

The *Sideline* Report

Iowa Sports Turf Managers Association

August 2014



2014 ISTMA Field of the Year

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Publishing October 2014 Issue;
Articles and Advertisements are due September 1, 2014

For more information regarding articles and advertising rates contact the editor.

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A Letter from the President

TJ Brewer, CSFM, Burlington Bees



I can't believe it is almost over! Once again it feels like it just started and here we are in August. We have had two of our ISTMA Workshops and both have been very successful.

Thanks to all who hosted and those who sponsored, but most importantly thank you for attending. Your board has been working behind the scenes to get things done for you, the member. I am glad so many of you took the time to fill out the survey we sent out in early June. The results will help us steer this organization in a direction that is most beneficial to the membership. It is important when you fill one of these out that you are brutally honest and share your thoughts. Without your input we are driving in the dark without headlights.

The Chapter Challenge which took place on July 11th and 12th is another great event to participate in. Golf and softball wrapped around some friendship and fun. If you have never participated this is a great way to really get to know some of the guys next door and even some of our neighbors to the north. Although the goal is to have fun and get to know each other, if you are good at golf or softball please join in, we really like to win.

Our next chapter event is in Iowa City. I know I can't wait to see our buddy Joe Wagner and enjoy the

program he has put together for us. Make sure you save the date, September 16th. I guarantee you will be pleased when you walk away.

I want to share with you my little research project for the summer. As you all know this spring was a slow starter, and we had a busy one. On my field one of my highest traffic areas is the grass behind where the shortstop and 2nd baseman stand. This year they got really beat up early and there was no coming back. I had to re-sod these areas if I had any hope of making it through the season. My sod window was late June and I only had 7 days to establish a sturdy base. As you all know this can be a steamy time of year and I really didn't feel like fighting Bluegrass sod. I decided to go south and get some Bermuda sod. So far I am happy with my decision, I'll keep you posted.

I hope you all get the chance to think outside of the box and execute a plan that will make your job a little easier and your facility a little bit better. If you do any of this don't be afraid to share, we all like to hear new ideas and put new tools in our bag.

Keep up the good work and I look forward to seeing you all at the Iowa City workshop on September 16th.



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A Tribute to Toro

Rick House, Council Bluffs Rec Complex

Have you ever had one of those times when you might be doing one of the most usual tasks when something extraordinary changes your mind? I know many of you can relate.

The other day I went to my local Toro dealer to get some mowing and irrigation parts. Just the usual thing that I have done many times before as I got into my truck to leave I glanced over and I saw my salesman giving me a big smile and a genuine wave. It was total sincerity. I reflected back to last August when I had the honor and privilege to be chosen by Toro as well 18 other fellow sports turf managers to attend the 2013 sports fields and grounds forums in Minnesota.

The people who work for and represent Toro are the most sincere, genuine, and gracious and giving people I have ever had the honor of meeting. Their slogan Toro count on it, not only stands for their product but for the people who make up the company. When we stop and think about it, Toro is like the silent big brother who looks out for us sports turf managers, our faculties and our industry. They are the biggest and longest running advocate and supporters of the sports turf industry and everything they do, design and build is with us and our jobs in mind.

The Sports Field and Ground forum ranged July 29 through August 1, 2013 and began in Bloomington Minnesota. They were some long days and travel team but the experience was second to none the following people were attendees.



During these days we saw new products and prototypes that were not even allowed to be photographed because they were in the early development stages. We saw improved and existing products along with demonstrations of all equipment currently manufactured by Toro. Day One started out with arrival at 4:30 PM and then we were transported to Target Field for a tour and dinner with Larry DeVito; Head Groundskeeper as our keynote speaker.

Day Two began at 6 AM with a trip to the Toro Company's World Headquarters. We were given a walking tour by Steve Keating Toro sales skills manager and then welcomed by Dale Getz; Toro's Sports Fields and Grounds Manager, US Regional Business Manager. And there is broken down into the corporate overview by Bill Brown; VP of international and commercial businesses, engineering overview by Dave Klis, Computer Design & Analysis demo by Ron Wosk, Agromomic Research by Troy Carson, Future technologies by Dana Lonn. Round table discussions, demonstrations of automated equipment, future products, concepts and irrigation products.

