

Wisconsin's Turfgrass Graduate Program Is Growing

By **Monroe S. Miller**, Golf Course Superintendent, Blackhawk Country Club



It caught me by surprise at EXPO in January as I did a tally of the grad students pursuing advanced degrees in the turfgrass sciences at the UW – Madison. I counted 11 of them. Each of the faculty gave an annual report of their program and included their grad students as part of those reports. The students and their major professors labor hard and don't always have the time or the inclination or the forum to promote their efforts. But I do. We all need to know the research that is going on at the Madison campus to make our jobs easier, the quality of the product we produce better, and the game of golf more enjoyable for its players.

I have been around long enough to know the very first grad students in the turf program at Wisconsin and the kind of success they have known in their careers. With that in mind and coupled with the projects the 2001 graduate students are working on, their potential for valuable contributions is sky high.

Jerry O'Donnell was a small town kid from northern Illinois who came to the UW – Madison on a football scholarship. Imagine – he was on both the 1959 and the 1963 Rose Bowl teams. He did both his undergrad and graduate study in turf and had a career with O.M. Scott and Sons that was interrupted for about five years while he was the golf course superintendent at Nakoma. Prior to his retirement a few years ago, Jerry sat in the vice president's chair at Scotts. He was a highly successful guy.

Pete Miller was also a graduate student of Jim Love's. Pete may be the most creative, versatile person I have known. He was superinten-

dent at Lawsonia and Nakoma in our state and left for the golf course superintendent's position at Firestone Country Club in Akron, Ohio. During his career there he hosted several major championships and was well known from one end of the country to the other as a real leader in golf course management. Firestone was followed by his own turf distributorship in Ohio, and today Pete is back in Hayward operating the family printing business.

Another early grad student was Roger Larson, who left Maple Bluff for the excitement of California and the Del Monte properties, which included Pebble Beach and Spyglass. Roger, as I understand, is now retired also. All three of these men were officers in the WGCSA while working in Wisconsin.

Fast forward about 40 years (WHERE have those years gone?) and meet the students learning under our turfgrass faculty members Wayne Kussow, John Stier, Chris Williamson and Geunhwa Jung.

Doug Soldat has the distinction and high honor of being selected as the very first recipient of the Kussow Wisconsin Distinguished

Graduate Fellowship. The fellowship was funded by the turfgrass industry and named for Wayne in recognition of his tremendous contributions to us for so many years. Doug has summer experience at Riverside Golf Course in Janesville, Janesville C.C. and Northmoor C.C. He begins his Masters program this fall.

Sabrina Mueller also has Dr. Kussow as her major professor, and is expecting to wrap up her M.S. degree this summer. Her research project has direct application to us; it focused on the microbial community in sand-based putting greens and its relationship to turfgrass quality. Sabrina also received her undergrad degree in Soil Science at Wisconsin and is exploring PhD opportunities at Oregon State University. Her hometown is Germantown, Wisconsin.

Over in the Department of Horticulture, John Stier has three grad students, all working on their M.S. degrees.

Daniele Filiault has a research project that is especially important in Wisconsin. She is studying the mechanisms of cold stress tolerance in turfgrasses, especially *Poa*



Doug Soldat and Sabrina Mueller are Dr. Wayne Kussow's grad students.



Daniele Filiault, Kurt Steinke and Jeff Gregos are Dr. John Steir's grad students.

supina. Much of her work has been in the lab and has included analysis of carbohydrates using high pressure liquid chromatography. To date her work has resulted in four abstracts and an article in GCM magazine, and Daniele has presented two papers at national meetings. A graduate of Cornell University, she expects to receive her M.S. degree in September.

Kurt Steinke came to the UW – Madison with an undergrad degree from the UW - Stevens Point in 1999. He is directing his research toward stress tolerance of turfgrasses, again primarily *Poa supina*. More specifically, Kurt is determining *Supina* bluegrass tolerance of various herbicides; determining shade tolerance, nutrient and PGR responses of turfgrass for golf course tees; and using LPE (a naturally occurring lipid) to extend sod shelf life. Kurt's aggressive program has led to a co-authored article that will appear in an upcoming issue of GCM magazine, and after two presentations at the ASA meetings this fall will have three papers presented at national meetings. Kurt expects to finish his degree in the winter of '01/'02, take a year off to work, and then continue on for a PhD in environmental turfgrass science.

