# The Grass Roots

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#### About the Cover:

"The Wisconsin Golf Course Quiz — What Am I Looking At?".

Cover artwork by Jennifer Eberhardt.



"It was mid-spring. Everywhere was the vivid green of the Wisconsin landscape; the slopes were like carefully tended lawns, without stumps or stones; the groves rose up the hills, pink and gray and green in softly rounded billows of cherry bloom and tender oak and elm foliage. Here and there under the forest tender plants and flowers had sprung up, slender and succulent like all productions of a rich and shadowed soil."

#### - Hamlin Garland

from "Other Main-Travelled Roads" 1887. West SaLem, Wisconsin

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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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#### The Editor's Notebook



### Will We Ever See Spring Again?

By Monroe S. Miller

If I haven't learned anything else in two-plus decades on golf courses and a rural upbringing, I at least now know that nothing is predictable on either a golf course or a farm.

That is especially true in the winter and in the spring in Wisconsin. *Que sera sera* — if something happens, it happens. And it is frustrating because in the wintertime there is little we can do to change it. Neither can we in a spring like this one.

The winter of 1992-1993 was one of the ugliest and most miserable winter seasons in my memory. And one of the longest.

The worst of the weather came after January 1st and didn't let up through the dark, foggy, wet, snowy days of late March and early April. In fact, on March 31st a record breaking 1.5 inches of rain fell in Madison, followed by a blizzard we won't soon forget on April Fool's Day. Easter Sunday brought lots of snow in the northern half of the state.

On some courses in our area, there were six and more inches of ice on putting greens from the radical temperature drop on January 5th.

A number of course managers modified coring machines, broke through some of the ice and pushed it off the greens. There were subsequent snow plowings of putting surfaces — there's a photograph to look at on August 1st — and topdressing to help remove ice.

Unfortunately, in my opinion, much of the damage was done on January 5th. Turf submerged in several inches of ice for several days and then subjected to such rapid and severe temperature change has little chance.

And we cannot do much about circumstances like those. But if there was ever a winter when I've seen golf course superintendents do more things to help the turf, I don't recall it.

Many have turned damage into opportunity and extensively overseeded in hope of introducing more tolerant and winter hardy species into those damaged areas.

Before any of that could happen, we all had to wait, in April, until the moun-

tains of snow melted and the neverseen-before golf course ponds slowly receded.

The going has been slow and sloppy this spring. I've noticed, however, that springtime problems are easier to deal with because of the longing most of us have had to get out of doors.

Despite problems, there is something refreshing about this plain, no nonsense time. It reintroduces us to a condition many others do not face very often — reality.

It is good to have one's life punctuated by seasons, to know that things do change and that we cannot always influence the outcome. And it is important to see our life's routine bear some relationship to the elements.

Golf course superintendents have to learn, at an early career age, to live with the weather and accept it. Good or bad.

But I'll always enjoy a good spring much more than one like this one of 1993.

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I have a question for Randy Nichols, new president of GCSAA: when do you write your president's message, anyway? Your observation, Randy, about the "huge" crowd at the Environmental Session held at the conference in Anaheim goes way past simple exaggeration.

It just plain wasn't so. In fact, everyone I know who was there characterized the audience size with adjectives and phrases like small, puny, poorly attended, disappointing and embarrassing.

I didn't actually do a head count, but I'd be surprised if 300 were there. GCSAA will boast about an attendance of 16,000 at the conference. That makes the turnout at the environmental session even worse.

Senator Metzenbaum was also openly disappointed, to the point of appearing disgusted.

Saying the crowd was huge will not make it so. That is why I have to believe, Randy, that you expected it to be like the session from the previous year. THAT was a huge crowd. And as an editor, I know about deadlines.

But meeting a deadline should not be done at the risk of credibility. And if the GCSAA needs anything right now, it needs credibility.

Give it to us straight, please. We can take it. Silly overstatements like this one are insulting. We simply are smarter than that.

An article in the March issue of "Farm Futures" magazine was less of a news feature and more of an affirmation.

The article reported on a survey of deans of the nation's agricultural schools. The survey listed the University of Wisconsin-Madison as one of the top ten in the country. No surprise there.

The survey also gave credit to the faculty and administration for joining the agricultural sciences and the life sciences, affording the College the chance to do more applied research in the area of biotechnology and animal science. In most universities, the two are separate.

In fact, I've even heard discussions about including botany and zoology into CALS from L&S.