It was very intriguing to walk through the hallways and see the very first Toro mowers, aerators, snow blowers etc. and marvel how far Toro has taken its technology to be able to view all of the historic pictures, ads, articles & realize that the Toro Company was just like its employees. There on the walls for all to see was each generation of employees and equipment. We all know as the generations change, so did the equipment.

Day Three was a trip to Toro Tomah Facility in Tomah, WI. This is where Christmas for sports turf managers came early! We were able to operate all the new mowers, sprayer sprayers, attachments and miscellaneous equipment. We were able to view and operate new prototypes that have not been released and we're still in the development concept stages. What we heard over and over from our host was the same every time "what do you guys want to see? What works for you guys & what doesn't"? Never once did we hear "Toro thinks that..." I cannot begin to praise the people who are employed

Continued on Page 6...

A Tribute to Toro Continued....

by Toro. They are like one big family and it is always about the Sports Turf Industry and the people in it, rather than about themselves. Tomah was a trip that I wish everyone in our industry could be lucky enough to visit.

Day Four was a trip to Ericson Park in Rosemount. This is where we got to operate and see all the new designs and ideas the ball diamond grooming, vehicles such as The Toro Truckster Vs. well the other guys, because we aren't allowed to say, large area rotaries, aerates/applications and debris management. At the end of the day we were given a closing banquet with our favorite keynote speaker; Brad Jakubowski; Professor at Doane College.

As the banquet was coming to the end Dale Getz took a moment to thank all of us for accepting the invitation to come & help the Toro Company and its employees to better their products and make things better for us. The whole time he was speaking, I was sitting there pondering the thought that he keeps thanking us, yet

Toro funded our expenses; such as the travel, food, lodging and other incidentals and he were humbly thanking us. When Dale concluded, he asked for comments. I couldn't help but stand up and state what we had all been thinking. I proceeded by "Thanking Dale himself and The Toro Company for the invitation along with the demonstrations and allowing our participation in these particular settings.

I also thanked him as well as everyone for all of the support and great things Toro provides and does for the Sports Turf Industry, right down to the education of students.

With all the information and knowledge I gained from this conference. I would especially like to give thanks to Boyd Montgomery. I would not have been invited to experience these amazing days with the wonderful folks of Toro and the 18 colleagues associated if it's wasn't for Boyd.

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Minnesota STMA VS. Iowa STMA Chapter Challenge

The Results are in:



On July 11th & 12th the Minnesota STMA and the Iowa STMA met in Mystic Lake, MN for a friendly competition in Golf, Softball and Bocce Ball. The results are as follows:

Golf: Minnesota (3-2-1)
 Softball: Iowa (12-4)
 Bocce Ball : Iowa

Way to go Iowa STMA! Next year's chapter challenge will be held in Iowa location TBD.

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ISMTA Spring Workshop Review

Jason Koester, CGCS, Grinnell College

Grinnell College was host of the ISTMA summer workshop on July 9. The sponsors for the day were Commercial Turf and Tractor, Miller and Son's Carts, John Deere Landscapes, Floratine Central, Van Wall Equipment, Bush Turf, Direct Solutions, D & K Products. Thank you to all the sponsors, speakers, and attendees. It was a great honor for Grinnell College to host an ISTMA event.

We started off the day with Keith Woodruff of EC Grow giving a presentation on many granular fertilizer options for Sports Turf Managers. Brian Wood of Commercial Turf and Tractor and Tim Van Loo, CSFM of Iowa State University presented frasse mowing. They shared their frasse mowing experiences and strategy that is sweeping across the nation. Later in the day, Brian Wood did a demo of his frasse mowing machine. Kevin Hansen of Pro's Choice spoke on baseball and softball skin management. Kevin had tips that every Sports Turf Manager can incorporate into their management practices. Brent Smith of Floratine Central spoke about the advantages of Humic acid usage and soil testing. Ryan Adams recapped the winter damage that effected the state from our brutal winter season. He also gave tips on putting our fields to bed to help combat winter damage. Mike Burt, Jason Koester, CGCS and Chris Bair of Grinnell College spoke on multiple topics including, the history and projects completed at Grinnell Colleges athletic fields, the rain water collection system

that Grinnell College has in place for the Gameday football field, native prairie areas on campus and the Audubon certification that Grinnell College is pursuing.

The day ended with multiple on field equipment demonstrations by Commercial Turf and Tractor, John Deere Landscapes, Miller and Son's Carts and MTI Distributing.

