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## Prevention is The Best Medicine

By Dr. Jim Kerns, Department of Plant Pathology, University of Wisconsin - Madison

Recently a few publications have hinted at controlling turfgrass diseases curatively and with the economic times I have heard more and more turfgrass managers saying the same thing. Curative control of turfgrass diseases are extremely difficult and require many hours of scouting in order to achieve acceptable playing conditions.

Under the auspices of Integrated Pest Management, it is stated that prevention is the best way to control pest population. I think the following website is a very nice summary of IPM: <http://www.epa.gov/pesticides/factsheets/ipm.htm>. However, under the prevention heading you'll see terms like crop rotation, resistant varieties, planting disease free root stock, etc. Basically IPM was developed for the agricultural world, but I think we can apply IPM to turfgrass disease management.

The goals of an IPM program are to effectively and safely manage pests that rely on a multitude of management strategies. Pesticides are a part of an IPM program. What is the

best way to effectively manage turfgrass diseases effectively and safely? I contend that following a preventative mind-set is the way to go.

First and foremost if diseases have been a major issue for you in the past, it maybe time to look at a change in cultural practices. Cultural practices that typically are beneficial with respect to turfgrass disease management are raising the mowing height, frequent sand topdressing, light, frequent nitrogen applications, alternating mowing and rolling, lightweight rolling and dew removal techniques.

These have all been shown to have a positive impact on turf quality and limit disease development. Yet, they have not completely eliminated the need for chemical prevention of turfgrass diseases. In this article I would like to highlight the research that is being conducted on lightweight rolling and its effect on dollar spot, preventative fairy ring control and preventative and curative control of dollar spot.

The collage features several golf-related items: a hole marker with yardage (548, 534, 508, 461, 405) and a par of 5; a hole sign for hole 10 (Par 3) with yardages 121, 115, and 115, sponsored by Nelson Julius Barber Shop; directional signs for 'CARTS' and 'NEXT TEE'; a scorecard for South Range with scores ranging from 89 to 250; a black trash can; and a blue and white checkered flag with the PGA Wisconsin Section logo.



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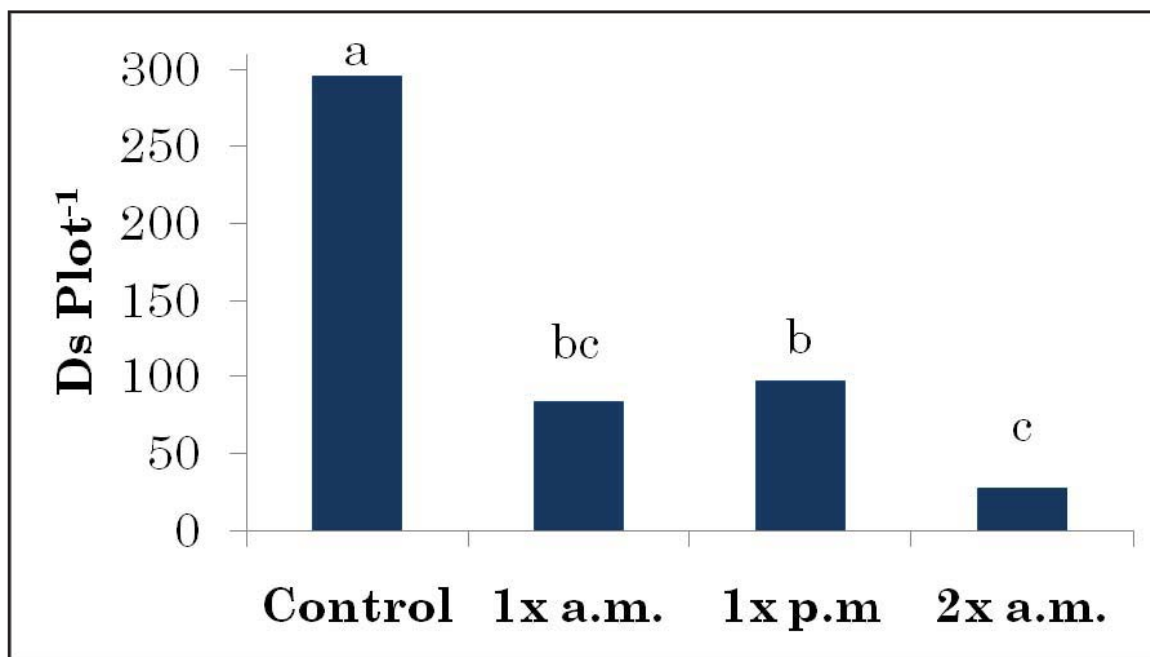
## Lightweight Rolling and Dollar Spot Development:

Paul Giordano, Dr. Joe Vargas' student at Michigan State, recently sent me a Power Point presentation summarizing his results on the effects of lightweight rolling on dollar spot development. This study was conducted on a USGA specification putting green that was a mixed stand of annual bluegrass and creeping bentgrass.