The article said, "Wisconsin is a leader in biotechnology, biochemistry, molecular biology and dairy science."

It also pointed out that the tuition for attending CALS at the UW-Madison was lower than all but three of the other top ten schools.

It is always nice to see this kind of recognition from elsewhere in the U.S.

#### •

Speaking of CALS, through the courtesy of Dr. Roger Wyse I have some very interesting figures to share with you.

Legislators like to attack faculty over the issue of teaching. They claim too many college professors are interested in research at the expense of classroom teaching.

Any graduate of the UW-Madison College of Agricultural and Life Sciences knows that isn't true. So does Dr. Wyse. But he also knows the value of documentation.

So he searched the College's enormous data bank and found that 88% of all CALS faculty members teach, regardless of their salary source. The term "faculty" means professor—full, associate or assistant. How lucky CALS students are lecture classes are predominately taught by full professors. And as is well known, many of these are world class scientists, members of the National Academy of Science and other prestigious organizations.

I can't speak about other colleges and schools within the UW-Madison. But accusations about teaching loads and work schedules are NOT born out by the facts when it comes to the college that houses the departments our golf turf industry depends on.

For that we can be grateful. The following graphics tell the story.





Dr. Gordon Harvey, weed science professor at the UW-Madison Department of Agronomy, has noticed a significant increase of herbicide resistant weeds in Wisconsin. This trend of increased resistance is coming at a time when development of new herbicides is dramatically dropping off. Although the resistance is greatest with herbicides we don't use, it is nevertheless a development worth watching. It also puts more emphasis on the need for more sophisticated alternatives.

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He never seems to miss a chance to make some money. So it shouldn't be a surprise that Arnold Palmer is involved in a new radio station that will offer 24 hours of golf broadcasting.

It will cover more than just tournaments. Most interesting to me was the plan to offer extensive interviews with the tour players and the great players of the past.

The best interview they'll ever have will be with Arnie himself.

I had to chuckle at the contradiction. We were visited in our shop by one of our favorite people who represents one of our turf equipment distributors. Travelling with him was a manufacturer's representative, also a fine person.

What was funny is the manufacturer's rep was introducing a plant growth regulator, presumably to reduce the amount of mowing one might have to do on the golf course.

You guessed it — the distributor's rep was selling...mowers!

And fertilizer!

What a business we're in.

A golf course, in many ways, reflects the experiences of the superintendent who is managing it at any given time. Some reflections are subtle; others are a little more obvious.

Take trees, for example. I've tended, over the years, to plant a preponderance of trees native to this part of Wisconsin. My interest has been especially strong in oak varieties. But you also will find trees like sugar maple, shagbark hickory, walnut and butternut. The numbers of them aren't great, but we have some.

One of the wild crops we used to harvest on our farm in southwestern Wisconsin in the autumn was nuts hickory nuts, walnuts and butternuts.

The hickory tree, in my opinion, is a very good golf course tree — good form and shape, spring interest and fall color.

Butternut and walnut are less that way, but do add to the interest of landscape with the nuts and pretty decent fall color. Members and others, by the way, harvest almost all the crop these trees produce each fall. So I am distressed to learn of how serious the canker problem has become with the butternut trees of our state.

I have lots of company, too. Wisconsin has more butternut trees than any other state, about 58% of all such trees in the country.

The fungus that is attacking butternuts was first detected in the 1960s. A recent WDNR survey revealed that 91% of the Wisconsin butternuts are infested. The few I have planted are still OK.

Some fear that if something isn't done soon, there will be no more butternuts in the future.

Once again, our land grant university has led the way with understanding this disease. It was first discovered by Dr. Jim Kuntz, who was a colleague of Professor Gayle Worf in the UW-Madison's Department of Plant Pathology.

Professor Kuntz is especially worried about the butternut canker. He, too, likes the tree, calling it "one of the superior, aesthetically valuable woods — on a par with Eastern black walnut. But the grain is much more evident."

He is also worried because the butternut canker is killing trees. Many trees get cankers, but few die from the disease. Dr. Kuntz started a research program studying disease-free butternuts before he retired in 1984. The USDA Forest Service picked up the work some time after that.

In its recently published "Forest Health Report", the Forest Service called the butternut a "decreasing component" of northern hardwood and oak-hickory forests. It seems to think the butternut is a "threatened" species.

The report concluded "severe losses throughout the range of butternut are threatening the survival of the species, as the disease continues to spread."

We have to hope that, somewhere, there is a resistant tree that will protect us from losing the butternut from our landscape.

