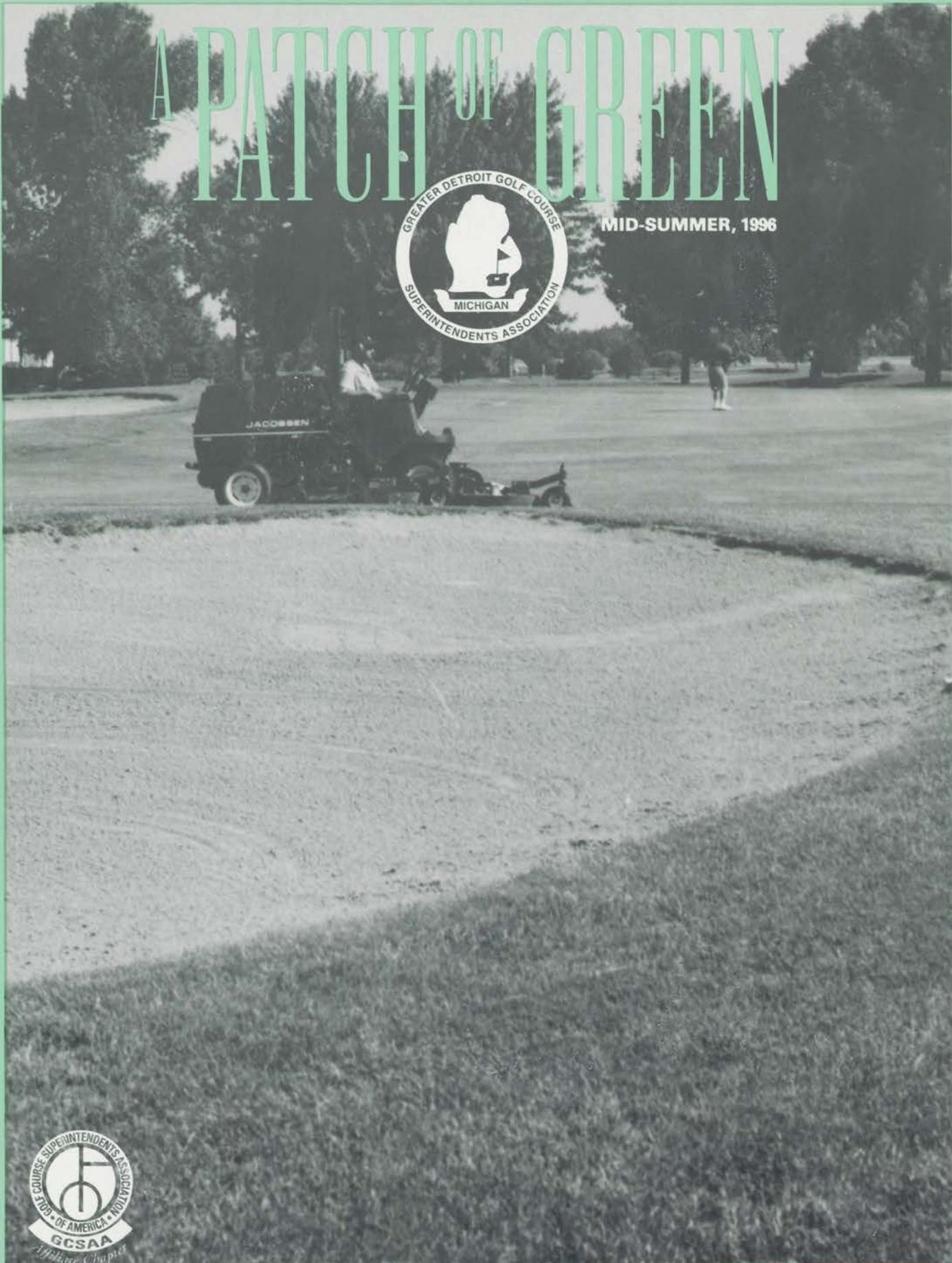


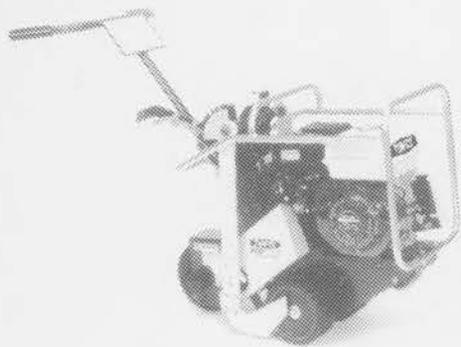
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MID-SUMMER, 1998



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# A PATCH OF GREEN

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Superintendents Association

The Official Publication of the Greater Detroit  
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**CORRECTION:** The title of the article on page 13 of the summer issue should have read "Ten Reasons To Try Non-Metal Spikes"

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# on par <sup>with</sup> <sub>the</sub> president



"Be thankful for problems. If they were less difficult, someone with less ability might have your job." A statement to ponder, taken from a quote I read not too long ago; words that ring true at this time of the year more than ever for most golf course superintendents and anyone working in the related field. It seems you just solve the last problem on the long list of problems, and invariably, two more problems equal to, or even more important, pop up.

Sound like a familiar senario? Did I just steal a page out of your daily journal? Well, don't for one minute think that you are the only person in the world this

happens to. You are not alone! Just ask any superintendent worth his weight in salt and he'll tell you "it's all a part of the job, my friend!" Then he'll snicker to himself and get back to weaving a basket and talking to the squirrels, all the while muttering about December, and cold weather, and snow! Obviously, I'm just kidding around, but this grass growing and everything that goes with it can get tough. Problems occur in abundance, and at times, never seem to end.

The weather always seems to be the number one culprit for problem causing in our profession. There are a host of others as well, but it always seems to be good old mother nature that pokes the thorns in our side. A recent example of this just took place at Oakland Hills, host of the 1996 U.S. Open. Steve Glossinger, Jon Cuny and their top notch crew had the monster in tremendous condition, ready to sink its teeth into any player who thought he could tame her. Then the rains hit, saturating and softening the ground during the week prior to the tournament. The soft and soaked ground took a disastrous blow the day before the tournament began. Two and one-half inches of rain in around two hours! Fairways were turned into rivers, bunkers washed out and eroded into canyons, problems abounded and seemed to overwhelm the hallowed grounds of the monster. But overwhelming as these problems may have seemed, this was not the case! Steve Glossinger held steady, kept himself and his entire crew of volunteers under control. They went about solving each problem in a systematic and organized fashion. Through a wonderful effort of teamwork and what I would call downright heroics, this group of individuals put the monster back on its feet, as if a storm had never touched her. It was a terrific effort on everyone's behalf, and I am proud of all the people who went above and beyond to volunteer and help make the effort a success. Nice job, everyone, you made Michigan superintendents, golf course crews, and golf in general look real good.

The media drew attention to this fine and commendable effort on behalf of the staff at Oakland Hills. I felt this was a very positive thing for all superintendents and is something we should all be thankful for. Average superintendents take care of these types of problems a number of times each season, year in and year out. This is usually done behind the scenes, with no fanfare and no attention whatsoever. It is my sincere hope that golf course owners, boards, greens committees, or whatever the powers in charge be, will take due note. If these people take notice of their own superintendents, take notice and reward them for taking on the ever uncontrollable mother nature, the plague of part-time and seasonable help, etc...if these powers that be would just set aside the "what have you done for me lately" attitude, if only for a moment, and appreciate just what superintendents do, day in and day out, it would be truly outstanding.

