

**THE BULL SHEET, official publication of the
MIDWEST ASSOCIATION OF GOLF COURSE
SUPERINTENDENTS.**

1984 Board of Directors

President	Roger Stewart (Sue) Riverside Golf Club	Home: 961-2803 Work: 447-1049
Vice-Pres.	Joe Williamson (Sandy) Briar Creek C.C.	Home: 219-332-1409 Work: 219-322-3660
2nd Vice-Pres.	Dave Behrman (Chris) Deer Creek G.C.	Home: 672-5887 Work: 672-5887
Sect'y-Treas.	David Meyer (Penny) Indian Lakes C.C.	Home: 961-1011 Work: 529-0200
Board	Julius Albaugh (Vickie) Westmoreland C.C.	Home: 673-4610 Work: 251-4601
	Sean M. Daley Ridge C.C.	Home: 388-5781 Work: 233-8490
	Jim Evans (Debby) Turnberry C.C.	Home: 815-455-3994 Work: 815-459-8570
	Mike Hart (Jan) Bon Vivant C.C.	Home: 815-932-6004 Work: 815-935-0400
	Phil Taylor (Marilyn) Sugar Creek G.C.	Home: 279-8038 Work: 834-3325
	Peter Leuzinger (DeeAnn) St. Charles C.C.	Home: 584-9312 Work: 584-3403



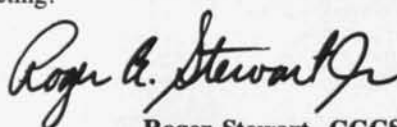
President's Message

The golfing season is winding down and most of us are getting reacquainted with our families. Anyone who works in this business knows how invaluable the support of the family can be throughout the season when there never seems to be enough time to spend with them. For most of us, things like family vacations, weekend camping trips, and just plain "family time", can be difficult things to accomplish during the growing season. Most of us work seven days a week often mounting up 60-70 hours at the golf course. This schedule can put a strain on anyone's family life. You have to give the wives a lot of credit for handling the day to day family responsibilities during the time of the year when our jobs require so much of our attention. Some people say the strongest family bonds are built from situations just like the ones Golf Course Superintendents are faced with. I know I speak for all MAGCS members when I say THANK YOU to all MAGCS families for their support and understanding during the past season. Now is the time to strengthen those ties with your wife and children and make the best use of your "family time" in the off-season.

I hope you are all making plans to attend the annual meeting and election next month. If there is one thing about the MAGCS that has always baffled me, it is the poor attendance at our annual meeting. I've always felt that this meeting should be the meeting that generates the most interest among our members. This is the meeting where your opinions can be heard and the future plans for **YOUR** professional organization are formed. The election of Officers and Directors is as important a responsibility as any for **EACH AND EVERY MEMBER**. Don't be ambivalent and benign about such an important facet of **YOUR** association. If you are a voting member, you own it to yourself, your fellow superintendents, and your profession to participate in the events which will shape, form and guide MAGCS in the future. **BE THERE!**

A special thanks to the golf committee for running some great events this year. I hope everyone takes the time and makes the effort to obtain an official handicap next year. It is a free service provided by the CDGA to all MAGCS members. If you were not aware of that or have questions, talk to the Golf Committee Chairman and he can get you registered.

The best of the fall season to you all and we will see you next month at the annual meeting.


Roger Stewart, CGCS



We are not copyrighted and would like to share our articles with any who would like to use them, but please give the author and "The Bull Sheet" credit.

Editor —
Fred D. Opperman, CGCS
1022 Shady Lane
Glen Ellyn, IL 60137
Phone (312) 469-3444

Bull Sheet printed by Ever-Redi Printing, 5100 East Ave., Countryside, IL 60525. Phone: (312) 352-4378.

The **Bull Sheet** is published once a month. All articles are required by the 10th of the month to make the next issue. Advertising is sold by the column inch, by the quarter page, half page, and by the full page. All artwork to be finished and in black and white. Circulation is around 500 issues per month.

