



**John E. Kaminski**, Ph.D. is an associate professor, Turfgrass Science, and director of the Golf Course Turfgrass Management Program at Penn State University. You can reach him at [kaminski@psu.edu](mailto:kaminski@psu.edu).

## IT'S NOT THE GADGET, IT'S THE USER

If you're like me, then you're thinking about all of the cool gadgets out there just waiting for me to come along and put down my credit card. While there are a lot of things I would be interested in buying, the same genre of electronics always comes back and takes the lion's share of my money – camera equipment.

I am a photography buff. I received my first real camera (a Nikon N70) during my 1997 internship at Congressional. Film, though, proved to be too expensive for a starving graduate student living on \$16K per year in Washington, D.C. That didn't stop my love for photography, though. Instead, I realized a simple digital camera produces some great images if you learned how to use it.

Today everyone has a digital camera and is an amateur photographer, and I receive plenty of images through email, Facebook and Twitter where some poor superintendent has been struck with some monstrous problem that needs identifying. The ability to diagnose problems digitally, while

Get down close and get an image of either a lesion or some other symptoms on an individual plant or even find a sclerotia or some other sign of the actual pathogen.

not always possible, has increased our efficiency and ability to quickly relay our "best guess" based on a single photograph. Unfortunately, about 50 percent of those images, for one reason or another, don't tell the story.

In many cases, images shared with me are either blurry (No. 1 problem) or don't show the scope of the problem. If the image is sharp and identifiable, then it's probably too close to the subject, too far away or in some other way doesn't really tell the full story. In this month's article, I will cover some basics about purchasing the right camera and share techniques on how to capture the perfect image.

**BUYING GUIDE.** While I am a converted iPhone user simply because of its camera, I don't usually

recommend this as your primary camera. Any cell phone camera will be good for general documentation, but it lacks key functions that situates it far behind most digital cameras. I also don't recommend running out and buying an expensive interchangeable lens DSLR. A good point-and-shoot digital camera can provide some of the best images for a number of reasons.

Canon vs. Nikon? I don't get into the whole Canon vs. Nikon argument. I'm a Nikon guy...for the most part. My DSLRs are all Nikon because that's what I started with and that's what my lenses fit. Besides, it's the lenses of the DSLR that cost you all the money. So, once you go down that road you don't switch bodies. However, when it comes to my point and shoot, I'm actually a Canon and Nikon shooter.

My recommendations for those of you on the golf course would be the following. For less than \$250 you can get a great digital point and shoot. My recommendations would be a Canon Power Shot ELPH 110 HS (\$179 at B&H Photo) or for the more rugged users a Nikon AW100 (\$249). The latter is a great camera because it is shock-proof, shoots 1080p HD video and is waterproof for up to 33 feet.

**LEARN THE MACRO MODE.** Now that you've bought yourself a digital camera, it's important to know how to use it properly. The first and probably most important function you should learn on your new camera is "macro." This button usually is represented by a little flower or tulip. The setting is the difference between an in-focus or a blurry image. Most cameras are designed to shoot macro, but there are a few things you should know before setting the button to "flower mode" and shooting.

On most cameras, the macro mode is designed to work with the zoom as wide as possible. However, most people believe because you are trying to shoot something in very close that you also have to zoom in to the subject. It's actually just the opposite. Set your camera to macro, zoom out as far as possible and move your camera as close to the subject as allows without getting blurry. On the Nikon AW100, you can get 0.39 inches away from your subject and still be in focus. Now  
*(continued on page 47)*



(TURF NERD continued from page 26)

(PESTS continued from page 41)

that is seriously close.

Getting 0.39 inches (1 cm) away from your subject is the primary reason I don't recommend the clunky DSLR cameras for shooting turf. The small body of the point and shoot allows you to get right into the canopy and capture the subject effortlessly. This is great for trying to get close to the plant to identify signs of the pathogen for digital identification. This works for any fungus that produces fruiting bodies, such as gray snow mold, anthracnose, and red thread.

**SHOOTING FOR A PROPER DIAGNOSIS.** So you received that perfect camera for the holiday and you mastered the macro function during the winter by taking pictures of spiders in your shop. Now you're ready to road test that camera. Capturing images for a disease diagnosis is a multi-step process.