The treatments consisted of a non-rolled control, rolled once in the morning, once in the afternoon and twice in the morning. Plots that received a rolling treatment received rolling 5 days a week and the plots were walk mowed 6 days a week. They found that simply rolling once in the morn-

ing reduced dollar spot intensity significantly; specifically a 68% reduction in dollar spot development was achieved (Figures 1 and 2). This could have major implications on the duration of fungicide protection or on how many fungicide applications are made. Paul and Dr. Vargas have two theories to explain their results: 1) removal of dew and guttation water 2) a change in volumetric water content which in turn affects the microbial population.

I will let them explain the theories, in the meantime I think this is very interesting research. It is also a perfect example of using preventative cultural practices for disease management.



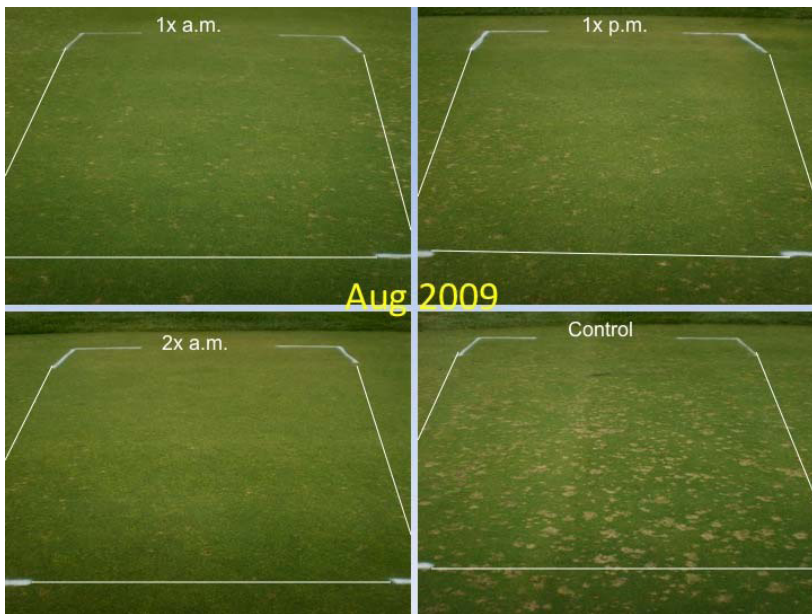
**Figure 1.** Impact of lightweight rolling on dollar spot intensity in Michigan. Plots were mowed six days a week and were either rolled once in the morning or afternoon or twice in the morning. A non-rolled control was included as well. Data courtesy of Paul Giordano, graduate research assistant at Michigan State under the direction of Dr. Joe Vargas.