It may not always make the papers, as it very well probably shouldn't, but the job that golf course superintendents and all of their very able staffs do shall not go unnoticed! Everyone associated with golf should know that quality turf does not come without its share of problems. It is time that all golfers know that these problems are faced and taken care of on a day-to-day basis by their professional golf course superintendents.



Paul Dushane



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## GDGCSA June Meeting

The June meeting of the Greater Detroit Golf Course Superintendents Association took place on June 10 at Lochmoor Club. This date was also when all superintendents could compete in our association's annual Superintendent Championship. The competition was fierce, but many survived the tree-lined fairways at Lochmoor. The following are those who showcased their golfing talents:

**1996 SUPERINTENDENTS  
GOLF CHAMPIONSHIP  
Championship Flight**

- 1st Low Gross - Mike Fouty (79)
- 2nd Low Gross - Lowell Weaver II (82)
- 1st Low Net - Mark Policht (80/73)
- 2nd Low Net - Carey Mitchelson (82)

**First Flight**

- 1st Low Gross - Brian Lents (81)
- 2nd Low Gross - Paul Kolbe
- 1st Low Net - Dave Plummer, CGCS (82/70)
- 2nd Low Net - Ollie Boska (84/71)

**Second Flight**

- 1st Low Gross - Roy Szyndlar, CGCS (89)
- 2nd Low Gross - Jon Shreve, CGCS (95)
- 1st Low Net - Marty Sommerfield (97/77)
- 2nd Low Net - Howard Ellis (95/79)

**Affiliate Flight**

- 1st Low Gross - Dan Donahue (84)
- 2nd Low Gross - John Kirtland (86)
- 1st Low Net - Ray Hentschel (99/70)
- 2nd Low Net - Bob Rabideau (91/71)

**Guest Flight**

- Low Gross - Terry Traynor (81)
- Low Net - Doug Middleton (83/68)

**Longest Drive**

Gary Thomas, CGCS

**Straightest Drive**

Jim Houston

**Closest-to-The-Pin**

Jon Shreve, CGCS  
Dave Plummer, CGCS  
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Golf was then followed by dinner and a business meeting. The Board of Directors gave their respective committee updates. Next order of business was voting for affiliation with the national. Affiliation was approved by a vote of 32 for, 1 against, and 1 abstaining. This means that all new members will have to be members of both the National GCSAA and of Greater Detroit GCSA.

The educational segment of the meeting consisted of a talk on the rules of golf and how we, as golf course superintendents, can affect those rules. The speakers were Mr. Ken Adler, Head Rules Chairman for the state of Michigan, and Dr. John Alden. The slides and talk were very informative. The meeting was then adjourned.

## Member Focus Marty Sommerfeld

When one walks on the Old Course at Indianwood Golf and Country Club, you come to the conclusion that this is truly one of the "hidden gems" in the golf world. The par 70, 6,800-yard course features undulated, well bunkered greens, rolling terrain and narrow landing areas. There are few trees, but what sets Indianwood apart from most other courses in our area is the rough. The Kentucky bluegrass primary rough gives way to the fine fescue "tall rough" that is not cut and truly gives the course a Scottish links flavor. Indianwood was built in 1925 by Wilfed Reid. It has been the host of many championships, including the 1930 Western Open, the 1988-90 Michigan PGA Championships and the 1989 & '94 US Womens Open Championships. Indianwood added a second course in 1987. The New Course is a fine course in its own right that also has some Scottish flavor but with only two parallel holes on the course you get more of a setting like that of a Northern Michigan Resort Course.

The man in charge is Marty Sommerfeld. Marty is a

graduate of the two-year turf program at Michigan State. He also has a B.A. in political science from The University of Michigan-Dearborn. Marty worked for nine years in the Robert Trent Jones Sr. organization, where he did everything from shaping to grow-ins. He was the grow-in superintendent at The Country Club At The Legends in Eureka, Missouri, where he stayed on as the superintendent and worked there for three seasons. In 1991, he became the Project Manager/Superintendent for the Robert Trent Jones Golf Trail, Oxmoor Valley Facility in Birmingham, Alabama. Marty took over the reins at Indianwood in the spring of 1995.

Marty has been married to his wife Lori (who has been his best friend and main support) for 13 years. They have three lovely children, Anna (8), Kate (6), and Donald (2). In his spare time he enjoys spending quality time with his family, coaching his daughters' soccer teams, hunting, fishing and restoring antique muscle cars. Welcome back to Michigan, Marty.

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Confusion reigns

# Naming Cool- and Warm-Season Pythium Diseases

by Dr. Eric B. Nelson

As the cover story describes, there are basically four types of disease groups incited by Pythium species:

- damping-off
- root and crown rots
- snow blights
- and foliar blights.

There has been a considerable amount of confusion over the common and quasi-scientific names applied to describe these different Pythium diseases. For example, we commonly hear the terms:

- "cool-season Pythium"
- "root Pythium"
- "cottony blight"
- "grease spot"

to Pythium blight. The conditions that have typically been associated with cool- and warm-season Pythium disease are listed in Table 1. Both Pythium root rot and Pythium blight can occur any time of year under the appropriate conditions. However, most commonly, Pythium blight only occurs under the warm temperature conditions, whereas Pythium root rot can occur under both sets of conditions. In fact, the Pythium species responsible for Pythium root rot under warm temperatures are essentially the same as those causing Pythium blight under warm conditions (See Table 2 opposite). Similarly, the major root-rotting species at cool temperatures -- *P. aphanidermatum*, *P. graminicola*, and *P. torulosum* -- are also foliar blighters at cool temperatures. Important species such as *P. aphanidermatum* and *P.*

Table 1

## A comparison of cool and warm weather conditions for Pythium diseases on turfgrasses

Condition	Cool-Season Conditions	Warm-Season Conditions
Temperatures		
Day	50 - 65 F (10-18 C)	82 - 98 F (28-36 C)
Night	45 - 55 F (8-13 C)	68 - 75 F (20-24 C)
Relative Humidity	near 100% (day & night)	near 100% (night)
Cloud Conditions	overcast	hazy sun
Rainfall/Moisture	high/excessive	high
Turf Stress	important	not as important

- "spot blight"
  - "Pythium blight"
  - "Pythium root rot"
  - "warm-season Pythium"
  - or just simply "Pythium"
- applied to these four disease groups.

The elimination of confusion over which disease is being identified and discussed, through a clarification of terms for turfgrass managers, is critical to the successful management of Pythium diseases since the control strategies for each of the four types are quite distinct.

### Cool- and warm-season Pythium: the difference

Perhaps the greatest confusion has developed over the distinction between "cool-season Pythium" and "warm-season Pythium". Often, those speaking of "cool-season Pythium" are referring to Pythium root rot, whereas those speaking of "warm season Pythium" are commonly referring

*graminicola* are serious pathogens, regardless of the temperature.