Proper identification of any turfgrass disease requires a clear visualization of the symptoms as well as the signs of a pathogen. The same holds true for an insect pest as well, although identifying those critters usually relies on the macro mode to capture a close-up of the insect.

What I look for three images in a digital diagnosis. I like to see a broad spectrum view of the problem area. Think about a standing position shot of the entire section of the green, tee, or fairway impacted by the problem. This not only gives me some information about the site (Is it surrounded by trees?

Is it in a low lying area?), but also provides me a wider view of the problem.

Next, I like to see an image taken from the standing position, but that gets a closer perspective of the symptoms. Think of this shot as those you see where the tips of the photographer's shoes make it into the picture. As you get really good you can even eliminate those from the view. Finally, it is back to the Macro mode mentioned previously. Get down close and get an image of either a lesion or some other symptoms on an individual plant or even find a sclerotia or some other sign of the pathogen. Get one of those and a diagnosis may be confirmed with 100 percent certainty.

**SAVE YOUR MONEY AND PRACTICE.** As with any hobby or skill, it takes practice and patience to get the best shot. Be sure you take the time to learn the various functions of your camera and the settings that will get you the best results. Practice shooting during the winter months until you're confident that can translate that experience into the field. Once you've developed the skills and techniques to capture the best quality images, you will realize that spending thousands of dollars on expensive equipment isn't necessary.

Feel free to send your images to Turf Diseases on Facebook, Twitter or via email (upload@turfdiseases.org) to get a second or even third set of eyes on the problem. **GCI**

The offseason also provides an opportunity to re-evaluate fungicide programs and make adjustments for next year. Regional 30-year weather averages can be helpful for developing a baseline fungicide program. Select fungicides to cover more than one disease and be sure to rotate and tank mix modes of action. Several new fungicides, including a new multi-site fungicide, have recently become available, with more coming soon.

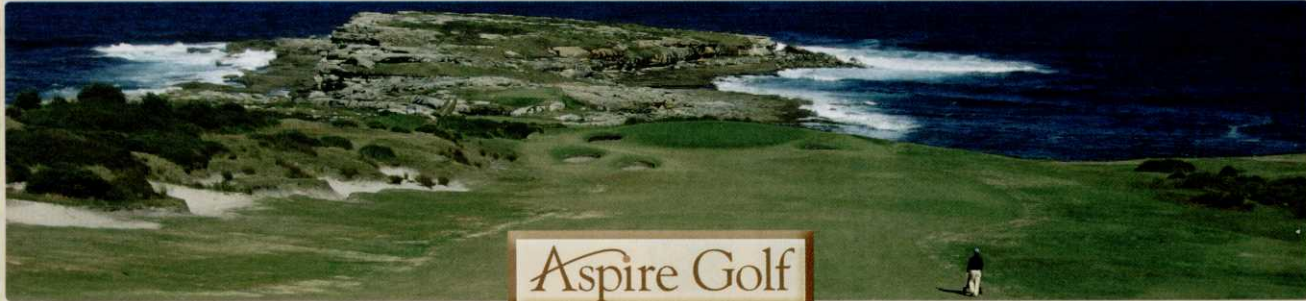
Kerns adds, "The most important thing is to focus on plant health. In order to make your plants more tolerant of stresses don't limit nitrogen, manage the water using soil moisture meters, conduct the key cultural practices such as light, frequent topdressing and venting."

With regard to nematodes and bacterial diseases, these problems are related to physiological stress, Kerns says. Consequently, anything to limit stress will limit problems associated with these two organisms.

"Things like light, frequent topdressing, venting, alternating mowing and rolling, raising mowing heights slightly, maintaining a consistent supply of nitrogen, etc. will all help to limit stress and in turn limit problems associated with nematodes, bacteria and other fungal pathogens as well," Kern says.

He concludes, "I take a very simplistic approach to turf grass management. What does the plant need? Basically light, food, water and air, so how can we ensure that the plant has access to these necessities? By employing the cultural practices listed above and potentially evaluating the microclimate too." **GCI**

*John Torsiello is a freelance writer based in Torrington, Conn. and a frequent GCI contributor.*



**Aspire Golf**

ENHANCING THE GAME. Golf Course Agronomic Reviews. Tournament Preparation.  
 ASPIRE Higher® Career Advancement. Search and Placement.  
 For more information contact Tim Moraghan, Principal | [www.aspire-golf.com](http://www.aspire-golf.com) | (908) 876-1102