Late Summer Management of White Grubs
Albrecht M. Koppenhöfer, Ph.D., Specialist in Turfgrass Entomology

Mid-August into mid-October is the time when white grubs can cause damage to turfgrass areas. In areas that have not been treated preventively and are at risk based on previous history of grub infestations or high adult population observed in June/July, grub populations should be checked around mid-August before damage may start showing up.

What are the chances of high white grub densities this year? The risk can be to some extent estimated based on the weather and soil moisture in the turf areas in June/July. Females instinctively prefer to lay eggs in lush looking turf with at least moderately moist soil. The eggs need to absorb the soil moisture, almost doubling their weight in the process to develop, and the small first stage larvae are also at risk from desiccation in dryer soil. The only part of summer so far that was generally rather dry was from late June to about mid-July. Given that a lot of the precipitation in summer comes from thunderstorms, this may to some extent vary regionally. This dry period might have reduced white grub populations somewhat. However, turf areas that were kept moist during this period through irrigation might actually have attracted egg-laying females out of surrounding non-irrigated areas during this time.

Accurate determination of grub presence can be done only through examination of the upper 3” of soil under the turf. Turf/soil plugs can be sampled with a standard golf course hole cutter (4.25” diam ~ 0.1 ft²) or cutting a sample with a flat-blade spade (~ 0.25 ft²). The plugs are broken up and examined on the spot. Because of the grubs’ patchy distribution, several samples should be taken in a grid pattern. Then determine the number of grubs per sample and transform into ‘per ft²’-values. A simpler way to check for high grub populations is to just pull on the grass in several spots. High grub populations weaken the root system and the grass will be accordingly more loosely attached to the ground. However, if the grubs are still small and the conditions not too hot and dry, the grass will still be well rooted.

In landscape turf, 10 grubs per ft² is generally considered as an action threshold for most of our common white grub species (oriental beetle, Japanese beetle, northern masked chafer). However, grass species, management type, and climatic conditions affect the threshold.
level. Tall fescue should be able to tolerate much higher grub densities because of its deep root system and ability to regenerate roots at higher temperatures. Perennial ryegrass, on the other hand, is the least tolerant grass species, and 10 grubs per ft² can certainly cause damage. Irrespective of turf type, appropriate irrigation during late August into October will increase the turf’s tolerance to grub feeding.

If soil sampling reveals white grub populations, areas with densities above treatment thresholds or ongoing damage may need to be treated. This curative control approach works best if applied while the grubs are still smaller (i.e., mid-August to early September). The later the applications the less effective and variable the control rate.

For curative control of white grubs populations apply clothianidin (Arena), carbaryl (Sevin), or trichlorfon (Dylox, Advanced Lawn 24 Hour Grub Control). The combination product Aloft contains both clothianidin and bifenthrin and would also be effective. However, unless surface feeding insects (chinch bugs, sod webworms) need to be controlled at the same time (unlikely this late in season) the extra input of bifenthrin is not justified and might reduce beneficial insects.

For early curative applications, clothianidin may be the best choice due to its much lower toxicity and smaller effect on non-target species (arthropod predators and parasites as well as wildlife). It is at least as effective as trichlorfon. However, for ongoing problems with larger grubs (after mid-September) trichlorfon might still be preferable as it tends to kill the grubs more quickly. For thatchy lawns, either dethatch before application or use trichlorfon which binds weakly to organic matter.

Use of chlorantraniliprole (Acelepryn), imidacloprid (Merit, Enforce, Imidan), or halofenozide (Mach 2) is generally not recommended for curative control. While they may still provide good overall control of the more susceptible white grub species, their speed of kill may be too slow to prevent impending turf damage. Halofenozide is also not very effective against the oriental beetle, the most common white grub species in New Jersey.

For optimal control, the soil should be moist prior to applications. Irrigate with 0.25 to 0.5” (depending on soil type and moisture) of water after applications are made to move the active ingredient into the target zone. But do not apply soil insecticides to water saturated soil as the insecticide will not be able to move to the target zone.