### Which species are the most significant?

The highly virulent species *Pythium aphanidermatum* and *P. graminicola* along with *P. myriotylum*, are usually the principal foliar blight species at warm temperatures. The same two species *P. aphanidermatum* and *P. graminicola* along with *P. arrhenomanes*, are principal root rot species at high temperatures. Although *P. ultimum* has been shown in testing to be highly virulent to turfgrass plants particularly at warm temperatures, it has rarely been encountered on golf courses or lawn turf. The principal cool season root rot species are, again, *Pythium aphanidermatum* and *P. graminicola* with the addition of *P. torulosum* and *P. vanterpoolii*. Now little is known about the principal causes of cool weather blights, as they are rare and studies of these diseases even rarer.

It is evident from Table 2 that *P. aphanidermalum* and *P. graminicola* are perhaps the most important Pythium species involved in both root rot and foliar blight symptoms, regardless of weather conditions. Additionally, both are important damping-off pathogens and *P. graminicola* may be an important snow blight pathogen, as well.

### Much variability exists even within a species

Studies have shown that, at any given turfgrass site, on virtually any occasion, nearly all of the above-mentioned Pythium species are present within the turfgrass plants, usually in the roots and crowns. The question of how and whether or not symptoms are expressed may well depend not only on the species present, the amount of stress the plant is under, and the environment, but also which isolates of a given species is active.

Within a given species there is so much genetic diversity, that there are populations that behave differently in

### Warm- and cool-season Pythium: no distinction

All of the important disease-causing Pythium species in turfgrasses are capable of inducing symptoms in turfgrass plants at both cool and warm conditions. Therefore, there are no distinct "cool-season" and "warm-season" Pythium diseases. Rather, root rot diseases and foliar blight diseases may occur over a wide range of temperatures.

Perhaps the concept of Pythium diseases can best be understood as being on a continuum in which perennial root infections first give rise to above- and below-ground symptoms of root rot under conditions of stress and high moisture but in the absence of any foliar mycelium. As temperatures increase and as dissemination of infection producing structures becomes more widespread and as the environment is more favorable to the activity of these Pythium species, the visual symptoms that we associate with Pythium infections become progressively more apparent on the surface of the turfgrass foliage. When the

Table 2

## Pythium species causing root rots and foliar blights at both cool and warm temperatures

Pythium Species	Root Rots		Foliar Blights		Distribution
	Cool	Warm	Cool*	Warm	
<i>P. aphanidermatum</i>	+++	+++	+	+++	All of U.S.
<i>P. aristosporum</i>	++	++	-	+	Mid-West & N.E.
<i>P. arrhenomanes</i>	?	+++	-	-	Mid-West & South
<i>P. graminicola</i>	+++	+++	++	+++	All of U.S.
<i>P. myriotylum</i>	-	++	-	+++	South
<i>P. tardicrescens</i>	+	+++	?	?	South
<i>P. torulosum</i>	++	-	+	-	All of U.S.
<i>P. ultimum</i>	?	?	+++	+++	?
<i>P. volutum</i>	+	+++	?	?	N. E. & Mid. Atlantic
<i>P. vanterpoolii</i>	++	-	+	-	Mid-West & N.E.

+++ = highly damaging, ++ = moderately damaging, + = slightly damaging, ? = disease-causing abilities unknown. \* = very little is known about these diseases

response to cool conditions than they do in response to warm conditions. For example, some isolates of *P. graminicola* recovered from bentgrass roots may cause high levels of disease at warm -- greater than 82° F (28° C) -- temperatures, but cause little or no disease at cool -- less than 55° F (13° C) -- temperatures. Other isolates of the same species may behave in just the opposite manner, with most disease symptoms apparent at cool temperatures. Still other isolates of *P. graminicola* have no temperature preference at all: they cause disease equally severely under both cool and warm temperatures.

Pythium mycelium become clearly visible, late in the disease process, the possibilities for widespread epidemics are almost assured.

### How should turfgrass managers look at it?

From the turfgrass managers' point of view, the actual temperature at which the symptoms occur has little to do with how control measures should be enacted. The critical factor in determining the success of a control strategy is whether the disease activity is localized in the root zone of the plant or whether it has progressed to the foliage.

# Board Meeting Knollwood Country Club Wednesday, May 29, 1996

**Finance (Szyndlar)**

Checking - \$1,325.81  
Savings- \$22,328.41  
Foundation- \$4,825.02

**Finance Committee (Szyndlar)**

Audit confirmation letter received from Kevin Dushane and Jim Zimmerman. Books are in order.

**Membership (Jones)**

Membership 395. Applications approved - 4

**Editorial (Dorner)**

Summer Issue complete and to be mailed June 3.

**Awards (Murphy)**

John Walter Award - Article to appear in Summer magazine explaining criteria. \$100 award.

**Clothing (Murphy)**

Order submitted for affiliate chapter clothing. Chapter clothing to be ordered when logo ready.

**Education (Hock)**

July 8 - Polo Fields Topic "Ethics"  
August 8 - Possibly Bay Pte. Dinner only meeting with Steve Glossinger as speaker

**Member Relations (Jones)**

Survey- Tabled to fall, when committee has more time.

**Special Olympics (Hock)**

Raised \$15,000.00.

**Golf Day (Hock)**

Date: Monday, October 7, 1996  
Sites: Bay Pointe, Forest Lake, Red Run, Tam O'Shanter

**Name Change (E.S.)**

Waiting for official response from MI. In process of changing everything over to new name.

**GCSAA Affiliation (Dushane)**

Mailing went out May 10. Received some absentee ballots. Vote will be taken at June meeting.

**U.S. Open (Dushane)**

Will be a tent on the 4th hole fairway (Peter Jackson's home). Sponsored in conjunction with ESPN, USGA and Detroit Area Managers. Notice will be sent out w/info regarding entrance to the Open and announced at June 10 meeting.

**Picnic (Murphy)**

With consideration of survey results, Picnic has been planned.

Dish to pass. Will not be providing alcohol.

Date: Sunday, August 4, 1996

Site: Selfridge AFB

Time: 9am-5pm

Events: Lunch Cook Out, Air Show, Swimming Pool, Women's Golf Tournament, Tour of Base

**Referrals (E.S.)**

Expenses for mailing out referrals has increased. Board voted to increase charge to \$125.00 per mailing.

**Name Tags (E.S.)**

Name tags being considered for Board. E.S. to contact Special Touch for quote.

**Correspondence (E.S.)**

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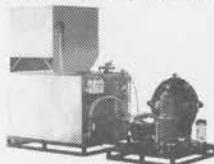
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**Board Meeting  
Knollwood Country Club  
Wednesday, June 26, 1996**

**Finance (Szyndlar)**

Checking- \$1,800.66  
Savings - \$28,278.47  
Foundation - \$14,134.08

**Vendor Liaison (Skaife)**

Vendor Concern: Pairings for Golf. Some vendors want to golf with Supts/not other vendors. Response: Depending on the occasion, the Golf Committee strives to do just that. Will attempt to do more of the same. Chair to contact concerned party.

**Membership (Jones)**

Membership 403. Applications approved - 5.

**Editorial (E.S.)**

Some advertisers are delinquent in their payments. Board considering those be required to pay in advance.

**Awards (Murphy)**

Presentation to be made to Steve Glossinger at the August 8 meeting. Heritage Award - Scholarships will be made available this fall. Info to go out this summer.