Tensiometers: Useful Tools in Scheduling Irrigation

Dennis L. Martin

Graduate Research Asst., University of Illinois

Water suitable for irrigation purposes is a limited resource that is becoming more costly as time progresses. Sound irrigation practices that reduce the quantity of water used should be implemented. The use of tensiometers by the turfgrass manager can help in scheduling when irrigations should occur, and how much water should be applied. The results are a reduction in the quantity of water used (resulting in a dollar savings), while providing a more suitable soil moisture environment for turfgrass growth.

Unlike normal visual methods of evaluating soil moisture conditions such as by color and feel of the soil, the tensiometer can tell us the energy status of water present in the soil. This energy status is termed the soil water potential, soil moisture tension, or soil suction. Knowing the energy status of the soil water is very important because the amount of water available for plant growth is directly related to the energy status of the water present in the soil. It is for this reason that tensiometers are useful in scheduling irrigations.

The dial or gauge-type tensiometer consists of a water filled tube, sealed to a porous ceramic cup on one end, and a vacuum gauge on the other. A removable air tight cap is located near the end of the tube bearing the gauge. Photo 1 shows a typical gauge-type tensiometer having a gauge incremented into units of centibars (hundredths of a bar). One bar of 100 centibars of soil suction is equal to a negative pressure of 14.69 psi. The water in the soil is under negative pressure (suction) due to the adhesion of water to the soil particles.

When the tensiometer's cup is placed in direct contact with the soil, water moves into or out of the tensiometer through the cup, coming into equilibrium with the water in the soil. The soil suction can then be read on the gauge. Saturated soil will have a reading of 0 centibars, while a drier soil will have some value greater than 0. As the soil continues to dry out (less water available for plants), the value in centibars of soil suction increases. When irrigation or rain moistens the soil, the value on the gauge will decrease, returning to zero if the soil is saturated.

A subsurface monitoring station like that shown in photo 2 can be constructed in 40 to 60 minutes time. The site of the station should be one of level to gently sloping terrain, as the reading taken from tensiometers in these areas are the most indicative of the true soil moisture conditions. A 12 inch tensiometer will be the adequate length in most sites. When properly placed, the tensiometer cup will be located slightly below the cutoff point in rooting density (see photo 1). An insertion tool or pipe is used to make the horizontal opening in which the tensiometer is inserted. The entire monitoring station is made narrow enough that the lid of the station can support the weight of mower traffic. After initially being installed, a 24-48 hour period is required before accurate readings can be taken. The tensiometers can remain in their monitoring station until freezing weather arrives.

Soil suction values can be obtained from tensiometers as often as is desired. It is suggested that readings be taken at least once every 24 hours. Before taking a reading, the gauge should always be tapped slightly, to ensure that the needle assumes the

true soil suction value.

Maintenance of tensiometers should be performed on a once-a-week basis. This involves loosening of the cap to remove air bubbles, and refilling of the tensiometer. The device stays in place, and the entire procedure takes 3-5 minutes per tensiometer. Tensiometers should be removed from their stations and drained of all water before freezing temperatures occur.

Tensiometers are being used to monitor the soil water potential in an annual bluegrass heat tolerance monitoring study at the University of Illinois at Urbana-Champaign. The study is being maintained under fairway-type conditions. Four subsurface tensiometer stations are monitoring an area 20x20 feet. After being installed, the study was allowed to dry down until visual signs of water stress occurred. "Footprinting" (where blades of grass fail to return to their normal habit after light foot traffic) was used as the visual sign of waterstress. The readings in centibars at the 4 inch depth was recorded from each station, and the mean value was determined to be 18 centibars. The value of 16 centibars was then chosen as the value at which to irrigate so that waterstress would be avoided. After several irrigations, the minimum quantity (20mm or 8/10 inch) of irrigation water necessary to bring the soil to saturation at the 4 in depth was determined. These practices were in keeping with the "deep and infrequent" rule of thumb, designed to discourage shallow rooting of the turf. Readings from the four stations were recorded on a daily basis, and plotted with the readings in centibars being the vertical axis, while days elapsed was recorded on the horizontal axis. The graph showed that in general, irrigation from the beginning of June through the second week of July was necessary once every 5 days. Slight variations in frequency of irrigation occurred due to natural rainfall, and changes in temperature and relative humidity.