Dr. Stier's third grad student is Jeff Gregos, who needs no introduction. Jeff is working toward a

M.S. degree with its focus on the tolerance of creeping and colonial bentgrasses and fine fescues to snow mold. He presented his research at the 2000 ASA meetings. The results of his research could influence how grasses are selected for use on golf courses in northern areas.

Dr. Chris Williamson has three grad students – Allison Walston, Steve Hong and Tyler Eaton. All three are working toward a M.S. degree in entomology.

Allison is known by many of us in the turfgrass industry. She is present and helping at EXPOs and Field Days, and has an outgoing and friendly personality. She is examining different properties that might increase black turfgrass *Ataenius* and black cutworm popu-

lations on golf course greens and fairways, such as grass species and manure-containing organic fertilizers. There is a greenhouse component to her work that is studying if black cutworms respond differently to organic and synthetic fertilizers.

Allison is also involved in a pesticide runoff evaluation. She is applying homeowner herbicides and insecticides to pervious and impervious surfaces and analyzing the runoff for residues.

In the little spare time she has, she is co-coordinator for a group of grad students called Insect Ambassadors who teach children about science using insects.

Steve Hong is working with the cultural and chemical controls of black cutworms on golf course greens. Specifically, he is evaluat-



Allison Walston, Steve Hong and Tyler Eaton are Dr. Chris Williamson's grad students.

ing the effects on larval populations by mowing a green one hour before daylight and after sunrise. He is also determining the effectiveness of a chemical application of insecticide sprayed on the peripheral area of a green, and finally, evaluating the effectiveness of a mono-stand of Kentucky bluegrass surrounding the peripheral area of a green.

A native of Korea, Steve came to Wisconsin with a M.S. degree in plant science from Dalhousie University in Nova Scotia.

Tyler Eaton is from the same Kentucky town as Allison, both did their undergrad work in entomology at the University of Kentucky, academic home of Dr. Dan Potter, Chris Williamson's major prof! Dr. Potter is likely the eminent turfgrass entomologist in the country today.

Tyler's research is focused on the interaction between black cutworms and Kentucky bluegrass. His study will determine which Kentucky bluegrass cultivars are resistant to black cutworms, and from there he will look at the cultivars on a molecular level to determine what causes the resistance.

Dr. Geunhwa Jung has quickly gotten his turfgrass pathology research program underway, just as Stier and Williamson did. His three students have research projects that will potentially help everyone in the north with snow mold control.

Elizabeth Scheef is just getting underway with her M.S. degree. Her research interests are:

1. Root affecting pathogens and the diseases they cause;
2. Creating DNA markers to distinguish between diseases that are morphologically difficult to identify;
3. Creating DNA markers to distinguish between the different species of bentgrasses (creeping, colonial and velvet); and,

4. Investigation of the effect of snow cover on the pathogenicity of *Typhula* blight and pink snow mold.

Elizabeth is going to be a busy person. She is a May 2001 graduate of the UW – Madison with a double major in Genetics and Wildlife Ecology.

Yolibeth del Carmen Rangel is a PhD candidate in Dr. Jung's lab. Her research covers areas Dr. Jung has written about in *The Grass Roots* – snow molds. One area of her study is mapping quantitative trait locus (QTL) for snow mold resistance in bentgrass using molecular markers. Another aspect of her PhD work is the use of DNA techniques in understanding the genetic relationships among *Typhula* isolates as well as *Microdochium nivale* isolates collected from Wisconsin golf courses. Finally, Yolibeth is looking at the genetic relationships of biological species of *Typhula ishikariensis* complex using mating experiments between monokaryons and dikaryons of the fungus.

Joe Curley came to Wisconsin from Minnesota (Bemiji State) with a B.S. in biology and a B.A. in chemistry. His research centers around creating QTL maps for resistance to

gray leaf spot in ryegrass and a second for resistance to dollar spot in bentgrass.

These maps will be created using markers generated by using several molecular techniques.