If you would be interested in hosting, sponsoring, speaking or have topic ideas please let the Board of Directors know and we will get info to the workshop committee.

On September 16, Joe Wagner of Iowa City will host the fall workshop. Follow the link for the days events and to sign up - <http://www.iowaturfgrass.org/istmaevents.htm>. Information is also available in this newsletter.



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Iowa Sports Turf Managers Association
Fall Workshop - September 16, 2014
Kickers Soccer Park - Iowa City, IA

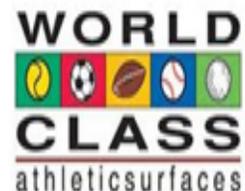


The Iowa Sports Turf Managers Association is excited to offer the third and final workshop of 2014. Kickers Soccer Park in Iowa City will host a full-day of education, demonstrations, and networking for all participants. The workshop will include topics in athletic field drainage, paving preparations and demonstrations, hands-on irrigation, troubleshooting, and management of athletic field soils. If you have not been able to attend an ISTMA workshop this year, it's your last chance! Take advantage of early registration.

Thank you to our Workshop Sponsors! D & K Products, Floratine Central Turf Products, Hunter Industries, John Deere Landscapes, MBA Incorporated, MTI Distributing and World Class Athletic Surfaces.

Join ISTMA for the 2014 Fall Workshop! Registration deadline is September 10, 2014.
Return the next page or register online at www.iowaturfgrass.org/events.htm
(Please make as many copies as needed)

THANK YOU TO OUR WORKSHOP SPONSORS!



8:00	Registration w/coffee & donuts
8:30	Welcome & Overview of Days Activities – Joe Wagner, City of Iowa City
8:45	Athletic Field Drainage Installations/Maintenance/Troubleshooting (Drainage Scope Demo) – Jim & Bev Seelman, MBA and BUSH Sports Turf
9:30	Athletic Field Painter Options, Routine Maintenance & Painting Prep, Painting Logos and Demo – Tim VanLoo, CSFM, ISU, Tony Senio, U of I, and Colin Stubr, U of I & City of Iowa City
10:30	Break – Visit with Vendors
10:45	Painting Demos (Stencils, Hashmarks, Yardlines, Multicolored Logos, Field Layout) – Tim VanLoo, CSFM, ISU, Tony Senio, U of I, Michael Murphy, Iowa City Schools, Collin Lenton, U of I & City of Iowa City & Colin Stubr, U of I & City of Iowa City
11:45	Lunch – Visit with Vendors
12:45	Irrigation Hands On Stations 1. Irrigation Head Repairs – Tim VanLoo, CSFM, ISU & Ben Grimm, Iowa City Schools 2. Irrigation Wiring and Locating – Joe Wagner, City of Iowa City & Michael Murphy, Iowa City Schools 3. Valve Troubleshooting and Repairs – Troy McQuillen, Kirkwood CC, Collin Lenton, U of I & City of Iowa City 4. Controller Troubleshooting – Steve Guthrie, John Deere Landscapes & Collin Stubr, U of I & City of Iowa City, Lynda Wightman, Hunter Industries 5. Pipe Breaks and Repairs – Neric Smith, IHCC Tyler McIntosh, City of Iowa City, Tony Senio, U of I
2:45	Managing Soils, Sand Based and Native Soils – Austin Allen, D&K Products, Brent Smith, Floratine Central Turf Products, Tim VanLoo, CSFM, ISU and Joe Wagner, City of Iowa City
3:45	Workshop Wrap Up
Thank You to our Workshop Sponsors D&K Products, Floratine Central Turf Products, Hunter Industries, John Deere Landscapes, MBA Enterprises, MTI Distributing, World Class Athletic Surfaces	

Registration Form
 ISTMA Fall Workshop – September 16, 2014

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Pre-registration Deadline by September 10, 2014
 Members \$40
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STUDENTS MUST PRE-REGISTER

On-Site Registration
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And the Award Goes To



Community Field 2013 Baseball Field of the Year

Community Field in Burlington, IA is the recipient of the 2014 ISTMA Baseball Field of the Year Award. Community Field is the home of the Burlington Bees a Class A affiliate of the LA Angels. TJ Brewer, CSFM is the Heads Groundskeeper that takes care of the field every season with just the help of one Intern. With the last two summers being dry with a lack of rain, TJ was able to keep Community Field in top-notch condition and make it one of the nicest fields in the league. Congratulations to Community Field and TJ Brewer, CSFM!