In mid-July the "Footprinting point" was found to occur at a mean reading of 14 centibars at the 4 inch level. Examination of the root zone showed both a decline in density and depth of rooting of the annual bluegrass. The irrigation schedule was adjusted accordingly, with 12 centibars being the new mean value at which irrigation water was applied. When "centibars of soil suction vs. days elapsed" was graphed, irrigation appeared to be necessary on approximately a 3 and one half day basis. As expected, some variation occurred from week to week due to rainfall and varying atmospheric conditions. As we move out of the mid-summer stress period, a deeper and denser root system will be expected, leading to a decrease in the necessary frequency of irrigation.

Information from the previous study was given to illustrate how tensiometers are being used in one specific situation. In most instances a single monitoring station would have easily handled the small area involved in the study. Species other than annual bluegrass will no doubt exhibit different seasonal tendencies. Soil type as well as many other conditions will affect the necessary frequency and duration of irrigation from location to location.

Although the turfgrass manager will "fine tune" the irrigation program to his individual site, the basics in establishing an irrigation program based on tensiometers involves:

- 1) Establishing the soil suction value at which waterstress occurs.
- 2) Choosing a soil suction value lower than the value at which stress occurs, and irrigation at this value.

(cont'd. page 4)

- 3) Establishing the minimum duration of irrigation or quantity of water necessary to replenish water in the root zone.
- 4) Being aware of seasonal and daily changes that may affect when and how much water should be applied, and making the proper adjustments.

The approximate cost of a 12 inch tensiometer is \$60, with a \$3 increase for each additional 6 inches in length. The estimated useful life of a tensiometer is 4 years or more. When purchasing tensiometers it is recommended that a service kit be purchased also. Surplus pipe can often be substituted for the commercially available insertion tool.

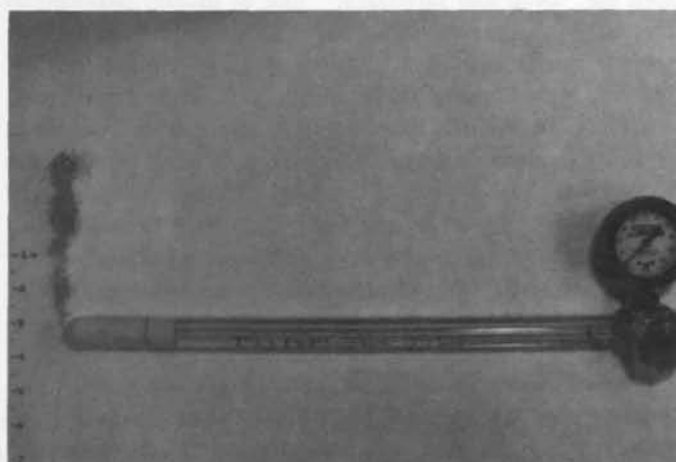
A short list of tensiometer vendors follows. No endorsement or discrimination is intended.

