **take-all** diagnosis of the fall. The take-all was found on bentgrass samples from a Sussex County golf course. All of the samples with take-all and summer patch also had **anthracnose**. It is not uncommon to see anthracnose on turf infected with a root-infecting patch disease. In fact, we used to use anthracnose as a signal to look for patch diseases way back when... **Gray leaf spot** was identified on a sample of ryegrass from a golf course in upstate New York. Expect to see the potential for gray leaf spot increase as we

get some tropical moisture over the next couple weeks. In home lawns **dollar spot** continues to be a problem, but the most exciting thing we found this week were the samples with active **chinch bug** infestations. If you have an area of turf that will not recover with the cooler weather and rain next week, then poke around in the thatch because chinch bugs appear to be a real possibility this season. The chinch bugs came from Monmouth and Bergen County landscapes. Last but definitely not least are the massive **rust** outbreaks in perennial ryegrass. My feet were orange from urediospores after walking the dog yesterday. Rust might look ugly to you, but it does little damage to the grass and it washes right off the feet. A little nitrogen boost will help the grass recover.

Landscape

Red oak and pin oak with **bacterial leaf scorch** (BLS) continue to be submitted to the laboratory. Samples this time were from Atlantic and Gloucester counties. Other diseases and insect pests of note include: **spruce spider mite** and **elongate hemlock scale** on Douglas fir samples from Hunterdon County; **cryptomeria scale** on fir from Salem County; and **botryosphaeria canker** on ash branches from a Mercer County landscape. □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged above normal, averaging 69 degrees north, 71 degrees central and 72 degrees south. Extremes were 91 degrees at Pomona on the 26th, and 49 degrees at Charlotteburg, Flemington and Downstown on the 28th. Weekly rainfall averaged 0.29 inches north, 0.22 inches central, and 0.03 inches south. The heaviest 24 hour total reported was 0.59 inches at Canoe Brook and New Brunswick on the 29th to 30th. Estimated soil moisture, in percent of field capacity, this past week averaged 72 percent north, 59 percent central and 48 percent south. Four inch soil temperatures averaged 68 degrees north, 69 degrees central and 71 degrees south.

Weather Summary for the Week Ending 8 am Monday 9/ 1/ 8										
WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.16	19.19	-5.35	89	53	70.	3	2401	195	58
CANOE BROOK	.59	20.12	-5.59	88	50	70.	2	2364	140	76
CHARLOTTEBURG	.07	24.39	-1.58	81	49	67.	2	2225	459	64
FLEMINGTON	.54	19.04	-5.70	86	49	68.	0	2338	57	78
NEWTON	.07	20.23	-3.77	83	50	69.	4	2503	490	66
FREEHOLD	.00	15.13	-9.01	89	51	70.	1	2202	-226	62
LONG BRANCH	.03	17.64	-6.85	85	58	71.	2	2358	7	40
NEW BRUNSWICK	.59	24.87	.48	87	53	70.	-2	2671	136	79
TOMS RIVER	.03	19.77	-5.24	88	52	70.	0	2596	260	39
TRENTON	.46	20.97	-2.16	86	55	73.	2	2785	149	56
CAPE MAY COURT HOUSE	.00	15.17	-6.44	89	53	72.	0	2744	418	38
DOWNSTOWN	.00	18.97	-3.89	88	49	72.	1	2774	133	41
GLASSBORO	.03	18.18	-5.64	89	56	73.	2	2782	163	40
HAMMONTON	.00	17.20	-6.62	88	52	72.	1	2892	269	35
POMONA	.11	20.02	-1.97	91	51	73.	4	2871	426	39
SEABROOK	.01	17.21	-4.63	86	56	72.	1	2959	303	40
SOUTH HARRISON	.00	20.24	-3.24	87	55	73	NA	2764	NA	NA
WES KLINE -- GDD BASE 40 PINEY HOLLOW	LAST WEEK 215 (Ending 8/25/08) THIS WEEK 224 (Ending 9/1/08)									