How long have you been at the Burlington Bees?
This is my 9th season.

What do you do for the Burlington Bees? I am the Head Groundskeeper. I am in charge of a stadium field as well as about 13 acres of manicured turf.

What type of staff do you have and what important role do they play? I depend on interns, game day staff and volunteers. My staff is my most valuable resource and they are the reason a field of the year is even possible.

What are your career goals? My only goal is to be happy where I am and continue to have a passion for this industry.

Who was the first person you called about this

award? I called my staff, they are the ones that made this possible, they were excited to hear of our accomplishment.

What does it mean to you to be a part of the ISTMA? I really enjoy the educational opportunities available, but most importantly I cherish the friendships and networking .

What does it mean for Community Field to win Baseball Field of the Year? Our organization and the people around it really embraced this accomplishment. We are the smallest market full season minor league baseball team. Our community embraces this team and its accomplishments.

What is your advice to other Sports Turf Managers or Students? You should be in this industry because you love creating something for others to enjoy. Realize that you are just a small part of the bigger picture and that the most important thing is that the user has the opportunity to play on the best field possible. In the end it is all about them, if they disappear, so do we. Often we get caught up in trying to create perfection we forget their feet are our job security.

What do you love best about being a Sports Turf Manager? All of the little victories that add up to make a field look and perform the way I want it to.

Do you have any projects being planned or in the works? Well, this fall we are going to be putting a new roof on our house, painting the spare room, and depending on how crazy I'm feeling landscaping the backyard. We will see how much of this gets done... someone told me it's the thought that counts, right?

Anything you would like to add? I want to thank you for giving this honor to Community Field. It is well deserved and greatly appreciated. The Field of the Year plaque hangs right inside the entrance door to our main office, it is right there for everyone who visits to see. Now that is an organization that is proud of this award. Thank you giving it to us, and thanks to all of those who helped make it possible.



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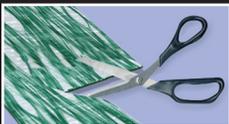
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Preparing Jack Trice Field 2014

Tim VanLoo, CSFM, Iowa State University

This is my 5th year in Iowa and so far it's been the most challenging to get Jack Trice ready for the fall. As I write this it's the end of June so we are a little ways off of painting and prepping for the season, and thankful for the next 4-5 weeks. Jack Trice suffered some major winter kill on its Kentucky bluegrass playing surface. I think some of the reason for the winter kill was preparation for our last football game last season when we removed 4" of snow and played on a frozen field. I believe we removed enough leaf litter and thatch to leave the crown exposed to the very cold winter we had. It's not normal for Kentucky bluegrass to suffer any winter damage like we had, so it caught me by surprise as well as other turf professionals that kept telling me it was perennial rye. Well, perennial ryegrass has never been used on the current Jack Trice surface that was established in 2008.

Prepping the field for fall for us is done from the end of April to the end of July. Usually, the only bare areas or badly worn areas are the sidelines and dance team areas. This year we had the challenge of establishing both end zones and the NE corner of the field as well as the normal badly worn areas. We started with aerifying, seeding, and topdressing. I will try to affect 30% of the surface area with hollow tines from April-July. This is done by using 5/8" hollow tines on about 2.5" spacing. It takes 5 aerifications to achieve about 30%. We seed troubled areas after each aerification and top-dress sand on top of the entire field. We also usually harvest our cores unless weather or some other factor keeps us from accomplishing that task.

Fertility is very important and I take the task very serious. We keep our granular applications to 4.5-5lbs N/1000ft² annually. I accomplish this with 4 applications; two quick release starter fertilizer applications in April and May and in June and August I apply a slow release poly coated Nitrogen. This allows me to control growth through the summer and playing season. I supplement every 14 days with foliar products that have both Macro and Micro nutrients on them.



We do preventative fungicide and insecticide applications as needed, basically targeting two pests that could

affect playability, summer patch and white grubs. Summer patch is a problem in Jack Trice Stadium, so we are still working on the best attack. Much of our damage occurs in late July traditionally, so by the end of August we have usually recovered so know ones that it has occurred. This year we started our preventative earlier than past years (beginning of May), I am hopeful that it will work. White grubs have never been a problem, but can't afford to take that chance!