## Preventative and Curative Control of Dollar Spot:

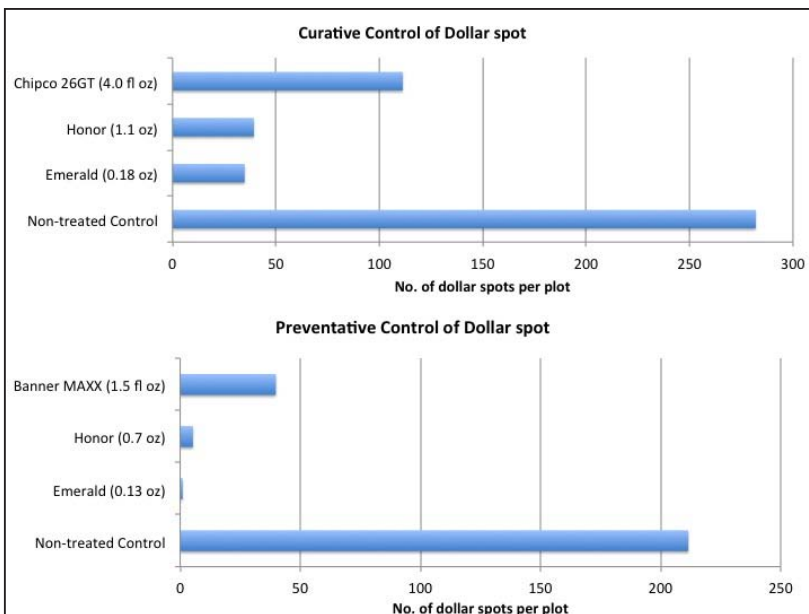
It is true that in some years preventative control of dollar spot may waste multiple applications of fungicides, yet until we understand this pathosystem better they are a necessary evil. Why? Controlling dollar spot curatively is a major headache! It is an uphill battle and one I think you cannot win. In order to effectively control dollar spot, high rates of fungicides on short intervals are often required. We have seen this at the OJ Noer each year in our trials. Although we allow for rampant disease development before initiating our trials, many other programs across the country report difficulties controlling dollar spot curatively. In our trials we can reduce dollar spot intensity significantly, but we cannot eliminate symptoms completely. Furthermore we are limited in the products that we can use to curatively control dollar spot (Figure 3). Another factor to consider with curative applications is the development of fungicide resistance. The

general consensus among the fungicide resistance community is using curative control measures is more a selection pressure on the population than preventative applications. Remember higher rates are typically necessary for curative control and on shorter intervals

Therefore, with respect to dollar spot I think it is best to attack that bug preventively. In order to time preventative applications accurately we have developed a model that predicts dollar spot development in the field using relative humidity. My collaborator, Dr. Damon Smith, and I are close to finalizing our model experiment and publishing that work soon. Once it is published we plan to undergo a national validation of the model and to develop tools to deliver this product to turfgrass managers. I know there are still some skeptics out there, but this model performed well in Chicago last year and we plan to test it in Milwaukee this year.



**Figure 2.** Images of the four rolling treatments included in the MSU rolling study. Notice the stark reduction in dollar spot development, just with a single rolling each orning. Images courtesy of Paul Giordano, graduate research assistant at Michigan tate under the direction of Dr. Joe Vargas.



**Figure 3.** Comparison of curative and preventative dollar spot control at putting green height. Study was conducted at the OJ Noer Turfgrass Research and Education Center and the data was collected on August 2, 2010 for both the preventative and curative study. Note the differences in control and the amount of product used.

## Preventative Fairy Ring Control:

The main reason I wanted to write about preventative control of turfgrass diseases was to remind golf course superintendents about the best practices for the prevention of fairy ring. Fairy ring seemed to be a major issue throughout the Upper Midwest in 2010 in part because we had nice warm temperatures and a lot of moisture. This is another disease that is an absolute bugger to control curatively. In most studies the only product that has consistently worked is Prostar. However, in order for that product to work, the affected area should be spiked before hand and a wetting agent should be tank mixed with the product.

Another option is to attack these fungi preventively. Research at NC State and the CDGA has demonstrated when fungicides are applied when 5-day average soil temperatures in the top two inches are between 55 and 65°F preventative control can be achieved. Moreover, more fungicides demonstrate activity when they are applied preventively.

Products like Headway G, Bayleton FLO, Heritage TL, Prostar, Tartan, Tourney and Triton FLO showed excellent suppression of fairy ring when applied preventively (Figure 4). When attacking fairy ring preventively, tank mixing a wetting agent with the fungicide is not required. In some cases a wetting agent mixed directly with the fungicide during preventative control reduced efficacy.

Wetting agents are required however, if fairy ring fungi are attacked curatively. Although this list is pretty extensive, you may need to do a little bit of experimenting to see what works at your facility. There are 3 to 4 common fungal species that incite fairy ring, but 50 more are associated with fairy ring development. This is important because we do not know the response of each species to fungicides.



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## El Cheapo

By Jake Schneider, Assitant Golf Course Superintendent, Blackhawk Country Club

Please, take a moment to find “cheap” in the dictionary. See that devilishly handsome, bespectacled, borderline dwarf whose picture is next to the definition? Yeah, that’s me. As my boss, former boss, and pretty much anyone who knows me on a personal level will tell you, it is with great reluctance that I part ways with my hard-earned money, and for the most part, my wallet does a terrific job of carrying around spare oxygen in lieu of any real cash. In my defense, I argue that it’s necessary to actually have money to be cheap, but that argument falls apart after mere seconds of interrogation. So, you hopefully see that I am well-qualified to discuss ways to save some benjamins.