**Hospitality Room (McKinley)**

Final Report. In the red \$981.15. Covered by 1995 Hospitality Room's excess funds.

**Clothing (Murphy)**

Hope to have inventory at the July meeting.

**Education (Hock)**

July 8 - Polo Fields Topic "Ethics"  
August 8 - Possibly Bay Pte. Dinner only meeting with Steve Glossinger as speaker.

**Name Change (E.S.)**

Name officially changed April 15, 1996.

**GCSAA Affiliation (Dushane)**

Passed with a vote of 31 to 2 at June meeting.

**U.S. Open (Dushane)**

Hospitality tent was great. Thanks to donations from Benham Chemical, Osburn Industries, Turf Drain, Turfgrass and U.S. Sand and Stone Co.

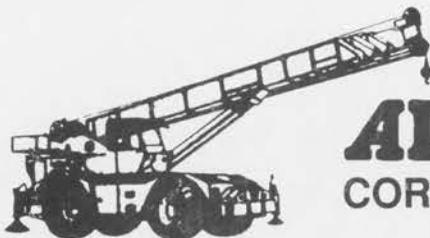
**Picnic (Murphy)**

Call in reservations to E. S. Date: Sunday, August 4, 1996.  
Flyer going out week of July 1.

**Name Tags (E.S.)**

Name tags will be ordered from Special Touch.

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## **Treetops Resort Named 1995-1996 Environmental Steward Award Winner**

Treetops Resort in Gaylord, MI has been selected as the national winner of the Environmental Steward Award Competition in the Resort Course Division. This award is presented to proven environmental leaders in the golf industry who incorporate innovative and outstanding management efforts in preserving and enhancing the environment. Treetops is not unfamiliar with this award, as they had also been selected, in 1992 and 1993 as regional winners. This award is an annual program sponsored by the Golf Course Superintendents Association of America (GCSAA), and other golf industry leaders.

The Environmental Steward Award Program provides an avenue for golf course superintendents to showcase their environmental efforts and be honored for the strides they have made to enhance their properties for the benefit of wildlife, golfers and their surrounding communities. The evaluations were completed by an independent panel of judges, including pesticide and irrigation specialists, an independent agronomist and/or turfgrass consultant, and representatives of independent environmental groups, who were all selected for their expertise in environmental issues and turfgrass management. Topics studied included innovative practices, management excellence and overall effectiveness of their program in protecting and preserving the environment.

The winners, selected from entries submitted this last November, were honored at the CCSAA Conference and Show in Orlando, Florida during the Environmental Session. Attending the show and accepting the honor for Treetops was Bruce Wolfram, CGCS, Golf Course Manager of all the Treetops' courses and driving force behind the award. "Golf courses throughout the country have great stories to tell about the environment", said Wolfram. "Being honored for an overall course management program which protects the local environment has been both rewarding and challenging." Treetops has developed and implemented comprehensive plans for water use, fertilizer and pesticide use, composting, and recycling. Other plans established include wildlife conservation, habitat enhancement, waste management, energy efficiency and water conservation.

"The environmental problems facing any golf course are extremely complex," Wolfram stated while accepting the award. "At Treetops we have had to become very creative and progressive in our environmental stewardship. Our involvement in The Audubon International Sanctuary Program, and design of a low pressure irrigation system are our most recent examples." Wolfram's work toward environmental leadership can be outlined by responsible course management, visible and demonstrated regulatory compliance, participation in wildlife habitat enhancement and restoration, recycling programs, and the communication of these efforts to the public.

## Community Service Opportunity

Recently, we received correspondence from Mr. Roland Crawford, of the Ionia Temporary Correctional Facility:

Michigan and Border Cities Golf Course  
Superintendents Association  
Ms. Kate Mason  
P.O. Box 173  
Troy, MI 48099

Dear Ms. Mason:

I am the Horticulture Instructor at Ionia Temporary Correctional Facility. This is a minimum security facility for prisoners getting ready to return to society. As instructor, my goal is to train these men in a horticulture field that will help them find and retain employment upon their release.

It has come to our attention that there is a "missing link" between the training programs here and actual job placement in the community. We feel that both parties could benefit from a program that could fill an employer's need for laborers and also direct an ex-offender towards gainful employment.

There are three (3) objectives to this letter to which we would appreciate your response:

1. To learn more about your organization, its members, the trades and skills involved, services offered, and any placement programs already in use.
2. To learn about peak hiring times, approximate wage scales, and any interest in hiring ex-offenders.
3. To receive feedback regarding specific qualities and qualifications required by employers that could be incorporated into our curriculum.

If we want these men to become a productive part of our society, we need to help them work toward finding meaningful employment. We would like to initiate a co-operative program in which we could provide prospective workers a list of employers in need of them.

GDGCSA has responded to Mr. Crawford's inquiries informing him of general information regarding the industry. However, if you are interested in working with this program in any way, please contact him at:

Ionia Temporary Correctional Facility  
1755 Harwood  
Ionia, MI 48846  
(616) 527-6320, ext. 415 or 416

### -- MANY THANKS --

Along with the USGA, ESPN and the Detroit Club Managers Association, GDGCSA sponsored a hospitality tent during the U.S. Open at Oakland Hills Country Club. Peter Jackson, Green Section GAM, and his wife Gay, graciously hosted at their home located at the 4th fairway. Thank you, Peter and Gay.

Many thanks also go to the following Affiliate members for their participation in supporting the tent. Thanks for "coming through" on such short notice:

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# Localized Dry Spot

## Understanding its Causes and Management Approaches

by Bill Byrnes, President, Floratine Products Group

The single greatest agronomic requirement of soil is that it provides appropriate (i.e., adequate but not excessive) moisture to the plant root zone. While insuring this under reasonably good soil conditions demands diligence from a superintendent, dealing with the phenomenon of Localized Dry Spot (or LDS) will generally test turf management skills to the limit.

There is a very high probability that LDS is not a result of mysterious golf course visits by space aliens. Rather, Localized Dry Spot is a relatively new term that is applied to severe occurrences within restricted areas of a number of different conditions that have been around since time immemorial. To discuss these conditions, a quick review of the terminology used to describe the relationship of some substances contained in soils and their interaction with water may be helpful.

### Elementary Science of Soil & Moisture Interaction

For definition purposes accept that the prefixes "Hydro" and "Hygro" both refer to water, or moisture. All substances, in any given conditions are either:

1. **Hydrophylic** (water loving), meaning they have an affinity for moisture. Substances may be moderately hydrophylic and will attract and fairly readily release moisture. They may also be so strongly hydrophylic that they will tie-up water hygroscopically through absorption or adsorption.

2. **Hydrophobic** (water hating), meaning they lack an affinity for moisture. Hydrophobia is also a relative condition. In this discussion we will apply the term *hydrophobic* to describe substances that do not have an active attraction for water, substances that actually repel water and substances (or conditions) that dry up water.

While all substances are either hydrophylic or hydrophobic the degree of their affinity or lack of affinity for moisture varies by substance composition and prevailing conditions. Uncompacted clay and organic matter are basically hydrophylic—they have a fundamental attraction for moisture; oil sand and alcohol are basically hydrophobic—they respectively repel, shed and dry out

moisture. Figure 1 classifies some representative substances commonly found in the soil environment according to their basic properties in relationship to water.

