



Figure 5. Golf green in play: Medinah Country Club's 6th green on number one course.



Figure 6. Practice putting green: Bryn Mawr Country Club location.



Figure 7. Nursery green: Chicago Golf Club location.

### And the research says – effect of shade on a golf green environment.

One aspect is that shade will influence weather conditions. For example, we found temperature is lowered in shaded conditions on a green (Figure 8). Makes sense, shade in the summer allows animals (including humans) to avoid heat-stress outdoors. Overall, air temperature moderation did not outweigh shade's reduction of necessary light levels. Instead, we found the composition and health of golf greens in Chicago were negatively affected by increasing shade.

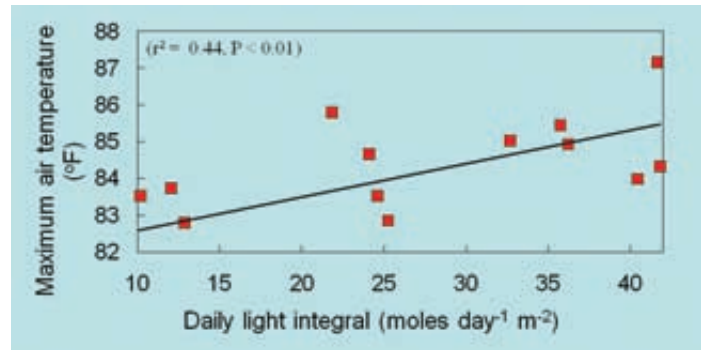


Figure 8. Shade (low daily light integral values) has a minor cooling effect on a golf green environment when averaged over a month period across 15 different Chicago sites.

By estimating *Poa annua* presence at study start and then comparing with the daily light integral through the study period we found *Poa annua* out-competes creeping bentgrass in shade (Figure 9). It makes sense. Genetically, *Poa annua* is more shade tolerant than creeping bentgrass. We can easily find that information in our turfgrass textbooks and this fact is a common observation by superintendents and golfers alike. Now with science we have demonstrated it is indeed fact, not just academic nonsense or superintendent lore. In summer 2007 we showed *Poa annua* likes an environment of shade, this time across the many varied golf courses of Chicago (this study included: five north suburb courses, five south suburb courses, and five west suburb courses). Big problem: *Poa annua* lacks heat tolerance when compared to creeping bentgrass. It suggests that shaded greens will be vulnerable to midsummer decline . . . because greater levels of heat-intolerant *Poa annua* are present compared to a green that receives full sun.

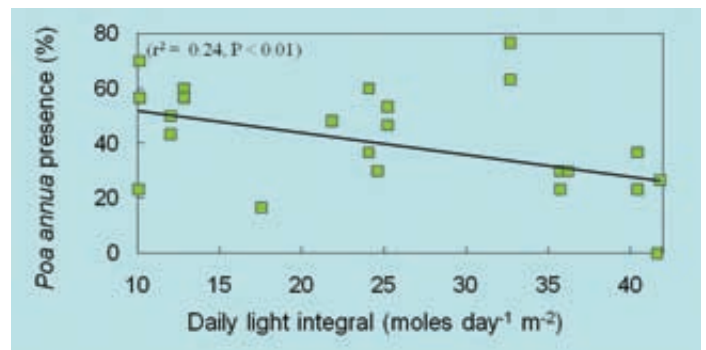


Figure 9. Increased shade was related to greater presence of *Poa annua* when rated on 15 individual golf greens at select sites across Chicago on July 23, 2007.

### And the research says – effect of shade on golf green health.

Within the environment of a green, we found shade had a significant influence on visual quality during a stressful month-long period that began in late July in 2007. Visual quality decreased more on shaded greens than those in full sun. The difference in visual quality from study start on July 23 to study end on August 23 was greatest at lowest light levels (Figure 10). Best solution: reduce shade near greens and increase creeping bentgrass whenever possible. It suggests using seed of a newer variety which has a finer texture and greater density than that of an older bentgrass variety such as Penncross. This will maximize photosynthesis at the low mowing heights necessary for greens.