Nematode products for grub control contain the species Heterorhabditis bacteriophora (Nemasys G, Terranem, Heteromask). Nematodes also are more effective when applied earlier (i.e., mid-August to early September) because the smaller white grub larvae appear to be more nematode-susceptible and the nematode offspring emerging from the larvae killed by the originally applied nematodes can kill additional larvae. These nematodes can be very effective against Japanese beetle, but are less effective against other common white grub species. To increase nematode efficacy, the soil in the treated areas should be kept at moderate soil moisture for at least 1 week, better even 2 to 3 weeks.


**Weed Control Factsheets**

The following factsheets are available through your local county Cooperative Extension office or on-line:

*Yellow Nutsedge Control in Landscape Turf*, Factsheet FS543

*Crabgrass and Goosegrass Control in Cool Season Turfgrass* E233
Diseases of Turfgrass
Bruce B. Clarke, Ph.D., Specialist in Turfgrass Pathology

General
Anthracnose, brown patch, copper spot, dollar spot, fairy ring, gray leaf spot, and summer patch are all apparent on susceptible turf at this time. Dollar spot and gray leaf spot have been particularly severe during the past few days. Algae, brown patch, Pythium blight, and summer patch can still be troublesome through September if the hot, humid weather continues, so maintain preventive sprays for another week or two. Refer to recent issues of this newsletter for complete disease control information.

Brown Patch
This disease is still active on golf turf and home lawns in many parts of the state. To reduce the incidence and severity of brown patch, avoid heavy (> 0.25 lb N/1,000 sq ft) applications of water soluble nitrogen during hot weather, irrigate between midnight and 8 a.m. to reduce the period of leaf wetness, and spray turf with Armada, Banner, Chipco 26GT, chlorothalonil, Compass, ConSyst, Disarm, Endorse, Headway, Heritage, Insignia, mancozeb, Medallion, Prostar, Spectro, Tartan, thiophanate-methyl, Trinity, Triton, Touche, Tourney or Velista per manufacturer’s recommendations.

Fairy Ring
Several reports of fairy rings on golf greens and home lawns have been received over the past few weeks. Symptoms typically appear as circular rings of dark green turf, six inches to several feet in diameter, with or without mushrooms (the reproductive structures that are produced by the more than 60 species of fungi that cause fairy ring). In some cases, the soil and thatch become hydrophobic and the rings may become necrotic. To suppress symptom expression, maintain adequate soil moisture and fertility. Spike affected areas prior to the application of fungicides to enhance water movement into the soil profile and to reduce hydrophobic conditions that are often associated with this disease. Although fungicides are not effective against all species of the fungi that cause fairy ring, Affirm, Bayleton, Endorse, Headway, Heritage, Insignia, ProStar, and Tourney have provided good control in many university tests. The use of surfactants may enhance fungicide efficacy and aid in symptom remission.

Gray Leaf Spot
Gray leaf spot has become very active on new perennial ryegrass seedings in the state. Symptoms start as tiny, brown leaf and stem lesions within small 2 to 4 inch diameter patches. As the disease progresses, the leaves twist and curl in a “J-shape” and lesions may extend the entire width of the blade. Patches can rapidly coalesce into large (one to two feet diameter) areas of blighted turf. Extensive foliar blighting can occur during warm (75-85°F days and 60-75°F nights), wet weather. Newly established seedings 4-5 weeks post emergence are more susceptible to infection than mature plantings. Cultivars with improved resistance to gray leaf spot include: 1G2, 1G2, All®Star 3, Apple GL, Charismatic II GLSR, Dart, Derby Xtreme, DP-1, Exacta II GLSR, Fiesta 4, GL-2, Harrier, Manhattan 5 GLR, Palace, Palmer IV, Palmer V, Panther GLS, Paragon GLR, Prelude GLS, Primary, Protégé GLR, Regal 5, Repell GLS, Revenge GLX, Secretariat II GLSR, SR 4600, and Stellar GL. To suppress this disease now in the field, avoid high rates of nitrogen (i.e., do not apply more than 0.25 lb N per 1,000 sq ft) and 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 have been most effective when applied on a preventive basis in late-July and repeated every 14 to 28 days until late-September. Chlorothalonil and the DMI (sterol-inhibiting) fungicides (e.g., propiconazole), 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 DMI’s have been reported in New Jersey, so tank mix or alternate fungicide chemistries to reduce the potential for fungicide resistance.

