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course turf. However, because the long-term attributes of abrasive, highly-angular soil aggregates are not understood, careful consideration should be administered before completely adopting this novel management strategy. When considering the use of such amendments, begin by treating only small areas of turf where earthworms are highly problematic to evaluate this management strategy before adopting for widespread use.

Acknowledgments

The authors thank the United States Golf Association as well as the Wisconsin Turfgrass Association for providing funding of this project. I thank Bob Vavrek (USGA Regional Agronomist) for his editorial and intellectual contributions. We would also like to thank 34-year GCSAA member Monroe S. Miller, golf course superintendent at Blackhawk Country Club, Madison, WI, for his cooperation and for providing the study site. An electronic version of be accessed this manuscript can at http://usgatero.msu.edu/

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The Family Tree

By Pat Norton, Golf Course Superintendent, Nettle Creek Country Club

S o I turn around and look at myself on the back wall of my office. There is this young man looking back at me from the various stages of his younger life. This young buck looks pretty self-confident as he sits there, a mere college boy amongst the small crew from Blackhawk CC, circa 1980-1982.

In those black & white group photos I am surrounded by a bunch of guys that were very close back in those days. Young teenager Jim Berbee, younger teenager Mike Lee...the mane of hair and beard also known as Ric Lange...a very young, very blonde Tom Schwab, and a very self-assured Dave Helke are all there looking back at me. Everybody is young in this photo...even David Noltner, even Miller! There is a grand total of eleven guys in the group, including the only photo that I have of Vincent Noltner.

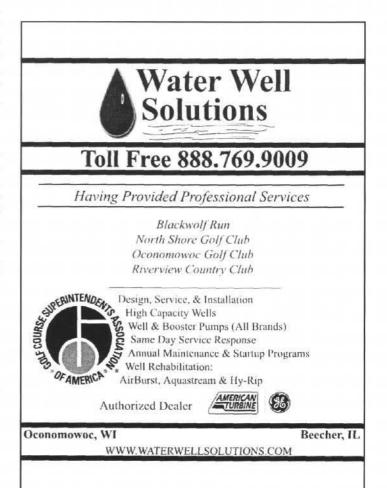
I have another great color photo of the eighteen guys who were on my crew back during the formation of Cedar Creek in Onalaska. In that 1991 photo are some familiar faces and some elusive names. That great group of guys proved simply that, at least in the rural areas (like western Wisconsin), 'white boys' still knew how to work and have fun doing it. Today, my golf course, like most others in NE Illinois, uses primarily Hispanic labor mixed with 3-4 senior retirees. Almost the same sense of camaraderie, but not quite...

Those two group photos are my visual connection with my golf course past. It is always a treat to sit back and reminisce about those days gone by...and about the people who have had a positive influence on your life. It's a treat also to ponder on what has become of them all...

Who can ever forget their first days and weeks of working on a golf course. It seemed comparable to a guy getting paid for habitation of a magic kingdom of golf course beauty. As a 19-year old, every golf course that I'd ever played on heretofore had been beautiful...in its own rough, under-maintained way. But this! This incredibly beautiful fairyland of golf was so visually stunning!

And then, to begin to understand how the work is performed and 'the look' is created. Every true golfer should work at least one summer on a golf course...the appreciation for the game and for golf maintenance would rise dramatically. I think that maybe we forget sometimes that our golfers should feel this same sense of visual overload, this sense of 'golf experience' each and every time they play our golf courses! I'll never forget the sense of intimidation of first working with guys like Jeff Parks, David Noltner, and Vincent Noltner....who were the key guys in those days in helping Monroe create 'the look' at Blackhawk. I remember to this day that I always understood that I had at least four bosses...screwing something up and facing their scorn was something to be feared...but not as fearful as the wrath of Miller. We rookies implicitly understood the pecking order...and realized quite well that we were right down there at the bottom. But, if you kept the proper respect and had a strong work ethic, much could be learned, your contribution to the well being of the course would be noted, and respect implicitly given up the pecking order would begin to flow back down.