(continued on next page)

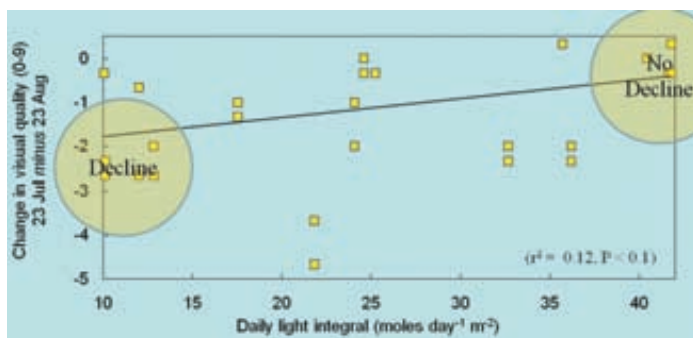


Figure 10. Increased shade (low daily light integral values) was related to greater midsummer physiological decline (initial rating subtracted from final rating) of greens across 15 Chicago Golf Courses.

## Future research.

More research is needed to investigate whether shade itself is the main contributor to decline of putting green health at midsummer. When it comes to managing roots, an Oklahoma study found shade was responsible for the greatest loss in biomass of sand-based creeping bentgrass greens (Koh et al., 2003). So, it returns us to the beginning of this story – midsummer decline associated with root loss and not disease in Kansas. In this Chicago study, shade's greatest fault may be that it increases the *Poa annua* component of bentgrass greens. Bentgrass greens without a *Poa annua* component may avoid midsummer physiological decline entirely, as long as golf course superintendents adjust cultural practices in their dynamic attempts to maximize photosynthesis (i.e., a timely raise in mowing heights and/or a reduction of other mechanical injury to leaf blades). One caveat is that Oklahoma researchers have found airflow restriction is even more important than shade when it comes to creeping bentgrass canopy density (Koh et al., 2003).

## What to do.

In his book, *Creeping Management: Summer Stresses, Weeds and Selected Maladies*, Dr. Peter Dernoeden suggests several shade management strategies for greens. All six recommendations are science-based and follow. Promote full sun by removing trees and brush. Syringe or hand water as needed to promote soil drying and transpiration. Use fans to improve air circulation. Improve drainage and air exchange between the soil and atmosphere. Control algae and thatch. Apply less nitrogen to shaded versus full-sun greens.

## Add one more – height of cut.

So, besides physiological bad news for turfgrass (everybody knows light is necessary for plant photosynthesis), a shaded green has other ingredients in a recipe that might lead to a failing green: *Poa annua* + restricted airflow + fast green speeds. Fast green speeds are doable. We just teach golfers there is a little thing called turfgrass science that comes to bear quickest in summer. Midsummer physiological decline of greens is a reality, is independent of disease, and has been detailed scientifically (i.e., this article and many others). The take home message might just as well be... Shaded greens are physiologically different, and height of cut adjustment (up) around midsummer is probably necessary to preserve their health. **-OC**

## Acknowledgements:

### Spectrum Technologies:

Doug Kieffer and Mike Thurow

### CDGA Staff members:

Chris Painter, Randy Kane, and SK Lee

### Experiment Design and Statistical Advise:

Mr. Tim Todd, Kansas State University

### Golf Course Location (relative to downtown Chicago) and Superintendent Collaborator:

#### North

Biltmore Country Club, Brian Thomson  
Bryn Mawr Country Club, Brian Bossert  
Knollwood Club, Randy Wahler  
North Shore Country Club, Dan Dinelli  
Skokie Country Club, Don Cross

#### West

Aurora Country Club, John Gurke  
Cantigny Golf, Scott Witte  
Chicago Golf Club, Jon Jennings  
Medinah Country Club, Tom Lively  
Ruth Lake Country Club, Dan Marco

