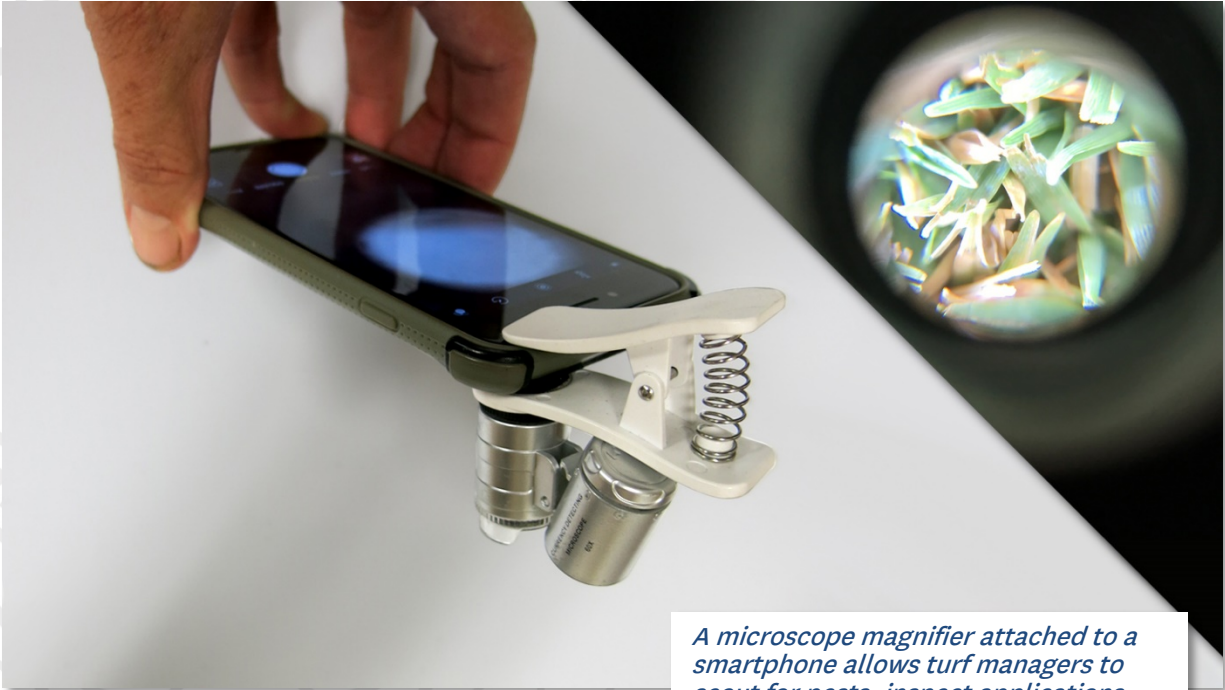




Tools And Methods For On-Site Turfgrass Assessment

By Steve Kammerer, regional director, Southeast Region | June 2, 2017



A microscope magnifier attached to a smartphone allows turf managers to scout for pests, inspect applications and take a closer look at quality of cut.

D Diagnosing turfgrass diseases and identifying the causal pathogen can be a difficult task. These are a few reasons why:

- Fungi are sensitive to ultraviolet light and heat, so their presence is often difficult to detect.
- Not all fungi found in turfgrass are pathogenic – many are beneficial.
- Disease symptoms may be the result of an infection that occurred days or months ago and the pathogen may no longer be active.
- Fungi are small and difficult to see, especially when they are in the crown, roots, rhizomes or stolons of turf plants.

An accurate disease diagnosis normally requires sending samples to a laboratory, ideally before fungicides are applied. After samples are shipped overnight to a lab, the superintendent is left waiting and wondering if the turfgrass is recovering or getting worse. While some labs have gotten good at delivering results within 24 to 48 hours, waiting is still the hardest part. For peace of mind, fungicides are sometimes applied in the interim

without having much information about the target pathogen. Depending on the product, such an application can cost a few hundred to a few thousand dollars.

There is an easy method for getting early information about the pathogen responsible for a disease while waiting for a conclusive diagnosis from a lab:

1. Remove several 0.500- to 0.625-inch diameter turfgrass plugs from the symptomatic area using a cork borer or a hollow tine.
2. Place two paper towels in a plastic box, moisten them with water so that they are wet and then pour out any excess water.
3. Carefully wash any soil off the plugs and place them in the box. Seal the lid and let them incubate in a dark area at room temperature for 24 to 48 hours.
4. Using a 20X to 60X hand lens or digital microscope magnifier, observe the tissue. If there is fungal growth, it may or may not be pathogenic. However, if a broad-spectrum fungicide has already been applied, the presence of fungal growth could be an indication that applying another fungicide with a different mode and spectrum of activity may be warranted while waiting for final lab results. If there is no obvious fungal growth, save your money on additional fungicide applications and wait for the lab results. It is very likely that there is no disease or that the problem was already controlled through cultural or chemical efforts.

An inexpensive, high-magnification microscope magnifier that clips over the camera lens of any cell phone is an effective way to observe fungal growth on turfgrass. These magnifiers usually have a light and can magnify images up to 60X. Using the zoom expansion, the image can be further enlarged and pictures can be taken. The ability to see and document fungal growth, small insects, mites, the coverage of turf colorants or the quality of cut can be very useful and can save considerable time and money by helping turf managers make the right decisions regarding further action.

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