Brinkmann Instruments, Cantiague Rd., Westbury, NY 11590, (516-334-7500)

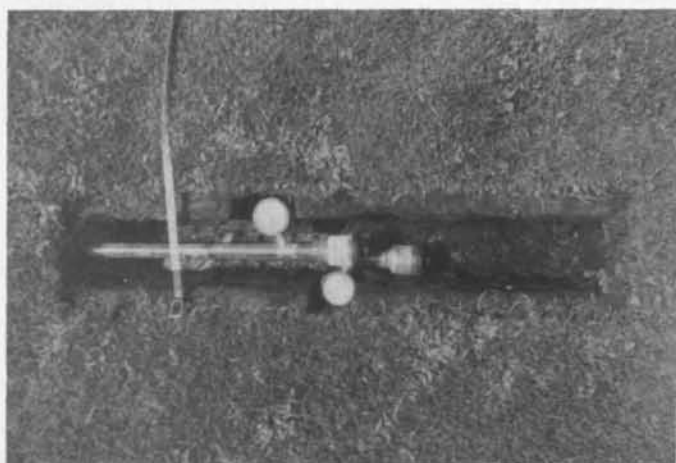
Fisher Scientific, 711 Forbes Ave., Pittsburgh, PA 15219, (412-562-8300)

Tensitron, 126-128 Harvard Depot Rd., Harvard, MA 01451, (617-456-3511)

Soiltest, Inc., 2205 Lee St., Evanston, IL 60202 (312-869-5500)



A typical gauge-type tensiometer, and its depth of placement in relation to the creeping bentgrass root system at left.



A subsurface monitoring station with tensiometers at the 2 and 4 inch depths. Lid to the station is not shown.



Turf
PRODUCTS, LTD.

2 N 255 County Farm Rd. West Chicago, IL 60185
Phone: (312) 668-5537

“Golf Course Work a Specialty”

LEMONT PAVING CO.

Lemont, IL 60439

Jim, Tracy, Ray Murphy 257-6701

KILLIAN

DESIGN GROUP INCORPORATED

GOLF COURSE ARCHITECTS

639 First Bank Drive, Palatine, Illinois 60067 (312) 358-8884

FOR SHADE AND ORNAMENTAL TREES

HAMMER NURSERY INC.

312-832-4000

MARK W. KROEGER NAPERVILLE, IL



McGinty
BROS., INC.

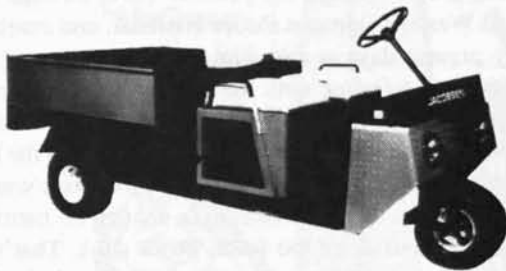
LAWN CARE TREE CARE
Weed, Crabgrass and Disease Control/Fertilizing Tree Spraying, Feeding, Surgery, Trimming, Removal

HYDROSEEDING

RT. 2, BOX 518, LONG GROVE ROAD
LONG GROVE, ILLINOIS 60047 / (312) 438-5161

Jacobsen & Rowlands ... A combination that can't be beat.

Now Rowlands offers a fine line of Jacobsen turf trucks.



T2000 - The T2000 is a durable, tough, low-maintenance vehicle that is really looking for work. And work it does, with the capability of hauling, seeding, top dressing, aerating, spraying, and can be utilized for the 100 and 1 other jobs where a good turf truck is needed. Total vehicle capacity is 2,000 pounds.



T1000 - Comfortable, efficient, and husky best describe the T1000 utility vehicle. It is gentle on turf, easy to handle, and is perfect for the many quick trips needed on golf courses, in city parks, and on grounds at industrial or condominium complexes, for hospital grounds, at a university campus or athletic field. Total vehicle capacity of 1,000 pounds.

In addition - there are a wide range of accessories and attachments that can be used on either the T1000 or T2000. Adapter kits are also available for most all Cushman Implements.

ROWLAND'S
Equipment, Inc.

**200 W. Northwest Hwy.
Barrington, IL 60010
312-381-1084**

Call Ken Quandt or
Avery Harris for
Information or Demo.



par ex[®]
PROFESSIONAL PRODUCTS

IBDU[®] (31-0-0) and PAR EX[®] fertilizers with IBDU are custom formulated for high maintenance, high quality turfgrass. Check with your local PAR EX territory manager or distributor for other available grades.

