

The Grass Roots

Vol. XXI, No. 6
November/ December 1993

The Grass Roots is a bi-monthly publication of the Wisconsin Golf Course Superintendents Association, printed in Madison, Wisconsin by Kramer Printing. No part of *The Grass Roots* may be reprinted without expressed written permission by the Editor.

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About the Cover:

Rodney Johnson, the newest WGCSA Distinguished Service Award recipient.

Cover artwork by Jennifer Eberhardt.

December 25, 1927

To the American People: —

Christmas is not a time or a season, but a state of mind. To cherish peace and good will, to be plenteous in mercy, is to have the real spirit of Christmas. If we think on these things, there will be born in us a Savior and over us will shine a star sending its gleam of hope to the world.

— Calvin Coolidge
The White House
Washington D.C.

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(L to R) Mike Semler, Bruce Worzella, Rod Johnson, Bill Knight, Pat Norton, Tom Schwab, Mark Kienert, Scott Schaller and Mike Handrich.

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Late Autumn Notes

By Monroe S. Miller

To some in our society, autumn brings with it a certain sadness. Maybe the blues are brought on because fall signals change—from long, light-filled summer evenings to cold and sometimes brutal winter nights. It serves as a reminder that the toughest season is on the way. Soon when we arise it will be dark and quiet, a stark contrast to the noisy, bright mornings just past.

These people find their spirits dampened by those changes that accompany autumn.

Then there are people like you and me who find their spirits uplifted by the cool and crisp and colorful days of autumn. We like Badger football, Packer Sundays, cool nights, pumpkins, apple cider, fireplace fires and gorgeous leaves.

It's our time of the year. And it comes just in the nick of time when many are on the edge of exhaustion. A normalcy returns, spirits are high, vacations are taken.

Songwriters and poets and writers who see autumn as a time of decline and a time to recognize mortality cannot discourage us. We are, I'm convinced, strong realists if we are nothing else. Our mortality doesn't bother us. It is curious that it may well be our sense of the seasons that has made us ever the realists.

Enjoy the blue skies, red maples and green grass of your autumnal golf course. It is the best time.

It was sad that just about the time the last issue of *THE GRASS ROOTS* was distributed, Professor Emeritus Joe Hickey passed away here in Madison.

The coincidence hit me like a ton of bricks. Professor Hickey was invited to the University of Wisconsin-Madison by Professor Aldo Leopold. Aldo Leopold awarded him a research assistantship. He studied under Leopold for several years, until Leopold died.

Professor Hickey, in fact, took Aldo Leopold's position in the Department of Wildlife Management at the UW-Madison.

Hickey authored *A GUIDE TO BIRD WATCHING*. It was begun in 1942 and is still in print today. Hickey was a distinguished ornithologist, conservation advocate, researcher, teacher and editor.

In the early 1960s, Professor Hickey and his grad students documented the disappearance of peregrine falcons from the eastern U.S. They traced the decline to eggshell thinning, and then linked this thinning to DDE, which is a breakdown product of DDT.

Like so many faculty in the College of Agricultural and Life Sciences at the UW

-Madison, Hickey was dedicated to teaching. Despite untold numbers of prestigious awards, he was most proud of his Chancellor's Award for Distinguished Teaching, given to him in 1976 by the UW. He was a favorite among undergraduate students.

One thought—a quotation, actually—he shared with students was this: "The materials of our bodies are ours only on loan. We have no permanent right to them. They have been used by countless generations of plants and animals before us, and countless generations will have need of them after we are gone."

In the spirit of those words, Dr. Hickey's remains were cremated and buried at the Aldo Leopold Memorial Reserve in Sauk County "where they will fertilized new growths of good oak."

A state senator may seek a law levying fees on citizens who demand information about pesticide use in their neighborhoods.

Commercial pesticide firms (including lawn care companies) are being harassed by self-proclaimed environmentalists who use state rules to demand advance notice of pesticide applications over wide areas.

