A Close-Up of the Disease Diagnostic Clinic

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Some turf diseases are easy to diagnose. Few superintendents would miss dollar spot on bentgrass greens, or even brown patch showing typical mid-summer symptoms. Rust, powdery mildew and red thread are also diseases that are easy to recognize because we can see the fungus easily. Other turf diseases can be diagnosed by an experienced turf manager because they have learned to recognize certain symptoms, know what to expect at certain times of the year and are familiar where problems might occur.

But many turf diseases look similar to each other and are very hard to diagnose, especially if symptoms develop in an area where they have not occurred in the past, the symptoms look unusual, or when new turf is established. In these cases, it is a good idea to submit a sample to the UW disease diagnostic clinic.

The advantage of a lab examination is that we can take a closer look to see if pathogens are present. This provides extra information that can be combined with what is observed at the site. Much of diagnosis is assembling as much information as possible, and finding the best explanation for all the clues. It is much like detective work, and rarely is it black and white.

When a turf sample arrives in the diagnostic clinic, this is what happens: the sample is quickly unwrapped to give the plant air and prevent decay. The overall appearance is noted, and compared with the information sent with the sample (see below). This information provides very important clues that will help confirm or reject specific diagnoses. Individual plants are then teased from the plug, washed gently, and examined under the microscope. What we look for is the presence of fungi, and if we see some, we hunt for identifying features. Fungi look annoyingly similar to each other! Tell-tale structures may be seen right away, such as spores of the melting-out pathogen, or spores of *Pythium*. If the fungus we see matches with the symptoms in the field, then a case is building for that particular fungus causing the problem. Sometimes several potential pathogens are seen, which may or may not be causing the problem at that time. This certainly makes the diagnosis harder. On occasion the fungus is not actively growing and can't been seen, even though it is still present inside the plant. In this case, a small piece of tissue is put in a moist chamber for 24 hours to see if any fungi will grow out of it.

Mary Francis Heimann has been the UW-Madison clinician for 18 years. She works with quick hands and tremendous skill to process the twenty samples that might arrive on an average day during the summer. When the diagnosis is made, the results are logged onto a computer and a written report is put in the mail. Often this occurs within 24 hours of receiving a sample, sometimes 48-72 hours if the sample needed to be put in a moist chamber. Written reports are sent because the clinic receives too many samples to make follow-up calls. However, Extension specialists, such as myself, often call clinic clients to discuss a sample. I would not hesitate to request this or to call me directly.

How do you send a sample? It is important to pack and send a good sample so you can receive the best possible diagnosis. Here are some guidelines:

1. Send an adequate representation of the problem. If possible, collect several samples that show a continuum of symptoms.

2. Plugs taken with a cup cutter are perfect. Take samples where healthy turf meets diseased turf. Moisten soil if it is dry. Wrap in newspaper and put in a perforated plastic bag.

3. Submit a fresh sample. Package and mail it immediately. If the sample must wait, put it in a cooler or refrigerator. If it's the end of the week, keep the sample in the refrigerator until Monday. This prevents decay.

4.. Package samples with different problems separately.

5. Use packing material around the sample so it isn't crushed during transport.

6. Be sure to write down as much as possible about the problem. Keep the paper separate from the sample so it doesn't get wet. Write down the kind of grass, a description of the symptoms (and add a photo!), soil conditions, weather conditions, and chemical applications. Include anything you have noticed about the problem based on your experience. Often these prove to be very important clues!

In the days of integrated pest management, where the philosophy is to have a good understanding of specific pests being controlled, every piece of information is important. I think it is a good idea to send in disease samples for lab examination because it is another piece of information that can help the turf manager prevent turf loss and learn more about his system. If a control product is needed, an identification from the lab allows for precise material and rate selection.