Whether and to what degree a substance is either hydrophylic or hydrophobic depends on the chemical (or electrical) and physical properties of the substance at any given time. As exemplified with clay, a substance can be either hydrophylic or hydrophobic depending on other factors such as saturation.

All of this has importance because the moisture affinity of any given soil largely determines the amount of the several types of moisture that will exist in that soil. In simplified terms, all moisture enters the soil as free water and then becomes one of three types (Figure 2):

1. **Hygroscopic**, which is water that is *absorbed* or *adsorbed* by soil elements (like clay) and is virtually unavailable for plant uptake except in minute quantities at the point of vaporization.

2. **Capillary**, which is held in a tension between soil elements and is fully available for uptake.

3. **Gravitational**, which is pulled downward through the soil profile by gravitational forces and is only briefly available for uptake by roots.

Highly hydrophylic soils promote existence of hygroscopic water; highly hydrophobic soils promote existence of gravitational water; moderately hydrophylic soil promotes existence of capillary water. Primary turfgrass water management goals will obviously include encouraging healthy infiltration and percolation of free water into and through the root zone and creation of a maximum amount of capillary water.

Though there are different understandings of the term LDS in different areas, Localized Dry Spot always has its origins in soil conditions discouraging or preventing the existence of capillary soil moisture in the root zone. *LDS differs from other soil conditions only by its degree of severity.*

### The Causes of Localized Dry Spot

In order to deal with LDS, it is most important to

#### A. Hydrophylic Substances

##### 1. Highly/extremely hydrophylic:

Salt  
Unsaturated Clay  
Humus  
Unsaturated Fulvic Acid

##### 2. Moderately hydrophylic:

Humic Acid

#### B. Hydrophobic Substances

##### 1. Highly/extremely hydrophobic:

Oil, Fats, Waxes  
Saturated Clay  
Alcohol  
Saturated Fulvic Acid

##### 2. Moderately hydrophobic:

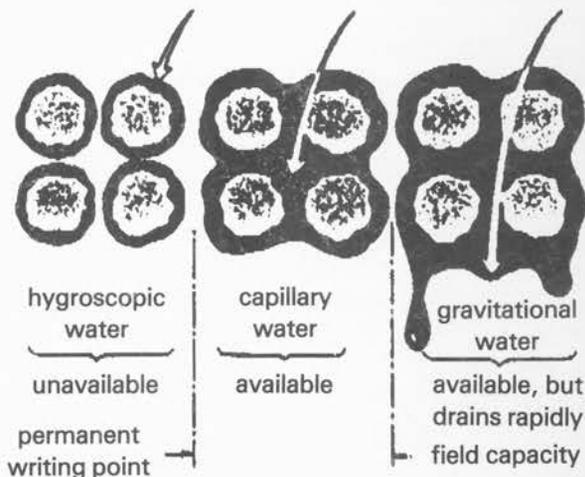
Sand

Figure 1 – Representative Soil Substances and Their Moisture Affinities

understand what specific soil conditions might be causing any particular case. For classification's sake let's consider three general categories which encourage occurrences of LDS. *Please note that none of the conditions is necessarily exclusive of the existence of another or several other causal conditions.*

#### A. Physical Soil Conditions Inhibiting Infiltration

These would include compaction, steep slopes and



reasonably dense, undecomposed thatch mats at the soil surface level. Moisture which does not enter the soil is not going to be available to the root zone.

#### B. Soil Conditions Promoting Excessive Gravitational Flow and Drying or True Hydrophobic (water repelling) Activity

All of these circumstances discourage the existence of capillary moisture. The following specific conditions qualify:  
 1. Absence or Deficiency of Hydrophilic Soil Substances. Very high or pure sand content areas can create a "chimney" or "flue" effect, magnifying gravitational flow of water since sand has virtually no electrical charge enabling it to interact chemically. Sand is also very prone to heat build-up, leading to exaggerated vaporization during continuous high temperatures and contributing to the phenomenon of "Hot Spots".

2. Biological and Disease Origin Anaerobic and Hydrophobic Soil Conditions. These can occur:

- a) In conjunction with Black Layer and similar formations, which create anaerobic conditions and in which bacteria produce noxious elements including acetic acid, alcohols, oxides, and sulfites which drastically reduce available moisture.
  - b) In conjunction with certain fungi, such as the mycelium associated with Fairy Ring, which create noxious hydrophobic conditions virtually eliminating available water in the infected soil. A variation of this is so-called "pseudo" Fairy Ring which often occurs on two to five year old "spec" greens, usually in association with thatch problems.
3. Excessive build up of hydrophobic and/or super

#### absorbent physical soil particle "coatings".

Perhaps the least understood of LDS provoking conditions, researchers have observed a number of causal factors which can lead to such conditions and preclude adequate available moisture:

- a) Oily or "fatty" substances, which are low in oxygen and which evolve from plant decomposition and are hydrophobic. These substances are particularly prevalent in soils where vegetation has been

burned off at one time or another.

- b) Actual petroleum based substances introduced into the soil will obviously create hydrophobia.
- c) The precipitate of fulvic acid which is, according to its degree of saturation, either highly hydrophobic or hydrophilic. Fulvic acid is one of the organic acids contained in all humus and is isolated in nature by microorganisms breaking down organic matter. This substance can be particularly troublesome in sandy soils.

#### C. Soil Elements Promoting Excessive Hygroscopic (moisture retention) Activity

Soil with highly concentrated accumulations of organic matter (decomposed thatch layer, etc.) salt, fulvic precipitate, and/or clay attract and take in moisture rendering it unavailable to root systems or at least causing a highly uneven distribution of moisture in the normal root zone. Once saturated, of course, some of these substances become hydrophobic.

#### **LDS Management Tools**

There are a number of tools to deal with incidences of Localized Dry Spot, and their use follows a common sense logic of cause and counter influence, matching intensity and timing of management measures to the nature of the LDS. In troublesome cases, several approaches may be required if we are to avoid the extreme of soil replacement.

#### A. Mechanical, Physical, and Sterilization Treatments Aerification

While this is standard practice on golf greens, it is often

of paramount importance in dealing with LDS; the trick is to utilize the correct approach to match the nature of the culprit. For instance, coring can be particularly helpful to open up sub-surface layering (mycelium, Black Layer, organic, clay), and poor moisture infiltration and percolation soils. As in all aeration, succeeding corings should vary in depth while always penetrating problem horizons. Similarly, tining will open up infiltration passageways in LDS areas resulting from slopes, hygroscopic material, and surface compaction. An especially useful and often neglected practice in this regard is frequent and vigorous puncturing with a four tyne garden fork only in the LDS areas. Water will go where it is most welcome, and we want to emphasize increasing capillary water in the problem spots; presumably, other areas are absorbing sufficient moisture. Drill aeration is a relatively new technique that seems to hit a middle ground and does not seriously damage turf. Our goal with coring, tining, and drilling is to provide avenues through the surface and/or the problem zones which encourage adequate moisture (and air) to and somewhat beyond the existing root zone. This goal demands that we know the nature and location of our soil problems. Common sense also tells us that hydrojecting, while certainly a helpful practice, will be of a lesser benefit as a management tool than traditional aeration for providing major relief for an LDS problem because hydrojecting addresses the critical oxygenation factor only from a temporary standpoint.