Interesting that in my two black and white photos are a total of seven guys, then in college and in



GOLF IN THE FLATLANDS

training at Blackhawk...who are now superintendents. Interesting also how the 'family tree' from Blackhawk, Maple Bluff, and Nakoma in those days kept spreading and developing. Good men like Miller, Harrison, and Smith took and take the time to train numerous young men and help them along their way. Undoubtedly, many older guys reading this have developed their own family tree of superintendents and assistants over the years. Many younger guys are, no doubt, part of some golf course family tree and are starting to mentor their own tree.

In part, it's what this business is all about. None of us are ever going to be monetarily wealthy, if that is your goal, as a result of the years dedicated to golf course management. But, as we know, there are many types of wealth. We all have the opportunity to influence, train, and help people significantly through our work. The young men in my photos, and your also, are testament to that fact. Reflect back on those photos some winter afternoon. It will undoubtedly bring forth a few chuckles and some inspiration for the upcoming season.

Today is January 11...which means that we should be experiencing bone-chilling cold, brutal winds, and crusty, dirty snow...in other words, weather that tests your resolve. The reality today is a sun washed, beau-



tiful winter afternoon...looking out over a golf course with a strong green tint...and a stronger lure to it. It is the lure of the golf course that keeps us all...part of the family tree. It is the mixture of golf...and golf course management...that keeps us all growing and active in our family trees. In fact, I just commented to our golf professionals that the lure of the golf course this afternoon is so strong that it would be a shame not to crank a few shots off of our No. 10 blue tee! We in ChicagoLand all agree that global warming is a 21st century reality.

When I consult with my friend, Mr. Calendar, and plan out the remaining weeks of winter in my head...I realize that the amount of remaining winter shop work is considerable. Blended into the mix is the pro shop remodeling, the clubhouse interior painting, the policies and procedures manual to be rewritten, the repermitting of our mixing/loading station, the re-certification for pesticide application, and the Audubon Cooperative Sanctuary Program that is once again up for consideration. Although certainly not requiring 60-70 hours weekly...the above is truly enough to keep us all busily employed.

We have made it successfully through the holidays...with more than enough treats and holiday alcohol consumed into the body...college students are on the verge of starting their spring semester...and spring is only six to eight weeks away down here in the flatlands! The lure of the course and the chance to bring employees together for another season does generate a sense of excitement that builds as the holidays fade and spring approaches

We'll be expected and ready for opening by March 17...St. Patty's Day! So, we all have six to eight additional weeks in which to prepare for the annual battle. Those trusted lieutenants in my family tree will be well rested and ready to get outdoors. They will have had enough of indoor winter work...and eagerly anticipate the chance to flex their outdoor muscle. The others in my current photo...who work seasonally... will undoubtedly visit me in the next couple of weeks...looking for both a start date and their "augmento", or raise.

So, in addition to looking back and reflecting on those who have helped us be a part of their family tree...we can look forward a few weeks and anticipate that our family tree will leaf out once more...as a new golf season begins.

Remember to take a group photo this season...which is something that I usually postpone. In 2006, therefore, I resolve to take a group photo of my family tree. It will become something to look back upon...something to help identify those who have come and gone...and something to help in triggering a memory of those who have helped along your way...or that you are helping along their way.

USGA Turf Management 2005: It's Not Getting Any Easier

By Robert Vavrek, USGA Senior Agronomist, North Central Region

T o say that 2005 was among the most challenging seasons to maintain a well conditioned golf course would be an understatement. Many superintendents across the Region compare 2005 with the difficult summers experienced during 1988 and 1995. Some believe 2005 to be worse because the season started with widespread winter injury.