#### South

Beverly Country Club, Keith Peterson  
Coyote Run Golf Club, Dave Ward  
Crystal Tree Golf & Country Club, Les Rutan  
Joliet Country Club, Mark Kowalczyk  
Prairie Bluff Public Golf Club, Ken Shepherd

## Literature cited

- Bell, G., T. Danneberger, and M. McMahon. 2000. Spectral irradiance available for turfgrass growth in sun and shade. *Crop Sci.* 40:189-195.
- Dernoeden, P. 2000. *Creeping Bentgrass Management: Summer Stresses, Weeds and Selected Maladies*. Chelsea, Michigan: Ann Arbor Press. Pp. 21-25.
- Fry, J., and B. Huang. 2005. *Applied Turfgrass Science and Physiology*. New Jersey: John Wiley & Sons. Pp. 111-123.
- Huang, B. and X. Liu. 2003. Summer root decline: Production and mortality for four cultivars of creeping bentgrass. *Crop Sci.* 43:258-265.
- Koh, K., G. Bell, D. Martin, and N. Walker. 2003. Shade and airflow restriction on creeping bentgrass golf greens. *Crop Sci.* 43:2182-2188.
- Xu, Q., B. Huang, and Z. Wang. 2002. Photosynthetic responses of creeping bentgrass to reducing root-zone temperature at supraoptimal air temperature. *J. Am. Hort. Sci.* 127:754-758.

Photo credit: Derek Settle



Who Can You Trust to  
Provide  
& Protect  
Your Water Supply?



**Layne-Western**

Complete Services for  
High-Capacity Water Wells and Pump Stations

Source Development • Wells & Pumps • Maintenance  
Aurora, IL: 630-897-6941 • Beecher, IL: 708-946-2244  
[www.laynechristensen.com](http://www.laynechristensen.com)



**Your Single Source for:**

- pH Control
- Fertigation
- Injection Equipment
- Irrigation System Monitoring & Alarm

**Ask about our NEW 990v!**



- VFD Technology
- Eliminates Overfeed  
Spikes from On/Off Control
- Affordable
- Remote Control from  
Irrigation Central
- Optimize Treatment Costs
- Easy to Use



**PRODUCT \* EQUIPMENT \* SERVICE \* SUPPORT**

For additional info or to schedule a demo, call 800.677.8097

KNOW THE SIGN



**Greater Than Or Equal To.**

Quali-Pro® products feature formulation quality second to none for performance results equal to the competitive brands they replace.



**NEW Fosetyl-Al 80 WDG.**

Get true tip-to-root protection and improved turf vigor with new Fosetyl-Al 80 WDG. Like Aliette® Signature™, it delivers proven control of Pythium, Yellow Tuft and other diseases.

For more information, contact Doug Suttar at 616-403-3983 or any of these authorized Chicagoland distributors:

Arthur Clesen Inc • BTSI • Conserv FS

**QUALI-PRO**

Professional Turf & Ornamental Products

©2008 FarmSaver.com, LLC. Quali-Pro is a registered trademark of FarmSaver.com. Aliette is a registered trademark of Bayer. Always read and follow label directions.



# Sod That Fits Your Course To A Tee

*All varieties available as washed sod,  
traditionally cut sod or big roll sod.*

**The Midwest's  
Oldest Sod Farms.  
Supplying The  
Highest Quality  
Bluegrass &  
Bentgrass  
Since 1947**

## **Your Single Source for:**

### **Bentgrass Varieties**

- **Penncross™ Bentgrass Sod**
- **Pennlinks™ Bentgrass Sod**
- **Penneagle™ Bentgrass Sod**
- **L-93™ Bentgrass Sod**