#### Top Dressing

Whenever we attempt to treat a problem we must bear in mind that inappropriate use of some treatments have the potential of creating a new problem themselves. So it is with top dressing. Still, if we are to avoid the radical and expensive alternative of reconstruction very careful and gradual physical soil element modification can help achieve improved moisture availability in LDS areas. The trick is not to try to change the world overnight and to be intelligent in selection of top dress mix materials. Before adding any new components to the soil it often is wise to consider the permanence of the new materials, i.e., how reversible is the treatment, as well as the material's potential side effects. For instance, overuse of highly hydrophilic substances to amend the soil can become most troublesome if layering of the materials results.

#### De-Thatching

Anytime a thatch layer builds up beyond about 1/4 inch thought should be given to instituting a mechanical dethatching program. Obviously, depending upon soil composition, microbial population, and climatic conditions. 1/4-1/2 inch of thatch may be looked upon as anything from desirable to extremely unhealthy.

#### Sterilization

In extreme cases of mycelium-origin soil dysfunction, fumigation may be required.

### B. "Chemical" and Biological Treatments

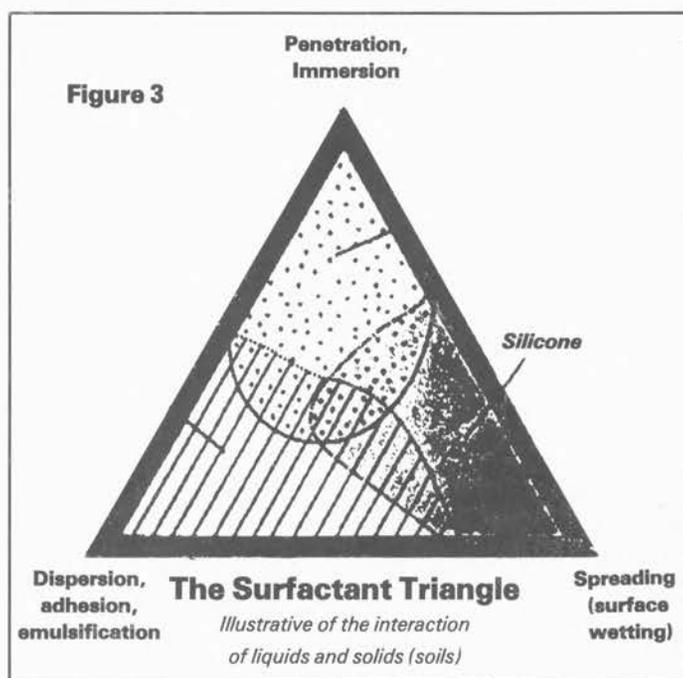
There are a number of soil amendment and treatment

materials that can be quite effective in improving moisture availability to turfgrass where LDS exists. The degree of each material's effectiveness is directly tied to the nature and degree of the problem and the essential workings of the specific material.

#### Soil Wetting Agents (or Soil Penetrants)

"Wetting agent" and "penetrant" are common names applied to products that belong to a *class* of chemicals known as **SURFACTANTS**. They are "Surface Active" agents that make "water wetter". After that the performance qualities of a surfactant depend upon the specific chemical nature of the surfactant molecule. In general all surfactants can be positioned somewhere within the "Surfactant Property Triangle" shown in Figure 3.

While all surfactants exhibit some degree of all three of the properties, surfactants should be selected depending upon the emphasis needed, usually penetration or retention.



Their use will depend upon the nature of the LDS and experimentation with application frequency and rates may be required to achieve maximum improvement. This may call for either treating only the LDS area or making a general application on the entire green and following with a heavier localized rate in the LDS area. In the case of poor infiltration we may want to lightly treat only the high areas and slopes; this may be especially true on high sand content greens where heavier applications could actually magnify leaching. In cases of hydrophobic conditions caused by soil particle coatings, we may want to apply locally at very heavy rates to ensure emulsification (detergent) activity. The danger of the heavy rates, of course, is direct damage to the turfgrass if inadequately irrigated. While wetting agents can and will improve moisture control in the soil, their effectiveness in any given situation correlates directly to their surfactant qualities and method of use.

## Humic Acid

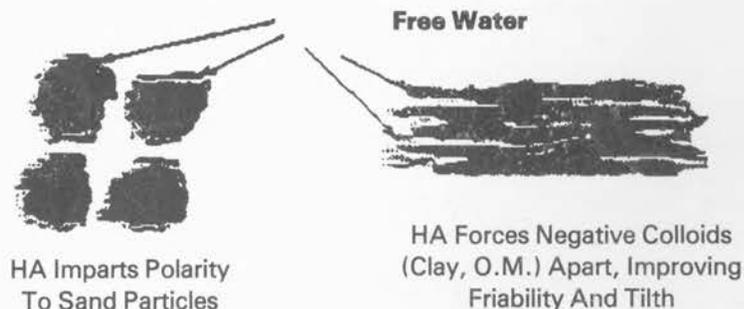
The unique characteristics of the humic acid fraction (as separated from the ulmic and fuivic fractions) of humus material make it a very useful soil amendment material available for managing LDS. Humic Acid is a long chain polymer with an extremely polar nature which has two distinct and decidedly beneficial effects on soils in general and different LDS problems in particular (Figure 4). In instances of excessive gravitational water and hydrophobic soil coating conditions, introduction of humic acid coats sand and hydrophobic particles with appropriate negative affinity to hold cations. Additionally, humic itself is moderately hydrophylic; that is, it has quasi-hygroscopic characteristics enabling it to hold up to ten times its weight in moisture in an essentially capillary state. Water-content humic acid can also be absorbed by roots and taken into the plant where the absorbed water is released and the humic itself contributes to lignin formation. In the case of compacted and other hydroscopic water soil conditions, such as those with heavy clay and organic matter concentrations, humic acid's powerful polarity literally forces negatively charged colloids to separate and break apart, freeing up previously tied up cations and moisture and improving soil tilth and the soil's capacity for capillary water. In either situation, humic acid has distinct buffering properties which decrease the impact of accumulated salts.

erosive effects of irrigation will diminish and then eradicate the humic over time, requiring re-application. On the other hand, several applications of concentrated humic, in conjunction with periodic aerification may be required before highly noticeable soil tilth improvement is achieved in a heavily compacted or layered area. All commercially available granular humic acid products and many liquids have significant fulvic acid contents. Such products may contribute to the "coating" phenomenon discussed earlier, particularly on sand mix greens. Finally, significant soil modification requires reasonably high rates of concentrated (above 10%) humic content. Do not expect it from low humic acid concentration products or low active ingredient application rates. Remember that we are attempting to alter the characteristics of around two million pounds of material per acre in the upper six inches of soil. It will take some active ingredient to accomplish that.

## Sodium Reduction Materials

Excessive soil salts are the scourge of plant growth. Through the ages conquering armies salted the fields of their foes to ensure that their enemies would not rise again to smite them down. Salt ties up nutrients and can even cause the phenomenon of "soil collapse". But above all else, salt is a moisture thief

Hopefully, Mother Nature's rain and intelligent irrigation practices will leach enough sodium to preclude damaging



**Figure 4 -- Humic Acid in Soils**

Of course, humic acid, like all materials, has limitations.