I am sure all of you are prepping and getting ready for the upcoming seasons. If I can ever be of help, please don't hesitate to ask.



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Turfgrass Disease Diagnosis

Proper sample preparation is the first step in the process of disease diagnosis.

BY DR. STEVE KAMMERER

When lumped with all other day-to-day tasks, disease management can be one of the most challenging problems that face golf course superintendents. Sometimes when problems arise on turfgrasses, an unknown “disease” is the presumed culprit. Sample diagnostics can be useful in identifying the primary potential pathogens and when they are most likely to be infecting. This information is critically important in designing an agronomic program for prevention of diseases. This article is

a short guide to taking the right steps to diagnosing problems associated with pathogens and extrapolating the results of a turfgrass diagnosis summary.

TURFGRASS DISEASE SYMPTOMS VERSUS INFECTION

Diseases of turfgrass are symptoms of infection by a biotic (living) agent. Not all diseases of turfgrass are caused by fungi. Plant parasitic nematodes are also classified as causing disease in

turf. Interestingly enough, fungal pathogens and the diseases they cause have been documented as being more likely in turfgrass damaged/stressed by nematode feeding. The time period between infection and the appearance of visible symptoms can be short, as in the case of *Pythium* blight (*Pythium aphanidermatum*) and dollar spot (*Sclerotinia homoeocarpa*). Long infection periods that precede disease symptom expression exist with the diseases take-all patch and bermudagrass decline (*Gaeumannomyces*



It is important to search for both above-ground symptoms and below-ground symptoms before submitting a sample.



Plating the samples on growing media will help identify causal pathogens.

graminis varieties). In the case of leaf and sheath spot (*Chrysorhiza* / *Rhizoctonia zeae*), sometimes called “mini-ring,” while infection may be rapid and progress for months, no obvious visible symptoms may be apparent until stresses that slow turfgrass growth favor the growth of the pathogen over the host (the turfgrass).

FIRST STEPS TO FIELD DISEASE DIAGNOSIS

First, get out your disease guides. The *Turfgrass Disease Compendium* by the American Phytopathology Society (APS) is a great guide that describes the biology of the pathogens along with pictures. Second, invest in a good handheld field macroscope, and get down on your hands and knees. Dissect a portion of the affected turfgrass. Take pictures and notes of symptoms where they are occurring. Close-up pictures are critical, where you can literally see the individual turfgrass leaves. You cannot assume that all the symptoms in one area or all over the golf course are due to just one pathogen. Third, cut into the soil and observe the roots and soil profile. Many fungal pathogens of turfgrass are soil-borne and most active right at or below the soil surface, whereas the

symptoms may appear on the above-ground tissue.