Summer Patch
Summer patch continues to be reported on susceptible turf. This disease can be quite troublesome on Kentucky bluegrass, annual bluegrass, and fine fescue turf. To control existing infections, apply 0.2 lb. ammonium sulfate/1,000 sq ft and immediately water it into the thatch to arrest the infection and avoid foliar burn during hot weather. The use of penetrant fungicides such as Armada, Banner, Bayleton, Compass, Disarm, Eagle, Headway, Heritage, Insignia, Rubigan, Tartan, thiophanate-methyl, Tourney, Trinity, or Triton in at least 2 gal of water/1000 sq ft may aid in recovery; however, most of the damage has already occurred. If using thiophanate-methyl, increase the spray volume to 4-5 gal of water or immediately irrigate the turf with 1/16 to 1/8 inch of water before the fungicide has had a chance to dry on the leaf blades to improve fungicide efficacy. Aerification (when symptoms are not present in the fall) and improved drainage will also aid in disease suppression next year. Soil pH should be maintained at or slightly below 6.0 for optimum disease control.

Yellow Ring
This disease, caused by the fungus Trechispora alnicola, is evident on some Kentucky bluegrass lawns and sod fields in the State. Patches are 1 to 2 feet in diameter and consist of green grass surrounded by faint yellow rings (1 to 2 inches in diameter). Close inspection of the thatch often reveals a dense mat of white mycelium.
with a musty mushroom odor. Infected turf rarely dies and rings do not always reappear the following year. Symptoms are most apparent during cloudy weather between May and October. The fungus is primarily a saprophyte that colonizes organic matter in the thatch. Since damage is cosmetic and affected turf recovers during cool weather in the fall and spring, control is rarely warranted. In areas where symptom expression cannot be tolerated, turf managers should dethatch affected turf. No chemicals are currently labeled for the control of yellow ring.

**Plant Diagnostic Laboratory Highlights**

*Richard J. Buckley, Laboratory Coordinator*

**Turf**

Right on schedule the renovation and remediation season has begun and turfgrass sample submissions have slowed. Those of you who cored, top-dressed and seeded this week are golden. The cooler weather and rain has everything looking fantastic. Of course, there are many home lawns where the light green glow of crabgrass is the only cover, but it is green cover none-the-less! We are still getting a few turf samples this week, but this newsletter looks back over the last two weeks and we have been relatively busy during that time. Regular rains – some locally heavy – got the diseases cranking, so it’s been a good time for the pathologist.

*Summer patch* was the most common diagnosis this period. Despite carefully executed fungicide programs on many golf courses, the disease often breaks through in mid to late summer. Samples of the disease were submitted from several golf courses in both New York and New Jersey. We are also starting to see samples of bentgrass with *take-all patch*. The disease here on the turf farm looks pretty good. Those plugs also had a very nice *anthracnose* infection as well. Take-all sample submissions normally peak in early-June and then again in mid-September.

*Pythium root rot* was the next most frequently identified disease from putting green samples submitted from the region. Most of these samples came from golf courses after locally heavy downpours flooded the site. One gentleman had 7 inches of rain in August, but 5 of them came in about 24 hours. Super-saturated soil is a perfect situation for the water-mold fungus.

Not as common (only 1 sample), but much more exciting than the root diseases was the sample of *gray leaf spot*. The sample from a ryegrass rough area was submitted from a South Jersey shore golf course. Last year after Irene, gray leaf spot samples flared up in the same area, so be vigilant if the forecast calls for some tropical moisture.

Last, but never least, *annual bluegrass weevils* (ABW) hammered a bunch of tennis and croquet courts in Pennsylvania. Most of the critters were pupae at this time and there were loads of them in the plugs. The damage was pretty spectacular, but the conversation yesterday centered on letting the insects go to eliminate some excess Poa from the mostly bentgrass playing surfaces. It might be a risky strategy, because ABW will eat bentgrass and the current climate conditions suggest another generation of the weevil. Regardless of the situation this fall, we are still recommending a monitoring and preventive control program for next season.