### **Low Mow Varieties**

- **XL2000™ Bluegrass Blend**
- **Bluegrass/Fine Fescue Blend**

*We can custom grow to your specifications, please inquire.*

### **Some of our client's include:**

Elk River Club  
Beech Mountain Country Club  
Boone Golf Club  
Linville Land Harbor  
Linville Ridge Country Club  
High Vista Country Club  
Black Mountain Club  
Country Club of Sapphire  
Sapphire Valley Country Club  
Trillium Golf Club  
Wade Hampton Golf Course  
West Hampton Club  
Cullasaja Club

Highland Country Club  
Highland Falls Country Club  
Sapphire Lake Country Club  
Sapphire Mountain  
Country Club  
Laurel Ridge Country Club  
Waynesville Country Club  
Biltmore Forest Country Club  
Blowing Rock Country Club  
Virginian Golf Club

# **H&E SOD NURSERY**

inc. 

General Offices  
3900 West 167th Street,  
Markham, IL 60428

Bentgrass/Bluegrass Farm  
3246 East 1250 North Road,  
Mokenca, IL 60954

**1-800-244-7200**

**815-472-2364**

**To Place an order, please call:**

**1-800-244-7200**

**WWW.HESOD.COM**

## FEATURE ARTICLE II

Thomas Green Ph.D., Western Illinois University



# A Method To Prioritize Your Ash Trees And Protect Them From The Emerald Ash Borer

*Now that the entire Chicago Region is within the Emerald Ash Borer (EAB) quarantine boundaries most MAGCS members should be discussing which of their ash trees, if any, need preserving.*

The EAB was discovered in 2002 in Michigan and Ontario. It has destroyed over 25 million ash trees in MI, OH, and IN and has been found as far east as MD. In 2006, it was found in Kane and Cook Counties in IL. The EAB quarantine now covers all of northeast IL. The EAB quarantine helps to stop the spread beyond the boundaries but not necessarily within the boundaries. The original EAB discovery in Kane County appears to be related to a neighbor who owned property in Michigan and brought back firewood two years prior to its discovery. Even though MI had a quarantine and restriction on the movement of firewood, it still did not stop the movement of firewood. A question for MAGCS members... Do any of your neighbors who live next to your golf course own property in where EAB has become established? There is no realistic way of answering this question. Without an active and aggressive surveillance program, it often takes two years of borer infestation before it is discovered.

Do you have an EAB Readiness Plan? Does your community have an EAB Readiness Plan? If the answer is no to both, then perhaps you should consider developing one. An EAB Readiness Plan should provide a way to PREVENT and DETECT EAB, and PROTECT valuable ash trees. If EAB has been found within 12 miles of your golf course, you should be protecting high value ash trees.

### **PREVENTION:**

The major means of prevention of spreading EAB is to control the movement of infested firewood. It is unlikely that members or the golf club will be bringing infested wood within the property limits. The only means of control of infested wood movement in the community surrounding your golf club is through ordinances developed by the municipality in which your golf club resides. This is the most difficult part of a Readiness Program.

Check to see if your community has an EAB Readiness Plan. If none exists, help your community to develop one. There are several sources for assistance in EAB Readiness Plan development<sup>1</sup>.

### **DETECTION:**

What are you doing to determine if any of your ash trees already are infested? You will need to inventory your trees to know where all the ash trees are located. Ash Yellows is a lethal disease that is killing ash trees in the Midwest. Some of its symptoms, watersprouts (suckers) on the base of the trunk, resemble trees infested with EAB. Ash Decline, where trees dieback from the top also resembles trees infested with EAB. Every ash tree that is removed from your golf course should be inspected for the presence of EAB. There should be a systematic inspection of every ash tree, e.g. once per month, to look for symptoms of EAB infestation.

### **PROTECTION:**

There are chemicals, e.g. Imidacloprid (see Sept 2007 ON COURSE), which can be applied to the root system or injected into the trunk that can prevent borer infestation. The chemical must be inside the tree before the beetles attack. So, do you have to treat every ash tree? If you wish to save every ash tree, you will need to treat every ash tree.