As a long chain polymer, it normally reacts with each soil particle as it makes contact. Thus, it will not give the degree of immediate relief from symptoms of severe infiltration and percolation problems as will wetting agents. It can only work on the soil it reaches. In some LDS situations, it is reasonable to think of soil wetting agents or penetrants as addressing the immediate symptoms and humic acid as addressing the long range cure. Elapsed time between beginning humic treatments and noticeable improvement can vary considerably, depending on the cause and degree of the problem at hand. For instance, immediate moisture retention improvement might occur when humic is applied to a high sand mix, though the

build-ups. However, receding water tables and roadway run-off have enormously increased salts in irrigation water supplies, increasing the need for amendments. Traditionally, sulfur and bulk calcium materials (gypsum, lime, etc.) have been applied. Sulfur's long term effects are of dubious merit; the calcium materials are effective but are slow acting, have limited solubility, and provide only a couple of months of reasonably high activity in the soil. More rapid response can be obtained from sulfuric acid and calcium chloride, but each of these can create distinct soil problems of their own such as the destruction of microorganism populations. While liquid calciums have been around for many years, a major innovation—cyclic acid chelation—is proving to be a great improvement over the traditional liquid

products. The cyclic acid chelation increases effective calcium activity by as much as eight times by solubilizing otherwise unavailable calcium reserves of the soil, thus activating additional calcium for sodium reduction.

#### Thatch Reduction Compounds

Undecomposed thatch reduction compounds are relatively new in the marketplace. Dead (or dormant) grass is composed of up to 90% cellulose and all newer products seem to rely on cellulase, the enzyme which breaks down non-chlorophyll producing "dead" cellulose. Some products consist of microorganisms which in turn manufacture cellulase. Others package the cellulase itself. Both will accelerate thatch decomposition. The limitations of microbial products are the obvious delay in cellulase availability and the certainty that the microorganisms will not remain in a non-sustaining environment. Products containing cellulase itself are somewhat subject to the erosive effects of irrigation, though the active ingredient is actually absorbed by the dead cellulose. Both the microorganisms and cellulase itself are relatively inactive below 60° F and increasingly active as temperatures rises above that mark. The decomposition of thatch is a slow process by nature. These products can accelerate thatch reduction, but do not expect radical activity in a week or two. Some products contain nitrogen, presumably to feed the microorganisms and humic acid to promote a more desirable habitat for the cellulase-producing microorganisms.

#### Fungicides

Fairy Ring is a fungus and provided that the fungi reside in the upper inch or so of the soil, the condition sometimes responds favorably to fork tyning, wetting agents, and the high label rate of Prostar or Benlate. At least one old hand states, "If you don't tyne first, your wasting your time and money."

### **Causes and Management**

All of the management measures can be valuable in dealing with LDS.

#### **So what should any given turf manager do?**

An LDS problem may require from a single to multiple management measures. Moreover, management measures may be preventive or curative and may address either the actual causes or their symptoms.

First, discover what are the factors causing the scarcity of available water. This will typically involve careful physical inspection by soil horizons and interpretation of soil analysis. It will involve understanding of original and reconstruction materials and past management practices and historical events. It may also involve analysis of the water supply. In short, be Sherlock Holmes and identify the culprits. Prescription without diagnosis is malpractice.

Second, understand the various tools available for combating your conditions— what they will and will not do to improve your situation.

Third, formulate and diligently implement a plan of action utilizing the appropriate measures to counteract the problem or problems identified.

Fourth, adjust your management practices to discourage re-occurrences of LDS. It is always better to diagnose and treat a problem early, but the very best cure is preventive maintenance.

In the real world there is no such thing as perfect soil for turfgrass growth, or, if there is, wait a few days and it won't be. We are attempting to manage a moving target. Localized Dry Spot is one of many challenges facing today's superintendent. It is an especially difficult one, and one that seems to be increasing in incidence, particularly as "spec" greens gather age. The bad news is that LDS is difficult to manage. The good news is that it can be managed if we are willing to work at it.

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Rick Murphy, Awards Chairman

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## - News Release -

### ***Milorganite Announces Turfgrass Research Donation Program***

*Superintendents can help support turfgrass research when they buy natural organic Milorganite fertilizer*

**Milwaukee, July 17, 1996:** Golf course superintendents can help support turfgrass research when they buy natural organic Milorganite fertilizer this fall, says Larry Lenert, Manager of Research and Product Development. For each ton of Milorganite purchased and delivered between August 1 and November 30, 1996, Milorganite will donate \$10 to the superintendent's favorite turfgrass research organization.

"Milorganite and its distributors have long supported turfgrass research at the national level through the O.J. Noer Research Foundation," Lennert says. "This program enables Milorganite customers to support turfgrass research at the local level."

This is the second year that Milorganite has sponsored its Turfgrass Research Donation Program. Last year, Milorganite donated more than \$17,000 to turfgrass organizations across the U.S. and Canada.

## ***Heritage Award***

Scholarship monies to be awarded to GDGCSA members' children. You'll be receiving details later this summer!

# The Cutting Edge

## A Challenged Staff Creates "New - Old" Trucksters at Oakland University's Katke Cousins Golf Course

by Jay Delcamp - Golf Course Superintendent

So, what do you really do in the winter?

How many of us have heard this question when discussing our professions with people outside of the golf course maintenance industry?

Budget planning, meetings, ordering supplies, conferences, hiring temporary staff, inventory, repairing and cleaning miscellaneous golf course items and preparing for winter weather are all important aspects of our winter agenda. However, our most important responsibility is equipment maintenance.

The permanent full time staff at Oakland University Katke-Cousins golf course includes Paul Marshall, a 20-year OU employee, Chris Turkopp, a 10-year OU employee and Jace Sears, an 8-year OU employee. These workers have done a superior job sharpening, replacing and preparing equipment for the upcoming seasons. They have also undertaken the rebuilding and renovation of four classic Cushman 3-wheel Trucksters.

In the winter of 1992, the staff began rebuilding our first Cushman. The entire machine was disassembled and each part was boxed and tagged. All framework was sandblasted and repainted. The motor was overhauled and most moving parts were replaced, including the wiring, brakes, shocks and linkages. Wheels and tires were replaced, and new decals and identification tags were installed.

The results of our first winter of work was a refurbished, "like-new" truckster, identical to the original one purchased new in 1976. Although many hours were spent on the project, the end result was a success.

Since 1992, we have successfully completed the renovation of three other Trucksters. We have begged, borrowed, and even bought old frames from other golf courses to begin the reconstruction. Basically, we have done the same repairs to each machine, but to increase longevity we have changed the engine blocks of the most recent machines to a new short block.

We now have two 1974, one 1976, and one 1970 fully functional trucks. Two have hydraulic dump boxes attached; one has a stationery box and one carries our top-dresser.