Like many courses, we’ve been asked to cut expenses from our budget in recent years. And, although it hasn’t been easy, we’ve managed to beat our goals without a decrease in course conditioning. Sure, we rake the bunkers less on the weekends, mow fairways with long angles, and have cut our intermediate rough in half, but these are fairly unnoticeable measures that are typically followed when times are tough. However, I like to think that we do some things that may be unique, at least to some, and they are as follows:

1. Change your light bulbs. In 2009, we invested two grand to convert our T12 fluorescent shop lights to the much more efficient T8 lights. Although this was a significant investment, it was projected to cut our lighting bill by \$1200/year, and we also received a \$600 rebate from Focus on Energy. Besides the long-term cost savings, the quality of light from the new bulbs is dramatically better, and our eyes no longer burn when walking

out of the shop on a sunny day.

2. Recycle everything. A few times each year, we hold cookouts for our employees, and while we don’t serve surf-and-turf, it takes a decent chunk of change to feed 15 people. One of the ways that we fund these cookouts is by recycling scrap metal and aluminum cans. Although it isn’t anyone’s idea of fun, the employees who do course setup also separate the cans from the rest of the garbage, and after the season, we have a good-sized load to haul to the recyclers.

3. Craigslist it. Over the past two years, we’ve sold the following items on Craigslist: a manure spreader, a tractor, artificial tee mats, and fertilizer spreaders. Recently, we were also able sell all of our old irrigation satellites through the Noernet. Together, these unused items have added nearly ten grand to our bottom line, and we have extra shop space to boot.

4. Flower bed conversion. In a perfect world, all of the flower beds would be transformed into green stands of turf, but we all know that that’s neither reasonable nor aesthetically pleasing. In 2009, we converted many of our most prominent gardens from annual flowers to perennial plantings. Although the perennials aren’t maintenance free and initially are a little pricy, they paid for themselves in two years. We had a landscape architect put together the plans for the perennial beds, and they now provide great and varying colors and textures from early spring to late fall.

While the previous list is neither comprehensive nor is it filled with earth-shattering innovations, they have made a significant impact at Blackhawk and have the potential to do the same at your facility.

There have been some suggestions lately that the worst of the recession is behind us and that our industry is heading in the right direction. Although Madison has been more insulated from the fallout of the economic downturn than many areas, it does seem as if we’re picking up some positive momentum and that there’s renewed interest in membership. As the golf season gets rolling, I hope that the 2011 year is a prosperous one for you and your facility and that one or more of the ideas from El Cheapo helps your course succeed.

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# Coming Events!

Monday April 18th - WGCSA Golf Meeting at Geneva National GC, Lake Geneva

Tuesday May 17th - WGCSA Golf Meeting at Royal St. Patrick's GC, Wrightstown

Tuesday June 7th - WGCSA/PGA Super/Pro at North Shore CC in Mequon

Tuesday July 19th - WGCSA Tournament at Brown Deer Park GC, in Milwaukee, WI

Tuesday July 26th - WTA Summer Field Day at OJ Noer Research Facility, Verona

Monday August 15th - WGCSA Golf Meeting at Greenwood Hills GC in Wausau (w/NGLGCSA)

Monday September 19th - Wee One Fundraiser @ Pine Hills C.C. Sheboygan

Fri Oct 7th and Sat Oct 8th - WGCSA Couples Weekend @ Minocqua CC, Minocqua, WI (w/NGLGCSA)

Monday October 3rd - WTA Fundraiser @ Oconomowoc GC, Oconomowoc, WI

Tues Nov 15th & Wed Nov 16th - WGCSA Golf Turf Symposium @ American Club, Kohler



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## Education Conference and Golf Industry Show

By David Brandenburg, Golf Course Manager, Rolling Meadows Golf Course

The GCSAA Education and Conference and Golf Industry Show (GIS) are in the books and from my prospective and GCSAA's it was a success. The education conference sold 5,272 seats for the 116 paid seminars showing a 13% increase from the 2010 show in San Diego. Attendance between GCSAA and the NGCOA was up 4% with 14,781 and qualified buyers were up 11% to 5,552. I did notice the show floor was busy until the final hour unlike previous years with the three day format when exhibitors could set up bowling alleys in the isles the final afternoon.