Old courses, where the playing surfaces are dominated by *Poa annua*, were certainly affected the most by winter kill after several particularly severe thaw/freeze events that occurred during late winter and early spring. Cool weather during April and May set back efforts to accelerate the rate of recovery despite numerous attempts at renovation. Little patience by golfers for anything but pristine playing conditions from the minute a course opened to the day it closed did not help matters either with respect to any hopes of rapid recovery.

Unusually cool weather seemed to transition almost overnight into extended periods of high humidity and stressful temperatures between the mid-80's and mid-90's. The perplexing combination of high humidity and drought had inexperienced turf managers scratching their heads about when and how much irrigation to apply to mature healthy turf versus weak immature turf that was in various stages of recovery. As usual, too much irrigation caused more problems than too little.

However, the ability to selectively irrigate the course depends on the presence of a modern, sophisticated watering system. A considerable amount of timely hand watering is necessary to compensate for the limitations of an antiquated watering system,



THE GREEN SECTION

though hand watering is still important at courses where modern automatic irrigation systems exist. With operating budgets being cut or frozen over the past several years, the ability to authorize overtime to hand water turf was hampered at many courses.

The difficult time many courses had providing golfers a high quality playing surface consistently last summer should come as no surprise considering how close to the edge courses are being maintained these past few years. Golfers want faster greens, so nearly all greens at mid-to-upper end courses are maintained at or below 1/8-inch and double cut or rolled from early spring through late fall. Golfers want perfect bunkers, so a significant amount of time and labor is shifted from basic turf maintenance/conditioning to sand management. Golfers don't like the disruption associated with cultivation and topdressing, so these critical management practices are performed less frequently or abandoned altogether.

We have improved lightweight mowers, new fungicides, better cultivation/topdressing equipment and more sophisticated irrigation systems. Despite these tools, turf is still taking it on the chin during long periods of stressful weather. As mentioned above, the primary cause is the fact that we are so close to the edge regarding turf management, that just one more slight push or stress has catastrophic consequences. It's easy, but not entirely fair or correct to blame the take all patch, the basal rot anthracnose, or nematodes for midsummer losses of turf, when it was the drought stress or sand topdressing dragged in on a hot day or scalping that occurred when wet, soft turf was double cut at 0.110" that predisposed the greens to these problems. No doubt there will be reports of other diseases across the Region, such as bacterial wilt of Poa annua, in the near future to blame for poor turf performance.

Sounds gloomy doesn't it? A slow downward spiral with little hope on the horizon...might as well change careers. A good place to start on the road leading to some form of manageable or sustainable turf is to define some reasonable maintenance standards. This is a topic frequently discussed at Turf Advisory Service visits, because what is "reasonable" from the maintenance point of view is not always viewed as "reasonable" from the golfers' perspective. Maintenance standards should never be defined as ultimate, and often unachievable, goals.

If defining maintenance standards is too much to handle right now, communicate the need for moderation. Try to shift the golfer expectations instead of dictating radical changes. Dictate to members that the green speed must be decreased from 11-feet to 9-feet for day-to-day play and you will likely be looking for another job. On the other hand, you will have a better chance convincing the majority of golfers that a better option is to provide fast greens during the summer and then raise the height of cut significantly during mid-September. Providing adequate time for turf to recover before winter cannot help but produce a healthier stand of turf the next season. Combine time for recovery during fall with a sound cultivation program and you may be able to keep your head above water in the future.

Any change will be difficult for some of the more unreasonable golfers to accept, but there is more chance of success with changes by trying to address golfer expectations for most of the season while setting aside some of the remaining season for maintenance. Needless to say, it will still be a challenge to convince all golfers that any change is necessary, but what are your other choices?