It's not inconceivable that the same thing could happen to any one of us. The current rules require residents to tell the state they want to know about pesticide applications planned near where they live. Companies are required to supply the information. Those rules were abused when Susan Mudd, state program director for Citizens for a Better

(Continued on page 5)

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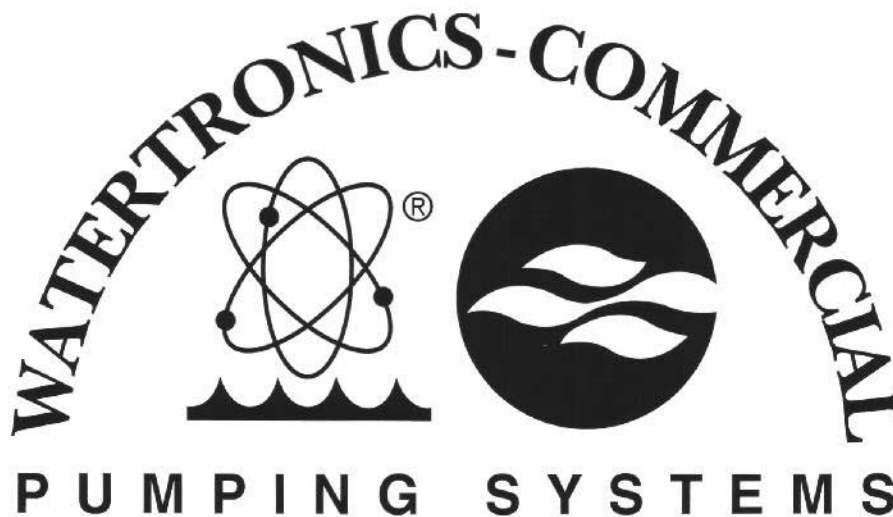
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(Continued from page 3)

Environment, sought information on more than 400 lawns in Milwaukee.

Margaret Farrow, a Republican state senator from Elm Grove, has said she may introduce a bill to charge \$1 to \$3 per address requested under the rules.

To me, that seems like fair and reasonable middle ground. We'll provide the information you pay the state to receive.

It was no surprise, really. The National Weather Service summarized the summer of 1993 this way: "It was like cramming all the severe weather of the past six years into a couple of months."

Besides being remembered for flash floods, floating bogs and saturated soils, the "Summer of '93" won the title of wettest Wisconsin summer ever.

In our town we received a total of 21.49 inches of rain in June, July and August, breaking the 1880 record of 21.21 inches.

If that's bad, then the insult to injury is the dreary fact that the summer of 1993 was the cloudiest summer ever in our town, too. Sixty-six percent of summer's daylight hours are normally sunny. This summer that percentage fell to 50. That's gloomy plus.

We noted here earlier that Dr. George Sledge had retired from the CALS Associate Dean for Academic Affairs position.

A replacement for his has been appointed by Dean Roger Wyse. He is Dr. Richard Burrows, a professor in the Department of Agricultural Economics. He has previous experience in administration at the university (Bascom Hall) level.

Speaking of the UW-Madison, the Chronicle of Higher Education reports that the Madison campus is the fifth largest university in the country. It follows the University of Minnesota-Twin Cities, Ohio State, Miami-Dade Community College and the University of Texas-Austin.

Some long held views fell by the wayside when the AP released results of a survey of most popular and most disliked sports in America.

Baseball, long considered America's favorite past-time, isn't anymore. NFL football is.

Baseball, in fact, followed ladies figure skating and ladies gymnastics!~ There's a myth shattered!

Golf didn't fare very well. LPGA women's golf, PGA men's golf and PGA senior men's golf were the third and fourth and fifth most disliked sports in the U.S.

From my family to yours, best wishes for a warm and cozy Thanksgiving, a Merry Christmas and a prosperous 1994. Cheers! 🍷

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TIME!