Territory Manager
Cliff Belden
Elgin, IL 312/697-IBDU

Turf Products Ltd.
West Chicago, IL 312/668-5537

Paariberg Chemicals Co.
South Holland, IL 312/474-3086

Olsen Distributing Co.
Barrington, IL 312/381-9333

Professional Turf Specialties, Inc.
Champaign, IL 217/352-0591

Rowland's Equipment, Inc.
Barrington, IL 312/381-1084

The Very First Systemic in FLOWABLE Form

CLEARY'S 3336-F Fungicide



The dawn of a better technology. FLOWABLE.

Cleary's 3336 Systemic Fungicide has earned your confidence in the prevention and control of dollar spot and 6 other major diseases. Today W.A. Cleary announces the development of 3336-F, the first systemic in flowable form. Flowables are simpler and safer for the user to handle. Need little agitation. Will not clog spray nozzles. Offer a uniform particle distribution for excellent availability to the plant. Cleary's new 3336-F FLOWABLE.

Now available at application cost less than systemic wettable powders.

FOR FURTHER INFORMATION SEE YOUR LOCAL DISTRIBUTOR OR CONTACT



W.A. CLEARY CHEMICAL
CORPORATION

1049 Somerset St., Somerset, N.J. 08873 (201) 247-8000

What Gives a Superintendent Gray Hair

by Ed Fischer, Old Elm Club

When I was Dudley Smith's Assistant at Silver Lake, my hair was dark brown, I was good looking and 22, I'm now 38 gray and distinguished. I started getting gray hair in June of 1969, when I became Superintendent at the York Golf Club, and continued getting grayer through my years at York, through construction and Western Opens at Butler National, and continues through my present days at Old Elm.

Gray hair seems to come with the problems that my crew, Mother Nature, and/or my members and their guests come up with. Remember the new greensmower that ended up in the lake, and the excuses that the crew came up with; the grass was too wet, I was almost hit by a golf ball, even though no members were on the golf course, or too much goose sh--t. That's the best one. Of course we all have the old guy who has been driving a tractor for years, yet he manages to drive right into a ditch. Or the fellow who overturns the dump truck while filling old stump holes.

Irrigation is always worth a few gray hairs. Something went wrong and the greens didn't get watered, or the night man fell asleep, and instead of 30 minutes of water 2 hours were put on the greens. Leaks are not common, but always worth a gray hair or two. It always seems like a leak comes at the worst times, like 6 p.m. when the only ones there to fix it are you and your kids, or how about 10 p.m., but right in the middle of an event, and the club President and his guest get wet.

Chemicals are some of our best tools, however what about the sand trap that we all have sprayed for weeds. The only bad thing was that we were not told that no one should blast out of the trap, or that the person that was spraying should not walk where you don't want the tracks from the material that was left on his shoes. Also always make sure that your spraying equipment is working right, or your gray hair will increase because there seems to be that area of rough or fairway that dies for some strange reason. Oil leaks are also one of those times when gray hair seems to come in abundance. I remember my first oil leak, I tried to pull out all my gray hair that day.

Old Ma Nature, she is always doing it to us, one way or another. Either it's too much water, or not enough, too cold, or too hot. Remember a couple of years ago in Chicago when we had all that snow, and a building or two came down, another gray hair.

Those nice Blue Spruce that were planted next to the ninth green, they are about ten years old now, and just right for someone to take half the tree for their Christmas tree. Those missing trees, or I should say missing half trees are worth as much as the clubhouse fire last week, four new gray hair.