The golf industry show is still big but smaller than in the past with 551 exhibitors spread across 180,000 square feet (4 acres) of exhibit space. I do not think the show will ever reach the glory days of 25,000 attendees and 981 exhibitors covering 300,000 square feet (6.8 acres) of trade show space but GCSAA seemed pleased with the numbers given the ever-changing economy.

The Golf Industry Show was created in 2005 in Anaheim when the superintendents (GCSAA) joined up with the golf course owners (NGCOA) to share a trade show while offering independent educational conferences. In 2007 the club managers (CMAA) joined to offer a full spectrum show. The CMAA never quite fit in to the big show due to many of their members having no golf course affiliation and many of their vendors being exclusive to the high end club atmosphere.

The three way marriage was probably doomed from the start but it ended after the 2010 show when GCSAA and

NGCOA cancelled plans to go back to New Orleans in 2012 due to low attendance and member feedback after the 2009 show.

Our relationship with the NGCOA as a partner seems secure although GCSAA is by far the biggest player as far as trade show space, educational offerings and attendance. Other association partners that have joined us include the American Society of Golf Course Architects (ASGCA), the Golf Course Builders Association of America (GCBA), the United States Golf Association (USGA), the National Golf Foundation (NGF), the International Golf Course Equipment Managers Association (IGCEMA), and supporting partner the Society of Golf Appraisers (SGA).

The GCSAA Education Conference offered 116 seminars that attendees paid for while included in the conference package were 23 sessions with 79 different topics and 91 expert presenters.

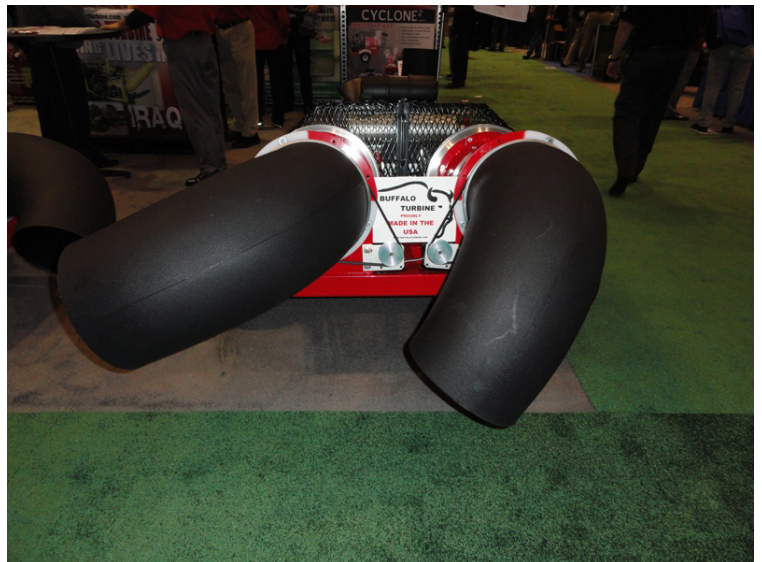
Following is a recap of the sessions I attended and a short take home message from each.

*Career Hot Topics* with Peggy Greenwell, Accessibility Specialist, US Access Board presenting ADA Accessibility Guidelines and Dr. Sam Sampath, Regional Specialist for the EPA presenting NPDES Pesticide General Permits.

Greenwell discussed how changes to the Americans With Disabilities Act (ADA) have led to rule changes by the Department of Justice (DOJ) with help from the United States Access Board.



The GIS Hotel Headquarters "The Peabody".

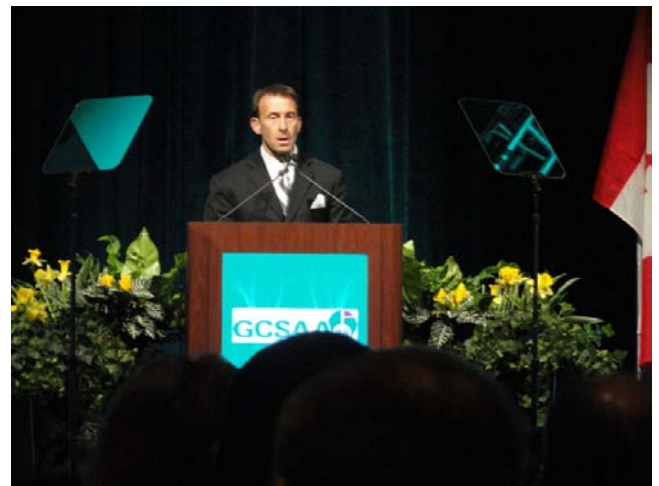


When one blower is just not enough!