By Bruce Worzella



As sand flows through an hour glass and the moon revolves around the earth, my two years as WGCSA president have come to an end. Time keeps moving on.

I talked with Monroe just a few days ago before the article deadline and he informed me that this would be my last president's message. It brought forth an empty feeling.

My nine years of involvement with the WGCSA board have been rewarding, enjoyable and educational. The camaraderie of associates, the vast education offered by UW - Madison per-

sonnel, and the chance to visit and play numerous great golf courses throughout the state have increased my appreciation of a terrific profession. I would not give any of it up for anything.

There are many memories. Along with most of you, I have witnessed a fellow member of our state board of directors move on to become president of the GCSAA. I watched our land grant university construct the best turfgrass research center in the country right next to a new, premier golf course. I saw a golf course superintendent strongly influence new state pesticide laws. And

I participated in a publication that has won numerous awards and is read throughout our whole profession.

Members of the WGCSA can be proud of their chapter. It has never stood still, is always moving forward toward higher goals, and is always elevating member expectations. This could not be accomplished without hard work and devoted individuals.

So in closing, I would like to thank all that I have served with on the board, and especially the membership for the friendly support and the wonderful opportunity. 🏌️

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The Grass Roots

By Monroe S. Miller

Sometimes, in this business of managing a golf course, you get to feeling a little lonely. There is a tendency to think the problems you are having at any given moment are peculiar to you and your course.

That was where my mind was as Field Day approached this past August. I was anxious for it to happen for a lot of reasons, but the main one was to visit with colleagues and learn if they had suffered the shallow rooting I had observed this summer.

Last year—the miracle season of 1992—might have been the only year in my twenty-one as a golf course superintendent that I wasn't occupied with getting a course through to the end of summer with less rooting than you really need. You could call that the annual challenge of August; I call it the misery of August.

This year was tough, and it reminded me of a decade ago—you know, those years before quality aerification equipment and sterol inhibitors and lightweight mowing and clipping harvest and double row irrigation systems with individual head control. In those times the most trouble we had with shallow rooting came on fairway turf. It was a simple matter of magnitude—acres versus square feet.

Green and tee rooting problems were manageable; fairway rooting problems were almost unmanageable. Many of us suffered sleepless nights worrying about grass roots.

Really, one shouldn't have been surprised that rooting depths were so shallow this past summer. These plants that play host to the game of golf have naturally reduced roots at the summer point of their life cycle. Cut the above ground parts short, like we have to do, and rooting is further reduced. Throw twice the normal rainfall and the nearly guaranteed result is what some of us experienced.

Large—even huge—fairway divots were ugly. Ball marks were more frequent and obvious than they normally are. Even the revered creeping bentgrass was barely holding on, according

to some superintendents. An inch of rain, which normally in the summertime relieves the use of an irrigation system for days and days, staves off wilt for only a day or two. The reduced volume and depth of root systems moves an irrigation cycle to a syringe cycle.

It sometimes, in some years, requires a mid-day syringe, much to the distress of golfers. All because of grass roots, or rather the lack of them.

Is it fair to say that often times golf course superintendents spend more time looking at grass roots than grass leaves during a lot of the summertime in Wisconsin? Not only is it fair, it is the truth.

When outsiders think we are worrying about green speed and bunker sand and pythium and mowing equipment and a thousand other golf course problems, we are really worried most about the machinery beneath the greenery.

Agriculturalists (and ultimately a golf course superintendent is a golf course

agriculturalist) have for ages been interested in underground botany, noting that plants strive to expose vast areas to the soil. Although roots have many functions (anchoring the aboveground parts is a major function in the eyes of those of us interested in golf and concerned about puffiness, big divots and more), the most important is nutrient absorption. Since plants are immobile and since many nutrients they need from the soil are immobile, evolution has given roots the ability to branch and rebranch and rebranch some more, just to create an enormous surface area. It generally goes from primary roots to secondary roots to rootlets to root hairs.