Finally, on a lighter note, one had to enjoy a quote from the Wisconsin Revenue Secretary, Mark Bugher.

Playing on Clinton's unwillingness to call a spade a spade (or a tax a tax, like the ones that will soon be foisted on the middle class), Mr. Bugher recently told the Dane County Republican caucus that his Revenue Department title should more appropriately be "secretary of contributions, sacrifice and investment!"

#### President's Message



As we venture out to our golf courses during the spring thaw, the threat of having damaged or, worse yet, dead turfgrass leaves a horrible feeling in our stomachs. All the maintenance practices that we do to prepare the courses for winter time, can be cancelled by some abnormal weather circumstances.

This is when good communication is needed. So is some understanding from golfers. Reading good articles, reviewing our own past experiences, conversing with peers, and being able to explain what may have happened, helps sooth that terrible feeling. At that point, you hope the people listening have some confidence in you and agree that you have done everything that could be done to protect grass from winter damage.

It is always easy to blame the weather, but explaining related factors such as old design problems and soil conditions is more difficult to get across. This is where positive communication with the concerned parties can do the most good.

Personally, this part of my job responsibilities does not always come easy. My guess is there are colleagues who feel that way too. We are human and enjoy success, but dread disaster.

On a different note, make sure you observe the changes of our monthly meeting agendas. Education at these meetings are scheduled at different times throughout the year. Take advantage of this important aspect of our meetings; Be sure to double check your notice.

I wish everyone a great start to the 1993 season and encourage you to support the superintendents who are hosting one of this year's meetings.



### **Opening & Closing:** "The Preparation" is a Big Success!

Northern Great Lakes GCSA raises \$3,000 for turf research!

By Dean Musbach

The Northern Great Lakes GCSA hosted the "Fourth Annual Turf Symposium" on Monday, March 8th, at the Holiday Inn in Rhinelander. The event began Sunday evening with a hospitality room. Sixty-five attendees showed up for food, drinks and conversation. A new attendance record was set with 117 registered.

Northern Great Lakes President Dean Musbach moderated the event that included many excellent speakers.

The morning session included: Dan Quast of Medina C.C., Tom Emmerich

of T.J. and Associates, and Wayne Kussow, Julie Meyer and Frank Rossi from UW-Madison.

The afternoon session included: A panel discussion including, Randy Witt of Oneida Golf & Riding Club, Jeff Bottensek of Stevens Point C.C., Steve Schmidt of Butte Des Morts G.C., and Scott Schaller of South Hills C.C. Jim Latham of The USGA Green Section concluded the event.

At the completion of the educational session, a test was administered to superintendents for GCSAA CEUs.

The event met the new GCSAA standards for CEU accreditation and was worth .5 CEUs.

A raffle closed out the event in which many nice prizes, donated by distributors and company representatives, were given out. All proceeds from this event will be donated to turf research.

This was the most successful symposium to date, and Northern Great Lakes GCSA is pleased to announce that \$3,000 was raised for turf research.





**Tree Leaves** 

By Monroe S. Miller

A while back I filled this space with some thoughts, experiences and reading about lightning.

As happens so often, thinking and writing about one subject that concerns a golf course superintendent leads to questions about some other subject.

This time the subject of lightning led to critical trees on a course and how some golf course superintendents provide those trees with some lightning protection.

That subject of trees and lightning led to a search for some information about which trees were more vulnerable to lightning damage, and why.

Before I knew it I was reading botanical literature about moisture content of wood, bark texture of various tree species and some very interesting things about tree leaves. In fact, the reading about tree leaves was almost spellbinding.

It's pretty difficult to be a course manager and not have at least some interest in tree leaves. Our northern golf courses don't really look like they should until their trees are fully leafed out in the springtime. The leaves themselves are as much of the hazard a tree offers as the wood skeleton.

Around here there isn't a superintendent who isn't well award of how much it costs to keep a golf course playable and to clean up the annual leaf drop at season's end.

For me, once a year tree leaves describe what I do, along with hundreds of thousands of others who vacation in New England. We are called leaf-peekers and spend most of a vacation immersed in the beauty offered by the tree leaves of that little corner of the world. There is nothing prettier in any landscape anywhere.

The studies that caught my interest concerned the response of tree leaves in the rain. Frankly, I've never paid any attention. The times I'm on the course and rain begins, I usually head in for the shop, with my eyes down, watching for standing water. My inattentiveness has cause me to miss one of nature's small scale spectaculars.

