The Maiden Voyage of the Turfgrass Disease Dianostic Lab (TDDL)

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Fall is my favorite season. It is a pleasure to be writing about fall, especially when the heat index for yesterday reached dangerous levels. This summer we endured heat waves that reminded me of the hot and humid weather which I experienced in South Carolina as a graduate student. Hopefully this fall, I can say I endured the summer heat and my strike on baseball. In setting my mind on fall, I endeavor to resist my urge to turn on ESPN's Baseball Tonight or flip on a Cubs game "just to check out the turf." Sweatshirt weather, the changing color of the leaves, spicy apple cider, the excitement of homecoming and of course—Badger football. That splintering crack of the helmet really kicks it all off in my mind. The brats, the beer and the 5th quarter at Camp Randall, that whole Saturday show, are guaranteed to get one in the fall spirit.

And now there is one more reason to look forward to fall: the Turfgrass Disease Diagnostic Lab (TDDL) will be voyaging into new territory. We have successfully overcome many obstacles this summer and now must set new and higher

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goals. It is safe to say that the maiden voyage of the TDDL has been challenging and fun.

For those of you who don't know me, I am Steven Michael Millett, born and raised in the Quad Cities, Illinois (East Moline to be exact). I received a liberal arts education and was awarded my B.S. in Botany from Truman State University (formerly Northeast Missouri State University). My undergraduate thesis involved a floristic survey of Schuyler County, Missouri. I consider myself to be a botanist with a strong interest in turfgrass. During these undergraduate years, I had several jobs: assistant to the herbarium curator, undergraduate research assistant, manager of a lawn and garden center, field intern for Monsanto, and park naturalist for the DNR.

Table 1. Frequency of turf problems submitted by turfgrass professionals (65% of total) to the T.D.D.L. as of Tuesday, August 1, 1995.

Problem	Number Diagnosed
Cultural/environmental	19
Leaf spot/melting out	8
Summer patch	6
Pythium	5
Necrotic Ring Spot	4
Heat Stress	3
Rhizoctonia blight	2
Spring Fusarium	2
Dollar spot	2
Fairy ring	1
Take-all	1
Typhula blight	1
Herbicide	1
Anthracnose	1
Unknown patch	1
Pink snow mold	1
Weed id	1
Freeze/thaw	1

Upon graduating, I continued my education at Clemson University in Clemson, South Carolina. Under the direction of Dr. Bruce Martin and Dr. Graydon Kingsland I earned a M.S. in Plant Pathology. My thesis was entitled " The effects of preemergence herbicides on *Rhizoctonia* blight of warm-season turfgrasses." This work showed that certain herbicides can increase the incidence and severity of Rhizoctonia blight caused by the fungus *Rhizoctonia solani* AG-2-2. This fungus is not the same one that causes *Rhizoctonia* blight of the cool-season turfgrasses grown in Wisconsin, but it is very similar in its etiology. Both of the Rhizocs attack when the grasses are stressed, either in the summer for the cool-season grasses or in the spring and fall for the warm-season grasses. Herbicide application windows in the southeastern U. S. occur at the same time that the warm-season turf is stressed and the fungus is active. This combination leads to an increase in *Rhizoctonia* blight.

The decision to come to the University of Wisconsin was an easy one. The Department of Plant Pathology is one of the world's best; and, upon learning of the O.J. Noer Facility, the decision was made to be a Badger. I have spent the last two years fulfilling the requirements for a Ph.D. The rigorous requirements and my demanding research efforts have been gut-wrenching at times, but it has been well worth it. The creation of the TDDL this past spring has added many new goals and priorities to my agenda. My priorities for the TDDL are to provide quality service and to do so in a manner that is committed to excellence. My responsibilities can be broken down to communication, diagnosis and education.

As of August 1, eighty-four turf samples had been submitted to the TDDL. This is not far behind the the rate at which turf samples were submitted last year to the Plant Pathogen Detection Clinic. We hope the TDDL will break the 200 sample barrier by the end of the year. Of those submitted, 15% came from homeowners, 19% from county agents and 65% from professional turf managers (golf courses, landscapers, and sod producers). By far the most difficult samples came from golf courses, and the root diseases posed the biggest diagnostic challenges. Cultural and environmental problems were the most frequent cause of damage and leaf spot and melting out came in second with 8 samples diagnosed. Table 1 enumerates the turf problems submitted by turfgrass professionals.