### **PRIORITY ASSESSMENT:**

It is doubtful that you want to treat every ash tree. I have conducted tree inventories for over 20 Chicago area golf courses and the ash population ranges from 20 to about 30% of the total tree population. The average 18-hole golf course has 2000 to 2400 trees. This means the average golf course has from 400 to 700 ash trees.

*(continued on page 16)*



These inventories provide a determination of tree priority. If a tree is involved in the play of the game, i.e. lines fairways and tees, backdrop for greens, THE dogleg tree, etc., it is considered a KEY tree. If it is a beautiful example of its species, it is a SPECIMEN tree. If it adds to the beauty of the clubhouse or entrance, it is a FUNCTIONAL tree. Other priority designation may be given if the tree is a MEMORIAL tree (planted in memory of a loved one) or a STATE RECORD or HERITAGE (existed before European settlement). The more combinations these trees have, e.g. KEY + FUNCTIONAL + SPECIMEN, the higher its priority. There may be many ash trees on your golf course that meet the criteria of a KEY tree. Can you afford to lose them? If the answer is no, then these trees should be treated.

What about the low priority ash trees; those that are not key, specimen, functional, heritage, nor memorial? Since long term preservation of all ash trees is not feasible, they should be considered expendable. There should be consideration for the systematic removal of non priority ash trees that have health problems.

### **TREE CONDITION:**

The current condition of the tree should be considered. A tree that is hazardous because of trunk and/or branch defects should be removed for safety reasons. If the tree is declining, i.e. has top dieback, its health probably cannot be restored, and the tree should be removed. If the tree has chlorotic leaves and/or is producing watersprouts (suckers) at the base of the trunk, it should be removed.

In Macomb, IL the city is placing its ash trees in a Condition Class system that will help determine which of the unhealthy trees to remove first by classifying ash trees into two groups.

**Condition Class 5.0:** These are trees that are dead or have a contagious disease or serious insect pest. They should be removed immediately. They should also be thoroughly inspected to see if they are already infested with EAB.

**Condition Class 4.0:** These are trees not expected to live another 20 years, which because of EAB includes all ash trees.

**CC: 4.1 - 4.4:** Young Ash tree, relatively healthy, possibly in shade location and removal recommendations are not urgent [4.1 is small diameter tree, 4.4 is large diameter tree]

**CC: 4.5 – 4.9:** Mature Ash tree, declining, not in key location and systematic removal is recommended as budgets permit

The trees that are the least healthy trees are given 4.9 designation, somewhat better trees are given 4.8, better trees are given 4.7, etc. Now, place into next year's budget the cost for the removal of all trees designated as 4.9. Trees designated as 4.8 can be removed in two years and so on. Your budget for next year should also include the cost for the treatment of all ash trees you have designated having Priority (Key, Specimen, Functional, Memorial, Heritage, Other), especially the Key trees.

### **Tree Removal:**

Tree removal is always controversial, especially if the trees are alive and apparently healthy. Make sure the membership is aware of the phasing out of all non Priority ash trees. All CC 5.0 trees need immediate removal. The removal of CC 4.9 trees should be done in the winter after the ground is frozen making tree removal easier. **-OC**

### **'Where to get help**

<http://www.illinoiseab.com/>

1. Paul M. Deizman  
Illinois Department of Agriculture  
Bureau of Environmental Programs  
PDQ/Emerald Ash Borer Program Manager  
2280-b Bethany Road  
Dekalb, IL 60115  
Office: 815.787.5476  
Desk: 815.787.5486  
Cell: 815.786.4117  
FAX: 815.787.5488

2. EAB Community Readiness Plan Workbook  
[www.dnr.state.il.us/conservation/forestry/urban/COMMUNITY\\_READINESS\\_PLAN\\_03\\_07\\_TCU\\_final.pdf](http://www.dnr.state.il.us/conservation/forestry/urban/COMMUNITY_READINESS_PLAN_03_07_TCU_final.pdf)  
Reinee Hildebrandt, Ph.D.  
Urban Conservation Program Admin.  
IL DNR  
One Natural Resources Way  
Springfield, IL 62702-1271  
Phone: 217.785.8771  
FAX: 217.785.2438  
Email: [reinee.hildebrandt@illinois.gov](mailto:reinee.hildebrandt@illinois.gov)

