

BY CHRISTOPHER S. GRAY SR.

Bug Off

A golf course superintendent's guide on how to **diagnose insect outbreaks** to eradicate them



I've always found turfgrass insects to be particularly interesting and challenging because, while some are unquestionably harmful, others are completely benign or actually beneficial.

While nearly every insect can be found in all turfgrass and soils throughout the country, certain insects are obviously more adapted to specific geographic areas and environments, which makes them more likely to pose a threat. And to further complicate matters, insect infestation damage can often look a lot like fungus damage.

For these reasons, being able to accurately diagnose insect outbreaks is critical to manage insects successfully within an effective integrated pest management program. Here are a few tips to help ensure your success:

1 Build a scouting tool kit

Having the proper equipment to do any job assignment is fundamental, especially for something as critical as pest scouting and identification. This means developing a scouting tool kit that should be filled with the necessary tools and instruments to identify the type of damage being done to the plant, as well as the actual insect inflicting the damage.



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Here's a list of items your tool kit should include:

TOOLS

Small soil-profile sampler
Tubular soil sampler
Hand trowel or small shovel
Macro-scope 25X and 45X power
Stress-detection glasses
Latex gloves
Pen, pencil and permanent marker
12-inch ruler
Sharp pocketknife
Irrigation flags
Sample bags of various sizes (with ties)
Index cards

REFERENCE MATERIALS

Insect identification photo cards
Disease identification photo cards
Scouting sheets and maps

These items should be considered basic tools for your kit. You'll also want to include additional tools and reference materials that make identifying typical and known



If you suspect insect activity, be sure to examine turf that's both healthy and damaged.

insects and insect damage easier for your specific location. And take it from me, you definitely want to keep your tool kit in a protective, water-resistant bag or case that keeps all of them together during your scouting trips.

2

The scouting process

When you come across an area where you suspect insect activity, be sure to examine turf that is healthy and damaged. The most

severe insects feed on living turf and move away from dead areas, as they no longer provide a food source.

In fact, insects found in dead turf are usually not responsible for the damage that killed it.

3

Insect classification

One of the most effective and easiest ways to identify insects is by the way they attack and feed on the turf plant. The physical damage inflicted can be visibly seen and will help lead you to a positive insect identification. The three largest classifications of insect damage are root-feeding, blade-defoliating and blade-sucking.

■ **Root-feeding** insects include white grubs (immature masked chafers, Japanese beetles, May or June beetles, black ataenius, oriental beetle, aphodius beetles and green June beetle); mole crickets and bluegrass billbugs.

■ **Blade-defoliating** insects include cutworms, sod webworms, armyworms and fall armyworms. Remember that it's the larvae stage of these insects that inflict the most damage to turf.

■ **Blade-sucking** insects include aphids, chinch bugs, leafhoppers, bermudagrass scale, ground pearls and fiery skipper.

The one obvious insect group not mentioned here is ants, specifically because ants don't feed on the turfgrass plant itself. They do, however, tend to be somewhat of a nuisance because of their nest castings. Identification of ants shouldn't be difficult for anyone.

Drench testing

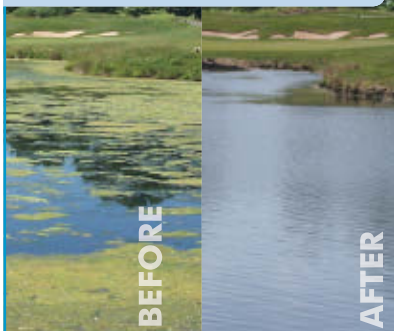
One of the most accurate tests you can perform to identify many of the blade-defoliating and blade-sucking insects is called a drench test. It's easy to do.

Get a large, tin coffee can with the top and bottom cut out and push it into the affected area about 1 inch to 2 inches deep.

Be sure to pick an area that includes
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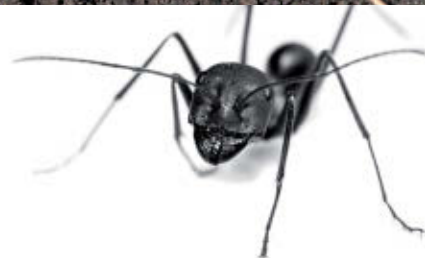
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relatively healthy and unhealthy turf.

Mix 1 to 2 ounces of dishwashing detergent into 1 gallon of water and pour the solution into the coffee can. If the area is really dry, it may take 2 gallons. Wait about five minutes. The soapy water will irritate insects, making them release their grasp on the plant. The insects will then float in the water, making collecting and identifying them rather simple. This technique is equally successful in both close- and high-cut turf.

4 Inspect the roots

Root-feeding insects can't be identified by the drench test. Grubs feed by separating the turf blades, while the billbug larvae are legless and live inside the sheath until their last instar. You'll need to sample affected areas by actually looking in the root zone and the soil layer beneath the roots.



The easiest way to do this is by using an old cup cutter to pull soil cores, which can be visibly inspected for the root-feeding insects and then replaced with little disruption to the playing surface.

Scouting and identifying insect activity is as much art as it is science. Even well-trained professionals can have difficulty from time to time. In circumstances where you may have difficulty diagnosing outbreaks, it's a good idea to consult your local university or agriculture extension agency for assistance in positively identifying troublesome insects. ■

Gray, a contributing editor to Golfdom, is superintendent and general manager of the Marvel Golf Club in Benton, Ky.