Many plants in warmer regions than Wisconsin use their leaves as rain collectors. Leaves in climates like ours, where moisture availability seldom limits tree growth, have evolved not to collect water but rather to drain it from their surfaces.

In fact, if the rain didn't run off, the leaves would become less efficient collectors of sunlight. Additionally, leaves and limbs would be more prone to damage because of the weight of the collected water.

Ask any golf course superintendent who lived through Wisconsin's great ice storm of March 4, 1976. It took weeks to clean up all the wood brought down because of the weight of the ice. Areas went without power for up to a week.

That damage came despite the lack of leaves. I once was caught in the mountains of New England when an early autumn snowstorm came through, dumping a foot and a half of snow. The weight of the snow held by leaves and limbs was tremendous; so was the damage to the trees. Usually, the damage to evergreens is greatest, for obvious reasons — needles.

In fact, one of my big worries with all the rain we had at our course last winter between Christmas and January 4th was tree damage.

The impact of thousands of pounds of water (or ice) can, as many veteran golf course superintendents can testify, dramatically bring entire trees crashing to the ground.

It should come as little surprise, then, that leaves on our trees have evolved to shed the rain that falls on them. These adaptations are largely intended to overcome surface tension — the attraction between water molecules that gives water drops their cohesiveness. Surface tensions allows drops of water to stick to surfaces like leaves. Water that does drain to the edge of a leaf will hang there as pendulous drops, the attraction of water molecules for each other and the leaf (the forces of adhesion and cohesion are well known to Soil Science majors at the UW-Madison!) fighting against the force of gravity.

If the edge of the leaf was round and very smooth, several drops might form at different spots around the leaf. But if you look at tree leaves closely, you'll find that many come to sharply pointed tips. In our state, basswood, elm, cottonwood, birch, ironwood and many other tree and shrub leaves have very pointed tips.

Other trees, like maple, red and black and pin oaks, hickory and ash have more than one tip on each leaf. When it rains, water droplets accumulate at these tips, gradually forming large drops that fall more quickly and easier than would several smaller drops. Thus, the leaf tips help trees shed water.

The way leaves respond to rain affects what we experience when we run beneath a tree for shelter. Because the drops from leaf tips must be heavy enough to overcome surface tension, we find fewer but larger drops falling under trees during a prolonged rain than in the open.

When wind blows through the tree, it breaks loose drops that aren't large enough to fall on their own, producing a shower to passing golfers or crew members. And, as you'd expect, trees continue to drop water for some time after a rain stops as water drops gradually make their way to leaf tips and the breezes shake them free from the tree.

Interestingly, not all of a given leaf surface slopes toward the tip. Some leaves form a shallow arc with areas far from the base sloping toward the tip and areas near the base sloping down to the petiole. Drops of water therefore also accumulate where the leaf joins the petiole and when surface tension is overcome by gravity this water runs down the petiole, branch and eventually down the trunk. This forms what hydrologists call stemflow.

(Continued on page 9)



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#### (Continued from page7)

On a smooth trunk tree, stemflow can be quite significant. A study from Germany that I read about found that 15 to 18 percent of the rain falling on a beech forest reached the ground by flowing down the trunk! Try this some time for proof: during a rainstorm place one of your fingers against the trunk of a birch or young linden. You will see a small puddle of water form above your finger guite guickly.

On trees with a coarse and rough bark, more water is needed to wet the bark before stemflow can occur. Once it does begin you will often see water dripping off of the rough areas and surface bumps.

Despite these various mechanisms for moving water off their leaves, trees still catch a lot of the water falling on them. Somewhere between 15 and 25 percent of the annual precipitation falling on a mixed forest of hardwoods and evergreens will remain on the leaves and needles, eventually evaporating into the atmosphere.

From this discussion it is pretty obvious that trees are important in efficient use of rainfall. The interaction between trees and rain slows the water coming from far above. It first reaches tree tops, drops to lower limbs and branches and makes its way to the ground. On our courses, the turf under the trees further reduces the droplet force and that decreases erosion and runoff even more while it increases percolation into the soil.

Contrast this with water drops hitting bare soil from thousands of feet up. The sudden splash created can mobilize soil particles, making them available for erosion.

The difference between dripping to the ground from a mile high cloud and from the leaf of a grass plant speaks volumes to the value of trees and turf in the urban landscape.

Tree leaves and their interaction with rain is yet another of nearly limitless wonders of nature golf course superintendents can observe and appreciate.

All we have to do is look up when it is raining!

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