**Landscape**

Samples of landscape plants always seem to pick up at this time of year. Yesterday was the first day in quite awhile, where we got more samples of ornamental plants than turf. *Bacterial leaf scorch* is always a concern at this time of year. The disease is active all over the state, and as usual, the symptoms are quite spectacular in the red oaks. If you suspect the disease, now is the best time for testing. All of the oaks submitted to the lab over the last two weeks have tested positive.

See Lab Highlights on page 5
The other big rush in the laboratory that is typical for this time of year is the samples of chrysanthemum with **pythium crown and root rot**. Several nurseries submitted samples of wilted, pale, and stunted mums that had the disease. Lastly, we saw more samples of **impatiens downy mildew** this week. Tough year for that disease – a major limiting factor for impatiens in the landscape. It might be time to rethink your plans for your bedding plant selection next season.

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**Fill a Niche to Survive in Today’s Marketplace**  
*Clare Liptak, retired Somerset County Agricultural Agent*

Being an independent garden center or nursery is harder every year. The chain stores undercut prices, and they claim they hire experts who can answer every customer’s question. I know from my experiences speaking with people in Rutgers Cooperative Extension offices that they don’t always give out the right information.

I used to think that marketing was the answer, but “Fall is for Planting” is horticulturally sound and it started out to be a great marketing campaign. The problem is the campaign attracts the bargain-hunting consumer who thinks they should get a great plant at half price. To make it worse the mass marketers might have had their plants at half price since the week after Memorial Day.

A better solution --and ok, it’s a solution that’s harder to implement-- is to establish your business as the source of something horticulturally unique. I visited David Scudder at his garden center in Somerset County to buy two beautiful Clethra ‘Ruby Spice’ for our yard. Besides having lots of unusual plants, this garden center is a source for landscape size Japanese maples and small trees perfect for the yard of a townhouse. Scudder has customers from Baltimore to Albany because they know that he has a unique product of terrific quality.

The Japanese maple cultivars were gorgeous, but I’m sure you can imagine those. There were two groups of small trees and I’ve never seen either of them before:

- The first group were shrubs trained to a tree form: winged euonymus, Cinnamon Clethra (C. accuminata) with smooth orange-brown bark, and Ninebark ‘Diablo.’ Scudder said he’s also had Winterberry holly in the tree form, but he can’t always get it.
- The other small trees were shrubs top-grafted onto sturdy trunks, without bulges at the graft unions, which in my mind would indicate incompatibility. Scions of dwarf Korean lilac, ‘Little Gem’ spruce, ‘Blue Star’ Juniper, dwarf Japanese white pine, fragrant Viburnum, dwarf Hinoki Cypress, or ‘Golden Mops’ gold thread Cypress are top grafted onto trunks three or four feet high. When planted they provide a vertical feature in the landscape instead of a shrub at ground level. A ground cover at the base of the trunk completes the look.

The dwarf Hinoki Cypress was so full, dramatic and elegant, I’m still feeling the plant envy.

*Clare Liptak, is an IPM scout, horticulturist, and Certified Tree Expert #208. clare.liptak@gmail.com.*
Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal north and central and above normal south, averaging 70 degrees north, 73 degrees central and 74 degrees south. Extremes were 90 degrees at Downstown on the 18th, and 51 degrees at Charlotteburg on the 19th. Weekly rainfall averaged 0.76 inches north, 1.28 inches central, and 1.17 inches south. The heaviest 24 hour total reported was 1.92 inches at Long Branch on the 15th to 16th. Estimated soil moisture, in percent of field capacity, this past week averaged 88 percent north, 82 percent central, and 83 percent south. Four inch soil temperatures averaged 72 degrees north, 75 degrees central and 75 degrees south.

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*PRECIPITATION TOTALS FOR THE SEASON AT NEWTON ARE TOO HIGH DUE TO A PROBLEM WITH THE AUTOMATIC RAIN GAUGE FOR A FEW WEEKS, THE PROBLEM HAS BEEN CORRECTED

WES KLINE -- GDD BASE 40 PINLEY HOLLOW

LAST WEEK  262 (Ending 8/13/12)
THIS WEEK  247 (Ending 8/20/12)
TOTAL UNITS BASE 40 FOR FEBRUARY=55
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