STEPS FOR PREPARING A SAMPLE FOR LABORATORY DIAGNOSIS

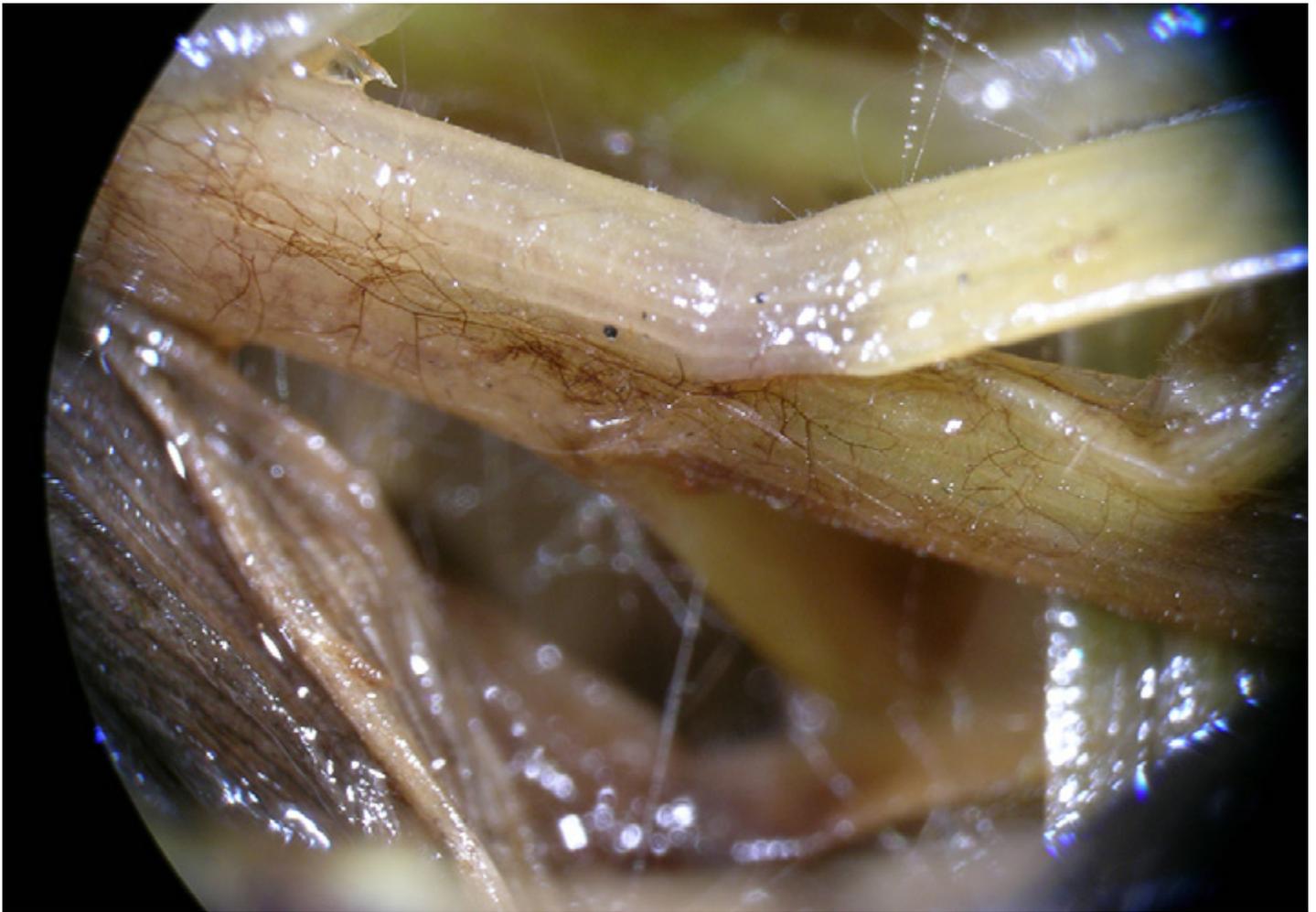
For laboratory diagnostics at a university clinic or otherwise, take samples as early as possible. As part

of my Ph.D. project at the University of Florida, I conducted a two-year scouting program in South Florida on seashore paspalum fairways. Twenty percent of the time when I visited a golf course and recovered a pathogen, there were obvious classic symptoms of the disease. However, 80% of the time there were vague to slight symptoms not consistent with typical of *Rhizoctonia* or *Rhizoctonia*-like diseases, yet fungal isolates within this group were still recovered. With regard to most of these “exceptions” where I obtained these fungal isolates from the surface sterilized turfgrass tissue, the superintendents were largely unaware of any disease issues or infection. Another important finding was that 35% of these recovered fungal isolates were associated with samples of below-ground root and rhizome tissues. As many sprayed fungicides bind or enter leaf tissue quickly upon drying, there is generally less fungicide moving to below-ground turfgrass tissues as compared to above-ground. Thus, there may be a better chance of identifying/recovering the causal pathogen from the below-ground tissues.

Take the samples prior to, not after, a fungicide application. Even if the diagnostic laboratory that analyzes



Disease diagnosis should not be rushed, if possible. Proper incubation can help identify causal pathogens so that effective treatment can be implemented.



Diseases such as Rhizoctonia zeae can be found in hard-to-find areas, such as the crown of the plant.

your samples uses selective media in an attempt to induce the fungal pathogen to grow out of the affected tissue for more conclusive identification, a fungicide application, especially of a xylem mobile fungicide, can really complicate the already difficult task of identification of the causal fungus. This can result in a diagnosis of “no pathogens found.”