Above: Dr. Frank Rossi at The Answers on The Hour



Above: GCSAA CEO Rhett Evans



Above: Pete Meyer from National Golf Graphics talks flags with Colin Seaberg



Above: Old Tom Morris Award Winner Nick Price at Celebrate GCSAA



Outgoing GCSAA President James Fitzroy addresses the membership at Celebrate GCSAA



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Existing facilities are somewhat left alone but new or remodeled facilities have to follow more stringent guidelines and specifications. Most of the rules for the golf course itself are common sense. For instance if you build a tee complex with multiple tees one tee should be accessible to handicapped golfers. If you build a new rain shelter it should be able to accommodate golf cars and curbed cart paths should have regular access points.

Greenwell used the phrase “readily achievable barrier removal” quite often during her talk. A golf course or any facility open to the public should over time remove any barriers that keep handicapped individuals from using all areas of the facility.

The DOJ has not issued a rule on any requirements for courses to have a single rider golf car or accessibility to sand bunkers but that is expected in time.

Sampath presented information on the Clean Water Act and how it could affect applications of products to bodies of water and their banks. At the time of his talk the final thresholds and rules were still being formulated. Golf Courses could be affected through aquatic weed applications or mosquito control applications. The proposed 20 acre threshold for aquatic applications or 20 miles of bank seem like a lot but multiple applications to the same property count as a total not individual thresholds. For example 4 treatments to a 5 acre pond or 1 application to a 20 acre pond are the same and both reach the proposed threshold.

From these two speakers it was clear government is huge and it takes years and many fingers to make rules to go along with the laws that are passed. The old School House Rock episode on how a bill becomes a law oversimplifies the process quite a bit. Members will need to consider these two developing issues when considering changes to their facilities.

*Exploring Golf's Carbon Footprint: Part 2* with Dr. James Baird, University of California – Riverside, Andrew Staples, President of Golf Resources Group and David Miller, Iowa Farm Bureau.

Dr. Baird's presentation “Update on Carbon Sequestration Science” started with climatic information showing the planet is warming up followed by how little affect humans have on greenhouse gases. There is a need for more research but golf courses seem to sequester more carbon than we produce through the use of inputs and fuel usage. Different varieties and species sequester carbon at different

rates and surprisingly there is a limit to how much carbon can be sequestered in a turf stand.

Andrew Staples's talk “The Top Ten Things a Turf Manager Should Know to Reduce Energy and Carbon” gave a insightful look into using less electricity, fossil fuels, manpower and water to save budget dollars and reduce a facilities impact on the environment.

David Miller topic “U.S. Carbon Markets Status and Opportunities” covered the possibility of selling carbon credits on the open market to companies that produce excess carbon. Because individual golf courses or farms do not produce a lot of credits on their own they join co-ops to aggregate their credits into

amounts that could be sold on the open market. In the end without the passage of “Cap and Trade” legislation there is not a market for carbon credits at this time.

For the agriculture industry the vehicle is there when the market returns however

the golf industry will need to do some further research and third party verifications before golf can enter the carbon market.

Miller left the group with two quotes; “For society as a whole, there is a very strong correlation between energy use and standard of living. Energy makes manual labor more efficient.” And “For society to prosper, it must grow. The debate cannot become one of maintaining the status quo with less. It must be a debate about how to do more in environmentally and efficient ways.”

*The Innovative Superintendent: Cutting Edge Ideas From Your Peers* is a favorite of mine each year as all the presentations are from current or former golf course superintendents.

Michael Jones, CGCS, Effingham Country Club presented “Budget Presentation: Successfully Communicating Your Plan” and how to use spreadsheets, time study information, maintenance standards and equipment inventory to justify your budget request to the decision makers. Jones uses a short but effective bound document to present his budget with all the information the board needs.

Anthony Williams, CGCS, Stone Mountain Golf Course gave “Grow Where You Are Planted” a talk on doing the best you can at your current job. By using your abilities to influence people, programs, profit and personal legacy at your club you will maximize your potential and enjoy your position as much as possible.

**“For society to prosper, it must grow. The debate cannot become one of maintaining the status quo with less. It must be a debate about how to do more in environmentally and efficient ways.” David Miller, Iowa Farm Bureau**