Weather patterns are changing and seem to be more unpredictable than ever. Our approach to golf course maintenance will need to be just as flexible and changeable as the weather. \checkmark

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Springtime in January

By Monroe S. Miller, Galf Course Superintendent, Blackhawk Country Club

The thermometers in Wisconsin are as confused as we are. After enjoying a snow-covered landscape through Christmas, January has been as consistently spring like as, well, spring itself. The frost is out of the ground, at least for the most part in our town, the bigger lakes and streams are open and free of ice, and some daily fee golf courses have let golf cars onto their courses. I guess we are ahead of last year, though; we made it through EXPO week without any rainfall, and most of the golf courses seem to be in pretty good condition. Knock on wood.

We are far from home free. Ours is a world of unabating change and finally, in the twilight of my career, I realize and accept that.

Winter is a time of rest, a season of hope. The days are lengthening and the sun is returning to a higher place in the sky. It is also the time of our GCSAA conference. Remember - it is in Atlanta, not New Orleans and not Houston!

Hopefully, those headed south will arrive safely.

Pat Sisk tells me that GCSAA really is going to enforce their PDI rules for those picked for the first three-year cycle. What this means, in a nutshell, is that you need to acquire a combination of education and service points to remain a Class A member, and you have until July 1st of this year to do that.

There should be time for you to do that. You need three points, and 1.2 of them must be "education" points. Everything from attending a local chapter meeting with approved education (like our spring busi-

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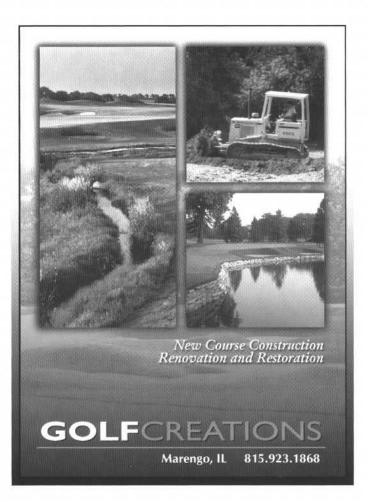
THE EDITOR'S NOTEBOOK

ness meeting), to participating in one of the GCSAA web cast opportunities to attending the 2006 Conference and Show in Atlanta will get you points. Credit is also given for serving your community in some capacity - school boards, park committee and the like. Presentations to outside groups also qualify. A full list of ways to do this is at "My Member Central" tab on the GCSAA website, or call 1-888-838-4419 for help.

The website is at www.gcsaa.org. Member Central is also where you record these education and service points, and it is also where you can see your transcript and monitor where you are at.

Education points for pre-approved non-GCSAA educational events require an approval code that is given at some point during the program. Mike Lyons did that at EXPO, for example. To record attendance, submit the code using the online affidavit form. Or, you may also use a paper affidavit if you want to.

Education points for educational events that haven't been pre-approved are submitted at "Member Application for GCSAA Education Points" under Member Central also, at the external education section to request a review of an education program. These applications must be submitted within 30 days



of the event. If it passes muster, you get your points.

By completing an evaluation form given at the end of a GCSAA seminar or web cast, the points are automatically awarded to you.

One and a half education points are automatically given when you register as a full-pack attendee for the GCSAA conference and show. Service points can be recorded using the online service point affidavit in Member Central or by submitting a paper affidavit. Sometimes additional documentation will be required. See the complete list of service points at Member Central if you are wondering.

Not only do you need the three points for Class A status, you need a pesticide license. If the state doesn't require you to have a pesticide license, you will need to pass the GCSAA IPM exam. Again, head to Member Central and access the affidavit. If you need to schedule the GCSAA IPM exam, you can do that on line as well.

So, what happens if you haven't gotten the three points? Well, this in all voluntary stuff (PDI) and if you don't fulfill the requirements, you will still be a member. You just won't be a Class A member but rather a Superintendent member. You have all the privileges of a Class A except that you cannot hold office in GCSAA.

So, it is up to you. However, keep that July 1st deadline in mind.