The progression of the seasons brought about changes in the disease picture. The cool wet period at the end of May gave me an opportunity to witness spring Fusarium on *Poa annua.* The question of whether or not this was leftover pink snow mold still has me puzzled. This problem further supported my theory that *P. annua* is a "disease magnet." Springtime also brought necrotic ring spot to the lab. I can understand the frustration Dr. Gayle Worf went through when he was discovering that the causal agent of necrotic ring spot was the fungus *Leptosphaeria korrae.* I could see the fungal structures and the symptoms, but had a hard time isolating the fungus. It took several attempts and frequent conversations with Dr. Worf before I was successful and confident at isolating this slow growing fungus.

True to form for Wisconsin, spring quickly gave way to a hot summer, and heat waves stressed turf throughout the state. These heat waves provided ideal conditions for summer patch. Most of the summer patch problems were new to the sites and all came from golf course greens with a high percentage of *P. annua.* A preventative fungicide program applied when the soil temperatures reach 65° F next spring at the two inch depth, will help to prevent the recurrence of summer patch damage.

While diagnosing summer patch, I was amazed to learn one superintendent had a turfgrass pathology book that I didn't have! Furthermore, Dr. Joe Vargas, Michigan State's most famous Elvis impersonator, had even autographed the superintendent's copy of Management of Turfgrass Diseases just as he had mine at the recent Reinders Conference.

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My opinions of *Poa annua* have slowly changed this year, as they have every season since I came back to the Midwest. Despite the disease pressure on *P. annua* this summer, it was at times, as Tom Schwab would say, "the best looking turfgrass out there." Charles Darwin's theory on the survival of the fittest and evolution could suggest that *Poa annua* is one of the fittest turfgrasses we have.

TDDL made improvements in communications with county agents, turf managers and homeowners. We have started sending e-mail messages instead of the usual postal forms to county agents. This saves us both time and money, plus it keeps the agents informed of what is happening pathologically in their county. Also, the Department of Plant Pathology and the turf team based at the O.J. Noer Facility have created a catchy new phone number for the TDDL: (608) 265-TDDL (or -8335). So now you have two cutesy phone numbers to remember: Frank Rossi's turf hotline number (608) 845-TURF and now TDDL's. If you haven't called Frank's hotline by now I suggest you try it sometime soon. Frank is fun to listen to.

TDDL research goals include designing and implementing new DNA-based procedures for the rapid identification of turfgrass root infecting fungi. Root diseases are the most difficult and time consuming to diagnose, and diagnosis is hindered by the fact that symptom expression can be at times atypical. This problem is not new to turfgrass pathology but our research efforts in this area are. Dr. Doug Maxwell, with support of the WTA, will be starting this project this fall.

Right now I am in the midst of planning my *Typhula* snow mold research and am anxious to learn more about this evil disease in the coming winter months. Bruce Worzella's article in the July/August issue of THE GRASS ROOTS, "Why not let Scott(s) do it?", got me thinking about the future of turfgrass pest management. This article introduced the Scotts snow mold fungicide application program. Is this what the future holds for us? Will agricultural chemical companies be selling a similar service instead of the actual product? This gives us something to think about. I am looking forward to seeing the Scotts applicator at the Wisconsin Turfgrass Field Day.

I cordially invite you to drop by room 285 in Russell Labs and visit the TDDL. If you stop in I will show you pictures of John Monteith, A. S. Dahl and Gayle Worf from the Department of Plant Pathology's Hall of Fame. Babcock ice cream is right across the street so you can reward yourself with a delicious cool treat. You can also drop in at the O. J. Noer Facility and visit with the turf group. At the Turf Expo in January look for a TDDL report that summarizes all our activities of the year. I imagine there could be some trivia questions taken from this source.

The maiden voyage of the TDDL has truly been a fun challenge. The disease picture has changed with the seasons and is headed into the fall and winter with great momentum. Changes have also taken place in our communication lines in order to better serve the turfgrass industry. Please share your ideas and suggestions with us. Thanks for the ride!

***Points not to ponder.....**

Why doesn't a world class turf program have a natural turfgrass playing surface for their football team? What are your thoughts on this topic? Please feel free to contact me at smm@plantpath.wisc.edu. I know there are turf managers who have an email address.