For us the job of water uptake by grass plants (rather, grass roots) is critical, and may be as impressive as nutrient absorption. We like to run our golf courses on the dry side and the moisture in the soils that we manage is tightly held as microscopic film on soil particles. That roots are able to collect this

(Continued on page 9)

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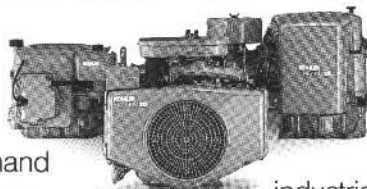
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(Continued from page 7)

is a miracle and more proof of the need of a large surface area.

Root hairs have a huge job, turning microscopic films of water into the gallons of water needed by plants, whether those plants are oak trees, pumpkins or Kentucky bluegrass.

Some of the classic research on roots and their surface areas was done by Dr. Howard J. Dittmer. He was on the faculty at the Chicago Teachers College and at the State University of Iowa. Both institutions have different names nowadays!

Professor Dittmer wanted to quantify the comparison of plants to icebergs, studying how much of a plant is beneath the surface compared to the aboveground parts.

In one experiment he planted a winter rye plant (*Secale cereale*) in a box of soil 12 inches square and 22 inches deep. He grew it for four months; it was 20 inches in height and consisted of a clump of eighty shoots.

Dr. Dittmer carefully washed the soil from the ryegrass root system and measured it. He added the lengths of the roots together (EXCLUSIVE of root hairs) and came up with 387 miles. The surface area exposed to the soil was 2,554 square feet. When he included the root hairs, the numbers absolutely exploded—7,000 miles in length and 6,500 square feet of surface area for the entire plant. The root hair count was estimated at 14 billion!

For reference, he measured above-ground parts and the surface area of that same ryegrass plant was 51.4 square feet. No contest; plants ARE like icebergs!

Other experiments confirmed the ability of roots to develop huge surface areas. In a different approach, Dittmer (who worked with grasses and beans) must have established official records on a cubic inch basis—a certain species of grass grew 4,000 feet of root hairs in that cubic inch of sandy soil!

A soybean, in contrast, had only 47 feet of root hairs in a cubic inch of the same growth medium.

Speed of growth is another feature of root growth that has been measured in grass plants. The roots (not counting root hairs) of a plant of wild oats grew 54 miles in 80 days. The roots of a crested wheat plant grew 315 miles in three years! Stay out of the way! Corn root (another grass) growth has been measured at a rate of two inches per day for three or four weeks.

The magnitude of the number of root hairs is totally impressive, too. It has been estimated that the root hair-bearing portions of the common pea plant can have 1,400 individual hairs on every 1/100 of a square inch of surface.

When one starts using numbers to put a perspective on roots, you can begin to gain a feeling of how critical they are to plant health. It becomes less of oddity that golf course superintendents and faculty who study our prob-

lems are interested in things like rhizotrons, phosphorus fertilizers, soil sampling tubes, aerification equipment, root diseases, nematodes, root-feeding insects, rootzone mixes, soil bulk density, and on, and on.

Plant health depends on good roots. So does the good health of golf course superintendents. It all goes to prove that grass roots can have a double meaning, even for a loyal editor! 🌱



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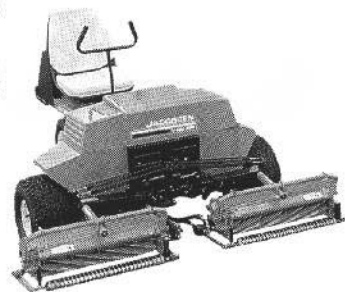
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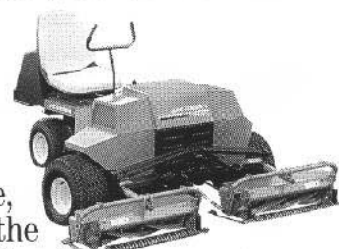
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