So, there you have them – the graduate students in the turfgrass sciences at the University of Wisconsin – Madison. Can you imagine the great things they likely will do in their careers? I like to think about each one's research and imagine how I might personally be helped by the science they are developing. Try it for your course and yourself.

Several things inspire about them as a group. One is their collective intelligence. It isn't easy getting accepted as a grad student at Wisconsin and that alone speaks highly of them. I am impressed by the focus of their research, from the practical to the sharpest edge of biotechnology. Every project touches turf and that speaks to the dedication of their major professors.

As we work toward establishment of three more Wisconsin distinguished Graduate Fellowships, the strongest case for supporting that effort is embodied in these graduate students. They are an impressive group by any measure. ♣



Elizabeth Scheef, Yolibeth del Carmen Rangel and Joe Curley are Dr. Geunhwa Jung's grad students.



Can Snow Molds Be Controlled Effectively?

By Geunhwa Jung, Department of Plant Pathology, University of Wisconsin - Madison

What a winter for snow molds! Although over the past few years, winters have been rather mild, this winter was ideal for snow molds, with the snow cover lasting for many months. Unfortunately, golf courses are being hit hard by snow molds, especially those that did not apply preventative fungicides last fall. However, even some golf courses that did apply preventative fungicides still have some snow mold injury. It is too late to turn the clock back to last fall, so we need to focus on getting the courses ready to play for the eager golfers, and to start strategic planning for snow mold control for this coming winter.

As a snow mold researcher, this year is a "golden opportunity" to study the pathogen. The favorable snow cover has encouraged all types of snow mold pathogens to flourish across Wisconsin and in other states. Last year we analyzed a limited number of snow mold isolates, which were collected by Dr. Steve Millet, and we found that there was considerable variation in these isolates. Thus, we have decided to start a new experiment that involves extensive collection of snow mold isolates from all over the state. Out of the 100 golf courses involved in the study, all of the ones visited so far have had extensive snow mold damage except for some courses that were treated with fungicides. A wide variety of snow molds have been encountered including pink, gray and speckled snow mold caused by *Microdochium nivale*, *Typhula incarnata* and *Typhula ishikariensis* complex, respectively; and probably, *Typhula phacorrhiza* as well. *T. phacorrhiza* is not yet confirmed as to whether it is a pathogenic fungus or beneficial as a

biocontrol agent. Through our mega collection project we will learn more about the geographical distribution of the different snow mold species and more specifically which factors (cultural, environmental, and chemical) are playing a significant role of providing favorable conditions for each of the snow mold species.

Now that spring has arrived and the snow is finally melting, our project is at its crunch point. Thanks to the cooperation from golf course superintendents and the dedication of our researchers who have endured freezing temperatures, hail storms, and late nights, we are currently collecting samples from 100 randomly selected golf courses across Wisconsin. The state was divided into different zones based on historic average duration of snow cover and the average temperature during winter months. Golf courses were then randomly sampled from each area. Collecting the sample itself involved collecting five random samples of infected grass containing *Typhula* sclerotia along a transect from fairways between the greens and the tees.

So why are we doing all of this? The major objective of the collection is to understand the geographical distribution of *Typhula* species, each biological species of speckled snow mold (*T. ishikariensis*) and ultimately what (environment, chemicals, cultural methods) makes one, two, or even three biological species adapt to a particular site. Through all of this we are investigating the fundamental reason/s of inconsistent efficacy of fungicides in controlling snow molds. What is behind the scientific basis of this experiment? We know that some fungicides with snow mold control have different efficacy depending on snow mold species.

For example, PCNB works well for the control of both pink and gray snow molds but not for speckled snow mold. Furthermore, we also have found from our *in vitro* fungicide sensitivity experiment that there are differences in fungicide efficacies among different biological species of *T. ishikariensis*. In addition, more outbreaks of snow molds were reported in northern parts of the state than the southern where both pink and gray snow molds are more predominant than speckled snow mold. Those outbreaks might be due to the biological species of speckled snow mold. If this hypothesis is confirmed through the analysis of this year's collection of samples, then each golf course can apply an effective combination of fungicides depending on which *Typhula* species or biological species of speckled snow mold is associated with the golf course. This could help control future outbreaks of snow molds and prevent superintendents' headaches.✂

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Get Rid of Waste Pesticides and Chemicals at Agricultural Clean Sweep 2001



By Amy L. Vosberg, Wisconsin DATCP

It's time to check those sheds, basements, or warehouses to see if you have any unwanted chemicals for disposal. Because, if you do, the Agricultural Clean Sweep Program has many disposal opportunities for you in 2001. Thirty-seven counties have collection sites, so there is a pretty good chance that one or more sites are close to your business location.