Not only does the crew give me gray hair, along with Mother Nature, but what about the membership. It always seems that they are there too early, or maybe they were at the club too late, having one too many martinis, and you end up pulling their car out of the creek after they missed the bridge. The green-chairman who carries a Stimp Meter, and Soil Probe in his golf bag. Golfers who do not follow the rules or aren't courteous, they are worth some gray hair too. There are always the players who try and see if they can throw the flag stick on each green, and if it sticks all the better. How many ball marks never get fixed, or how many players play from the newly seeded area,

(cont'd. page 9)

WHOLESALE SUPPLIER for



LAKE COOK
FARM
SUPPLY

Landscapers • Nurserymen • Golf Courses

- Turf and Agricultural Chemicals
- Common and Elite Turf Grass Seed
- Union Fork Tools
- Peat Moss — Bark — Mulches
- Root Lowell Sprayers
- Shaws and F.S. Fertilizers

CUSTOM BLENDING OF BULK FERTILIZERS OUR SPECIALTY

Pickup or Delivered from our Bulk Fertilizer Plant
Custom Fertilizer Spreading Available

DISTRIBUTORS OF F.S. PETROLEUM PRODUCTS

GASOLINE • LUBE OIL • DIESEL FUEL



LAKE COOK FARM SUPPLY

**PETROLEUM
DIVISION**
101 E. MAIN ST.
LAKE ZURICH, IL 60047
540-0100

**TURF
DIVISION**
1000 EXECUTIVE WAY
DES PLAINES, IL 60018
824-6665

**BULK FERTILIZER
PLANT**
170 CEDAR AVE.
LAKE VILLA, IL 60046
356-9600

"McGreen
says..."



Vertagreen[®]

Tired of gimmicks?

**Want superior
results at an
economical price?**

**Don't commit until
you have contacted
your local distributor
about our current
Booking Program.**



Agri-Chemicals

Division of United States Steel
P.O. Box 1685, Atlanta, GA 30301

BOYLAN GOLF CAR SALES MIDWEST YAMAHA DEALER

**GASOLINE & ELECTRIC GOLF CARS
AND TURF VEHICLES — FROM 1979**

**WIDE SELECTION OF USED VEHICLES
(as is and reconditioned)**

**LARGE PARTS INVENTORY ON HAND
PLUS ONGOING BATTERY SPECIAL WITH EXCHANGED PRICES**



NEW LOCATION: 1451 E. LATHEM, BATAVIA, IL 60510

Let us hear from you — (312) 879-5670
LARRY JOSEPH or ART DAVENPORT

GOLF COURSE IRRIGATION SALES CO.

Div. of Halloran & Yauch, Inc.
2040 Lehigh Ave., Glenview, IL 60025

**CUSTOM PUMP HOUSE
CONSTRUCTION & REMODELING!
IRRIGATION INSTALLATION
& REMODELING!
GOLF COURSE DRAINAGE SYSTEMS!**

Call Us For Your Golf
Course Irrigation Needs!

(312) 729-1625



COUNTRY CLUB greenskeeper

Professional Turf Products

- Homogenous Granulation
- High Methyene Ureas (W.I.N.)
- Balanced Feeding
- Fits Your Budget

Available
Fall Fertilizers
include:

C.C. 8-4-24
C.C. 13-25-12
C.C. 16-8-8
C.C. 18-4-10
C.C. 18-5-9
C.C. 29-3-5



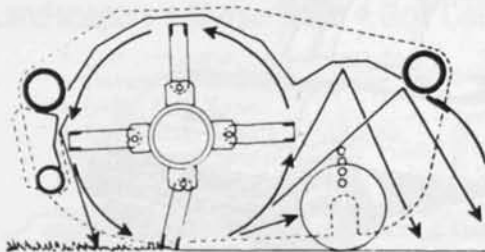
LEBANON CHEMICAL CORPORATION

P.O. Box 647 1-800-637-2101 P.O. Box 180
Darville, IL 61832 Lebanon, PA 17042



Mott Flail Mowers . . .

- Renovating.
- De-thatching.
- Plug breaking.
- Mowing.
- Leaf Mulching.



Southern golf course superintendents have known for years that the Mott's versatility went beyond mowing. Now it's your turn.

Call us for a demonstration!