If sending a sample to a diagnostic clinic or lab, confirm that someone will be there to receive the sample when it arrives. Do not ship a sample on a Friday because your sample may sit for three-plus days before someone sees it. Keep the samples out of the heat and sun after taking them and prior to shipping. If you are going to be traveling or outside for several hours or more, get a small cooler to keep the samples cool, but do not immerse the samples in ice or cold water. Samples should not dry out. Wrap the turfgrass

samples in aluminum foil and then place in a paper bags. Label each sample if taken from different areas. Use overnight shipping so the samples will arrive as fresh as possible.

Most clinics have a submission form. It is extremely helpful to include additional information on the submission form or via email. Pictures of the symptoms can be extremely helpful, and include any obvious cultural issues of the sample location, such as “this is a ‘push-up’ green that has drainage problems.” A short chronology of activities 30 to 45 days prior to the appearance of symptoms will be helpful as well. This should include fungicides applied and major cultural practices recently performed. Any and all additional information you provide can be extremely helpful.

A cup-cutter sample of the affected area is generally adequate for any diagnostic clinic. If variable symptoms

exist, several samples are useful. Because no superintendent wants a green to resemble Swiss cheese, an alternative is to get a smaller core sampler. Additionally, multiple smaller samples are better than one big cup cutter sampler. Sample from the edge of the affected areas. The University of Florida's RAPID Turf diagnostic clinic's diagnosticians plate out several pieces of turfgrass tissue on selective media and then assess the plates following incubation over a period of days to help quantify the results. It can be common to identify more than one presumed fungal pathogen out of a sample.

INTERPRETING THE DIAGNOSIS

A superintendent once told me that when he sends out a turfgrass sample, he doesn't include any pictures or additional information with the sample.

When I asked why, he said he wants a definitive diagnosis of what is present, and felt that including this additional information biases the diagnosis and leads to guessing. Disease diagnostics, especially for turfgrass, is a science and an art that takes experience.

There are “tricks” to diagnosing the most likely causal pathogens. Some fungi grow optimally at high temperatures, some at low temperatures, and some can grow through specific fungicides that inhibit other fungi — selective media incorporate some of these fungicides into the media. Certain fungi express very definitive and unique characteristics when the infected plants are grown in a high-humidity growth chamber versus when they are grown in a petri dish.

I receive phone calls from extremely frustrated superintendents or distributor reps who tell me, “I sent a sample to University A, then another sample to University B, and then yet another sample to a third lab, and I got three different answers.”

Or worse yet, “I got a diagnosis of no disease found.” I try to respond that “no disease found” is great information, as

it means that either the pathogen is in remission and your efforts are providing benefit, or the problem is not a disease but something else. This will save a lot of guessing and unnecessary fungicide applications. I’ve had a few superintendents “test me” by letting me sample an area that they had already treated once or several times with fungicide or had spot-treated with a non-selective herbicide to see if my diagnoses were just

educated “guesses.” A credible laboratory is one where every diagnosis is not necessarily a disease.

A turfgrass sample sent to a diagnostic lab is a “snapshot in time.” It can be quite common to get a different diagnosis each time you take and ship

an economical preventive fungicide program, targeting applications prior to the heavy summer rains and focusing on a *Pythium* fungicide in conjunction with a contact fungicide for the *Bipolaris*. These preventive applications resulted in less fungicide applied,

less spraying, less money spent, and less time/labor involved in fighting this continuing problem curatively. Most important, the turfgrass responded favorably and the disease was much less severe.

Remember that turfgrass damaged by disease requires time to recover and grow new tissue. If the weather or growing conditions are less than optimal, turf recovery may be slow. It doesn’t necessarily mean that the disease or the pathogen is still active. Additionally, weak turfgrass is much more susceptible to infection by secondary pathogens, so preventive fungicide applications need to be initiated or continued until the point that the turf has fully recovered.

CONCLUSION

Disease management is a challenging facet of turfgrass management. Planning and use of preemptive turfgrass sampling techniques for

pathogen detection will help guide activities on the golf course and will assist in identifying the diseases of significance that need attention.

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Sometimes, two diseases can be present and active at one location. Both *Rhizoctonia* and *Pythium* were identified in this location.

a sample, even to the same lab. It has been documented that zoysiagrass initially damaged by *Rhizoctonia* experienced delayed recovery due to secondary infection by *Pythium*. I worked with a golf course that had severe yearly outbreaks of *Bipolaris* leaf spot, even after several fungicide applications. Upon taking samples from this golf course, I recovered *Pythium* from about 15% of the surface sterilized tissue. We designed

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