Experts are blaming a weak El Nino system in the Pacific Ocean and greenhouse gases (carbon dioxide

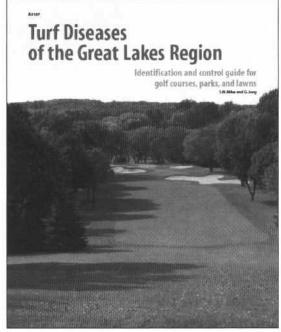


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The Turfgrass Diagnostic Lab and UW-Extension are proud to offer you the latest turfgrass extension publication, *Turf Diseases of the Great Lakes Region*.

The publication was written by Steve Abler and Dr. Geunhwa Jung and is a comprehensive update of the 1987 extension publication *Wisconsin Turf Diseases and Their Control* written by Dr. Gayle Worf, a Professor Emeritus of the Department of Plant Pathology at UW-Madison. What sets this publication apart from other references are the color photographs of each disease. The pictures allow the reader to confirm their disease identification using both a written description and photographs of real life symptoms. In addition, two separate keys for landscape turfgrass and golf course turfgrass help you identify your particular disease.

The cost of the publication is only \$5.00 per copy, with an additional postage



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THE EDITOR'S NOTEBOOK

and five other heat-trapping gases) for making 2005 the warmest year since records were first kept in the late 1800s.

It was the worst year for extreme weather with the hottest temperatures, the most Arctic melting, the worst Atlantic hurricane season and the warmest Caribbean waters. The year 2005 was also the driest year in decades in many places (the Amazon, for example).

I'll testify to both. Last year wasn't very pretty for a lot of reasons — winterkill, summer heat and high fuel prices among them.

The warming trend has been going on for 30 years. Before 2005 is officially entered into the record book, 1998 was the hottest year, followed by 2002, 2003 and 2004, in succession. I see a trend there, and given the January weather we've seen so far, it could well continue for 2006.

There is also concern expressed by oceanographers that the Pacific Ocean is the warmest it has been in 1400 years (how would they know that?), temperatures that are way out of sync with normal cycles. Greenhouse gases are partly to blame for this, too, according to the same scientists.

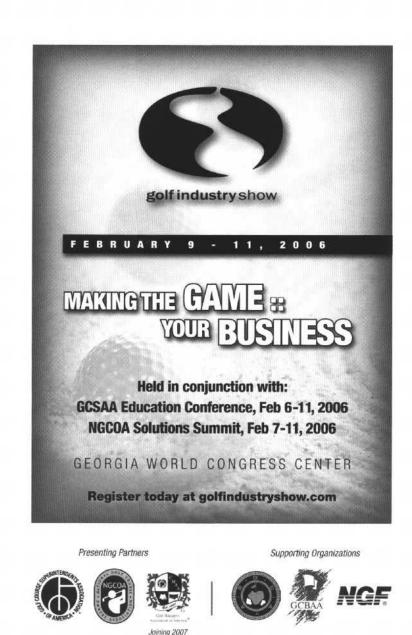
The Census Bureau released the 2005 Statistical Abstract, a 1,023 page book of numbers quantifying just about every aspect of American life. Among the statistics that didn't surprise me was the finding that Americans are spending less time outside and are participating less in almost every recreational sport, including, unfortunately, golf. Tennis, bowling, and snow skiing were also down in 2004. Most of us have noticed the slowdown in golf up close and hope it will change for the better soon, the sooner the better.

The 2005 gypsy moth 'Slow the Spread' aerial spray program was successful to the extent that for the second year in a row there was a decrease in moth catches. The leading edge of the gypsy moths spread in Wisconsin also receded by 10 miles.

The proposed spray blocks for 2006 will be announced by WDATP soon, at a series of statewide

public hearings sometime in March. More details can be found by calling 1-800-642-6684 or go to http://www.datcp.state.wi.us and click the insects button and then the gypsy moth link.