The counties participating in this year's Ag Clean Sweep events are:

Ashland, Barron, Fayfield, Brown, Buffalo, Burnett, Chippewa, Dane, Douglas, Green, Iowa, Iron, Jefferson, Kenosha, Kewaunee, Langlade, Lincoln, Manitowoc, Marathon, Oneida, Outagamie, Pierce, Polk, Price, Racine, Richland, Rusk, St. Croix, Sawyer, Sheboygan, Taylor, Vilas, Washburn, Washington, Waukesha, Waupaca and Wood. Lincoln County will be serviced through Oneida County.

Ag Clean Sweep will provide its standard 50% discount for all agricultural pesticides in 2001. So, if you happen to have any old insecticides, fungicides, herbicides, fumigants, lead paint, etc, your disposal bill will be cut in half. These savings are on top of the savings that you will see by driving your unwanted chemicals to a

drop-off site. Normally waste haulers charge anywhere from \$100 to \$300 for a private party pickup. Clean Sweep can be a very good deal for businesses!

One new service Ag Clean Sweep is offering in 2001 is sludge disposal. If your business location generates sludge from loading areas or weigh-scale pits, this waste can be accepted by Clean Sweep for a 50% discount. Sludge can pose difficult disposal problems, so this option should be checked out.

To find out how much you can save by using Ag Clean Sweep for disposal, check the Clean Sweep website at <http://datcp.state.wi.us/static/arm/csweep/> where you can find the nearest county's Clean Sweep date and the county coordinator. By calling the county coordinator, they can let you know how to get your no-obligation price quote from the program's waste hauler. If you like what you hear, a location will be determined and a time assigned. It normally takes only 10 to 15 minutes to unload chemicals and complete final paperwork.

If you have questions about Wisconsin Ag Clean Sweep, call Roger Springman, Ag Clean Sweep Program Manager, at 608-224-4545.

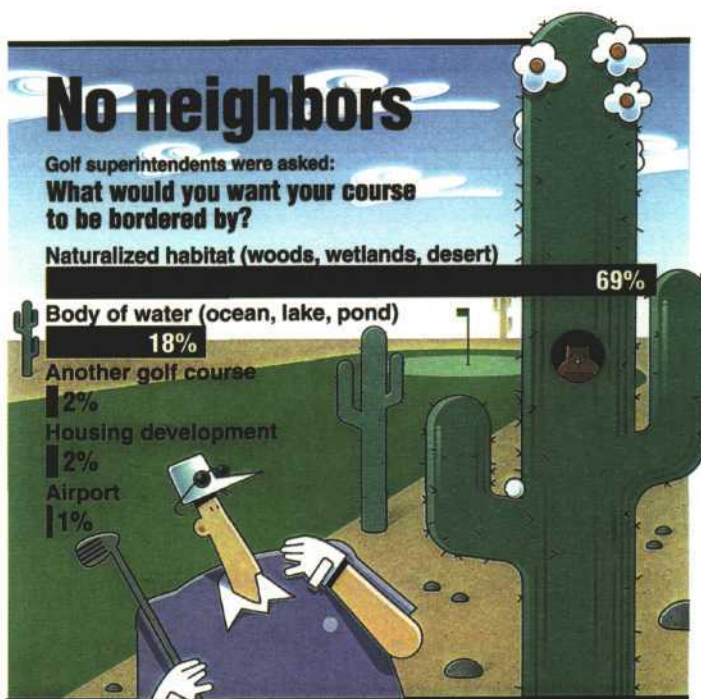
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Source: GCSAA's 2001 Golf Leadership Survey