Martin Implement Sales, Inc.
16400 South 104th Avenue
Orland Park, IL 60462
312-349-8430

Complete Golf Course Construction



DEL KOELPER

DARRELL KOELPER

(312) 259-5827
(312) 359-6427
(312) 537-1770 (SHOP)

ARLINGTON HEIGHTS, IL

(Gray Hair cont'd.)

or what about all those divots that seem never to get replaced.

Driving a golf cart to some of these guys, is like driving in the Baja 1000. Signs are meant to disobey not obey, they have to get close to the ball to see if it is theirs or not, though it might be in a trap. They are tired and need to get next to the tee markers, how about the area where a tow truck was needed to pull the cart out. How many carts have you pulled out of lakes or streams, they just seem to get in the way, and how many clubs has your Pro fixed because a bag fell out of the cart while driving over the bank of a tee or green. Worth a few gray hair!!

I try to prepare the golf course every day so that the rules of golf can be followed, so that the members can enjoy the game of golf. Greens are cut so that ball rolls smooth and true, but there is always someone who missed that short putt, and takes a divot out of the green, or maybe buries his putter into the green, or you may be asked to retrieve that club, that accidentally was thrown into the tall tree or into the middle of the lake on three.

Sand traps are being worked on everyday, so that a fair play can be made. I see the players who have that difficult lie, so what if he moves it a little, or better yet just smooths out the area, no one will know the difference. That same guy, who after he hits his shot walks right through the trap without raking, so that next player can also have a fair play. Who gets the complaint from the player who just happened to hit his ball into a foot print.

I spend a lot of time marking the golf course, does it irk me when I see someone who disregards what I've spent a lot of time doing. I have seen golfers hit their shot into a water hazard, go to the drop area, but that shot is too difficult, it's easier over there, oh well, no one is looking so he throws the ball, not dropping it where it belongs. We line the O.B. area so that there is not doubt whether you may be out of bounds or not, but I have seen so many shots played from out of bounds. It was only a little out of bounds, what does it hurt.

Yes, Gray Hair I have, at least its HAIR, but to me it is all worth it. I am so lucky in that I am doing something that I truly love. There aren't many of us in the world that can say that. I'll put up with being gray and distinguished, rather than dark and good looking!!!

"Autumn"

It's nice to have Autumn's splendor,
To brighten up each day.
With Oktoberfest doing It's part,
Time to dance and play.
What a way to end a Season,
Harvesting such delight.
As Nature's grand display,
Entrances All in sight.
Again We're blessed with Autumn's treat,
Halloween and all.
Putting Summertime to rest,
With the loveliness of Fall.

Kenneth R. Zanzig

insist on the best!
BENT SOD
FOR GREENS & TEES
from Illinois' largest sod grower



- PENNCROSS
- PENNEAGLE
- XL-100 ELITE BLUE GRASS BLEND
- Full line of Landscape Supplies

HEYOD
&
nursery, inc. 

3980 W. 167th ST., MARKHAM, IL 60426
(312) 596-7200

RANSOMES



Excellent for fairway, tees
Catchers available

ASK FOR A DEMONSTRATION NOW!

OLSEN DISTRIBUTING COMPANY
969 N. Pepper Road
Barrington, Illinois 60010
1-312-381-9333



Fertilize Nature's Way with Milorganite

Milorganite will put you in the limelight

Golf courses use more Milorganite than any other fertilizer

Huber Ranch Sod Nursery, Inc.

Route 41, Schneider, Indiana 46376

Complete supplier of all your golf course and landscape needs

- Penncross Sod
 - Penneagle Sod
 - "Executive" blend bluegrass sod ideal for bluegrass tees
 - Milorganite and other fertilizers in bag or bulk
 - Full line of NK Seed, etc.
 - Full line of chemicals, sprayers, spreaders, etc.
 - Par Aide Golf Equipment
- All products are palletized and fork-lift delivered

Indiana 219/552-0552 Chicago 312/641-2898