That's it for now. Happy trails until we meet again. \checkmark



Curative Fungicide Applications for Managing Dollar Spot

By Mark Manemann', Dr. Young-ki Jo', Jim Knulty², Pat Sisk³, Paul Koch', and Dr. Geunhwa Jung',

Department of Plant Pathology, University of Wisconsin-Madison; The Big Foot Country Club, Fontana, WI; The Milwaukee Country Club, River Hills, WI

Introduction

Dollar spot, caused by Sclerotinia homoeocarpa Bennett. is the most common perennial disease on intensively cultivated turfgrass in North America. Although adequate nitrogen fertility and cultural practices that reduce the period of leaf wetness duration are conducted to lessen dollar spot severity, turfgrass managers heavily rely on fungicides to control dollar spot. Typically, multiple applications of different fungicides are required every season due to the yearlong persistent nature of this fungus. Therefore, more money is spent in managing dollar spot than any other disease on golf courses.

It is important for turfgrass managers to develop an appropriate fungicide program that is based on information about fungicide efficacy evaluated under similar environmental conditions. The purpose of this research was to determine efficacy of various fungicides and tank mixtures for managing dollar spot once a disease outbreak had already taken place.

Experimental Methods

The field trials were conducted at the following three different sites: creeping bentgrass fairways at Big Foot Country Club in Fontana and Milwaukee Country Club in River Hills, WI and a creeping bentgrass green at OJ Noer Turfgrass Research and Education Facility in Verona, WI. Individual plots measured 3 x 5 ft, and were arranged in a randomized complete block design with four replications. The rating of dollar spot severity was measured

by counting dollar spot infection centers (DSIC's; approximate 2inch diameter) per each plot. Multiple ratings of the disease were recorded and the dates of the ratings can be seen in Table 1. A total of 26 fungicide treatments (either single or mixtures of two) were evaluated for their curative efficacy of dollar spot control. Each treatment was applied twice to the plots. The first treatment was initiated when there was greater than an average of 30 DSIC's per plot. The second treatment followed two weeks later. The actual treatment dates can be seen in Table 1. Individual treatments were applied at a nozzle pressure of 40 p.s.i. using a CO2 pressurized boom spraver equipped with two XR Teejet 8005 VS nozzles. All fungicides were shaken by hand and applied in the equivalent of 2 gallons of water per 1000 ft². The recorded data was put through an analysis of variance to find significant differences between the treatments.

Results and Discussion

Dollar spot was moderate at OJ Noer compared with Big Foot CC and Milwaukee CC. It wasn't until late July that there was enough disease pressure to start applying

the treatments at all three locations. At Big Foot CC there was twice the disease pressure of OJ Noer. Milwaukee CC had the highest disease pressure of any of the three locations. The lateness of the disease outbreak was likely because of unusual weather this year. It was too cold in the spring and rapidly changed to too warm and dry for dollar spot development in summer. We had the 4th warmest June on record in Madison. Because of these environmental conditions, the first applications were in late July or early August, which was later than originally intended.

At OJ Noer, most of the fungitreatments cide significantly reduced dollar spot severity as compared to the non-treated controls. There were, however, major differences of efficacy among the treatments. Thiophante-methyl (treatment 8) did not work because resistant isolates of S. homoeocarpa are widely distributed at OJ Noer (Table 2). This has been confirmed in our petri dish in vitro assay (unpublished data). Of the contact fungicides, the high label rate (5 oz/M) of Daconil Ultrex (treatment 12) had good control but no acceptable control using the low rate (1.8)

Table 1. Dates of applications and ratings for dollar spot curative conducted at OJ Noer, Big Foot CC and Milwaukee CC in 2005.

Location	Application dates		Rating dates		
OJ Noer	4-Aug	16-Aug	4-Aug	16-Aug	30-Aug
Big Foot CC	29-Jul	12-Aug	29-Jul	12-Aug	26-Aug
Milwaukee CC	28-Jul	10-Aug	28-Jul	10-Aug	26-Aug