Listing of Tree City USA communities that are providing assistance to the IL Dept of Ag for EAB identification and monitoring:  
<http://www.dnr.state.il.us/conservation/forestry/urban/index.htm>

### **Information for treatment**

EAB Insecticidal Management  
[www.ipm.uiuc.edu/pubs/eab\\_insecticidal\\_management.pdf](http://www.ipm.uiuc.edu/pubs/eab_insecticidal_management.pdf)

Thomas L. Green Ph.D.  
Urban Forestry Professor  
Western Illinois University  
Macomb, IL 61455  
[TL-Green@wiu.edu](mailto:TL-Green@wiu.edu)

A Continuing Tradition of Quality  
in Golf Course Renovation  
Restoration and New  
Construction



[608] 836-7041

FAX: [608] 831-4236

WWW.BRUCEGOLF.COM

# PALATINE OIL CO., INC.

Over thirty-four years of caring service  
and delivery of quality products



## "One call does it all"



## 847-358-3600

P.O. Box 985, Palatine, IL 60078





## We Make Sure the Grass is Always Greener on *Your* Side.

We combine the world's leading professional turf maintenance brands with a team of local experts to deliver the best overall turf solutions to our customers. From creating customized solutions designed to tackle site-specific issues to building customer specific application programs that achieve maximum results, our customer-driven, expert staff is dedicated to the overall success of each and every customer.



Ph: 630.268.8871 | Fx: 630.268.1357  
[www.chicagolandturf.com](http://www.chicagolandturf.com)

LEADING TURF BRANDS. LOCAL EXPERTISE



## Nels J. Johnson Tree Experts, Inc.

Since 1930

### A Tradition of Excellence.

More than 75 years of complete, dependable and economical tree service for residential homes, municipalities, schools, industrial areas, parks and over 125 golf courses.

847-475-1877

fax: 847-475-0037

[www.nelsjohnsontree.com](http://www.nelsjohnsontree.com)



## MIDWEST BREEZES

Charles Anfield, CGCS, *Heritage Bluffs Golf Course*



### “League Night”

There seems to be common thread among many professionals in our industry that the last thing they want to do with their “free” time, is spend it on another golf course. But on every Wednesday night, since 1993 a group of golf industry people have gathered during their “busy” season to play golf. It’s the Fox Valley Golf League, played at Blackberry Oaks Golf Course in Bristol, Illinois.

Why do they do it? Family time is lost, some guys need to leave work a little early, baseball and soccer games are missed, and valuable personal time is dedicated to this one night. Some people will travel for almost an hour, just to tee it up. Sacrifices are made. Why do they “waste” their time and “suffer”, chasing a little white ball around?

Mike Hatton, Regional Sales Representative for EZ GO, is one of the newest members. He comes from a background as an Assistant Golf Professional and explains why he joined the league. “Being new to the region, I wanted to meet people in the industry. As a salesman I want to try to build relationships with people in the area”. Mike let me tell you, you can build better relationships if you play better “customer golf” (lose more matches) Mike carries a questionable 2 handicap and he can hit it a ton.

The league’s season is 16 weeks long, running from early May until early September. Play consists of nine holes of match play and medal play. One point is awarded for each with a bonus point awarded just for showing up. Handicaps are established and play is all net. Prizes, in the form of Pro Shop gift

certificates are awarded at the end of the season. Most of the focus is on fun, but boys will be boys and bragging rights are at stake. I have heard rumors of cash money games being played. At times some of the language on the course becomes “colorful” and would embarrass a sailor. Last week, one player nicknamed the “Volcano” for his explosive play made the statement after he just made a double bogey. “I hate this game, I’m going in, I’m quitting for the rest of the year”. He proceeded to play the final three holes in one under and won his match. Everyone in the five some was amused.