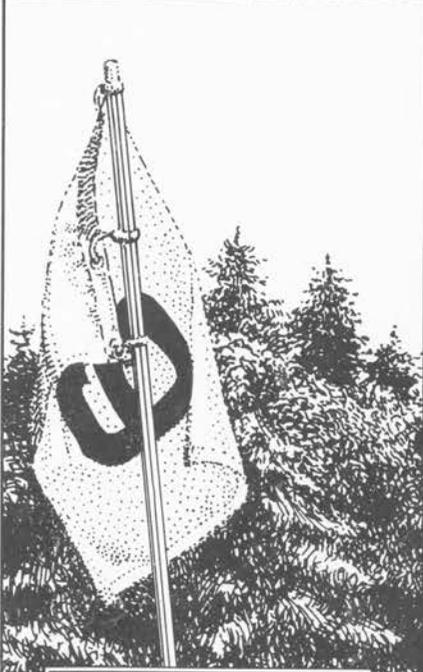
The crew has done a great job rebuilding and each of us now has a vehicle to call his own, at an unbelievable price of less than \$3500.00 per vehicle. We have a great amount of pride in the finished product and the upkeep of each truck has been a pleasure.

So when people ask, "what do you do in winter?", we have the opportunity to tell them of our successful challenges we have accomplished over the years. A dedicated crew, working as a team for the same goals creates a job well done.

Many thanks to my devoted staff!



Oakland University's Katke Cousins Golf Course Crew



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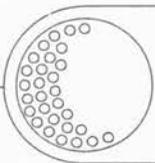
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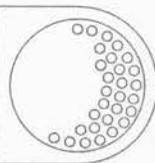
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## Changes To Your Roster:

**MC MULLEN, MARC** (pg. 50)  
 MOVED TO:  
 Tahoe Donner G&CC  
 Truckee, CA

**ROSSI, FRANK** (Pg. 58)  
 MOVED TO:  
 CORNELL UNIVERSITY  
 20 Plant Science Bldg.  
 Ithaca, NY 14853  
 O-(607) 255-1789  
 FAX (607) 255-9998

**SMILOWSKI, JERAMIE** (Pg. 60)  
 MOVED TO:  
 823 Rickett Rd.  
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**VAVREK, BOB** (Pg. 64)  
 ADDRESS CHANGE:  
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## Greater Detroit GCSA 1996 Calendar

August	Dinner Meeting	TBD
September	TBD	TBD
October 7	Turfgrass Fund Raiser "The Big Event"	Bay Pointe GC Forest Lake CC Red Run GC Tam O'Shanter CC
October 22	Annual Meeting	Maple Lane GC
November	GCSAA Seminar Topic: Preventative Maintenance of Turf Equipment	TBD
December	Superintendents Only	Birmingham CC
December 6	Xmas Party	Cherry Creek GC



## Western Michigan GCSA 1996 Calendar

Sept. 30 Gull Lake



## Northern Michigan Turf Managers Association 1996 Meeting Schedule

August 13th	The Rose Golf Club, Leroy (25th Anniversary of NMTMA)
September 18	Treetops Rick Smith "Signature", Gaylord (MTF Fundraiser)
October	Boyne Highlands, Harbor Springs NMTMA Annual Meeting & Tuck Tate Championship

## Mid-Michigan Turf Association 1996 Schedule

August 27 (Tuesday)	I.M.A. Brookwood, Burton
September	No Meeting
October 7 (Monday)	Fall Fund Raiser Warwick Hills, Grand Blanc
October 22 (Tuesday)	Annual Meeting - TBA
December 14 (Saturday)	Christmas Party Frankenmuth



## GREATER DETROIT GOLF COURSE SUPERINTENDENTS ASSOCIATION

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### APPLICATION FOR MEMBERSHIP

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Home Phone:	Office Phone:	Fax:
Are you a CCSAA member?:	Are you a CGCS (Certified Supt.)?	

### PRESENT POSITION

Title of Current Position:
Starting Date of Current Position:

### PAST POSITIONS HELD

From/To	Title	Place of Employment	City/State

Each application must be signed (attested) by two members (SUPERINTENDENTS) of GDGCSA, who certify as to the reliability of the applicant's information as stated above.

Attestor:	Date:
Attestor:	Date:

If accepted, I hereby certify that I will observe the constitution and by-laws of the Greater Detroit Golf Course Superintendents Association and the Code of Ethics of the Golf Course Superintendents Association of America.

Signature of Applicant:	Date:
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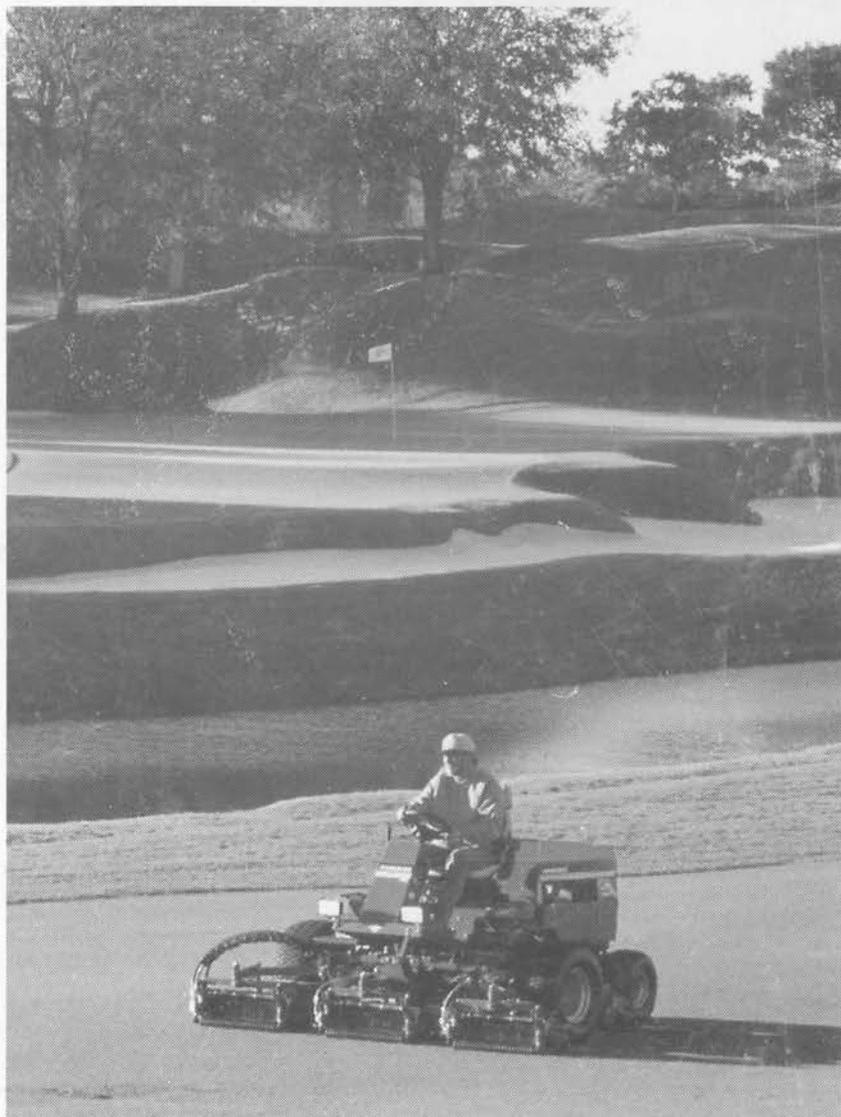
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