The league players comprise about a 50/50 split between vendors and superintendents. Only about one or two players are not members of the MAGCS. The total numbers of players has varied from year to year with upwards of 56 members to a low of 24. The course itself is nothing special. It’s always in great shape but it’s not overly difficult or has any notable holes that would rate on any top 100 list. So why do they come?

Paul Yerkes, Golf Sales Representative Agronomic Products- John Deere Golf, is one of the “founding fathers” and serves as the “Director of Fun”. He says he stays in the league because “it’s one of the few times I can play golf”.

My own experience with the League has covered 11 years of making the trip up to Bristol. It has been a useful venue to get me “off campus”. It has also been beneficial to help satisfy my competitive urges. I served for three turbulent years as

*(continued on next page)*



elected self proclaimed "Emperor of Golf". Decisions on handicaps and match rulings were handed down with either a thumbs up or down decision. I have since taken on a support role serving on the Board.

John Gurke, CGCS of Aurora Country Club has played in the league since its inception. John served as President during a transition period in the nineties during which time the League was plagued by upheaval and scandal. John continues to come to the "Club" because he says, "it's fun".

Todd Schmitz, Superintendent at Phillips Park Golf Course and MAGCS Board Member has played in the league since 2000. "I enjoy the camaraderie. I get to see the guys. The playing conditions are always good. They have great staff people there who make us feel welcome".

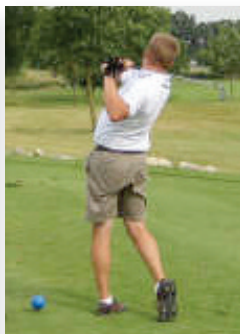
The most "interesting" time of the day is after play is completed and the members gather at 19th hole named "Ralphs Place". Cold beverages are served along with an excellent menu fare and the conversation gets lively. Lies are told, insults hurled about recklessly and unique alter egos emerge. Clothing ensem-


bles and odd golf swings become the targets of unbridled criticism. There has even been heard some questionable legal advice handed out by armchair lawyers. There are White Sox and Cub fans jawing with Cardinal fans. Things today are much tamer than in days of yore when popcorn fights were commonplace. Surprisingly, not that much business is spoken about. No one is trying sell anyone anything except maybe B.S. Sure, some busi-

ness is talked about and you put a bunch of turf nerds together and yeah, growing grass can become the main topic. Rates, products, player stories and general turf concerns are discussed, cried about and lamented.

The bottom line is that it's Wednesday. It's hump day, league night, game time. It's time to play golf and hang out with the boys. It's a time to get away from everything and go to the "Club". It's the perfect night to break the week in half and recharge the batteries to gear up for the weekend. The Fox Valley Golf League has been has been a sanctuary for its members for over 15 years.

Would you like to play? **-OC**





## Dirt~n~Turf

Consulting, Inc.

***USGA Physical  
Analysis and Quality  
Control***

***Profile Management***

***Soil & Tissue Analysis***


***Independent  
Irrigation Analysis***



**David Marquardt - Consulting Agronomist**  
 630-251-1511      [Dave@dirt-n-turf.com](mailto:Dave@dirt-n-turf.com)  
[www.dirt-n-turf.com](http://www.dirt-n-turf.com)


## ORGANIC SEDIMENT REMOVAL SYSTEMS

A Leader in Pond Restoration Since 1991



- Restore your pond
- Enhance your pond
- Remove Accumulating Muck
- Protect Irrigation System

Restore ponds to their original bottom by removing bottom sediments without disturbing existing aquatic life or damaging existing landscape. DSR will dramatically reduce weed and algae problems and greatly increase water quality for a healthier environment while costing up to 75% less than the conventional dredging.



For Information, Sales or Service call

Rich @ 608-565-7105  
[www.Pondclean.com](http://www.Pondclean.com)

Scott @ 630-991-0333  
Growing Solutions, Inc.