Continued from page 23)

Minnesota is banning the use of mercury in 1994. This is terrible news for northern golf courses. There is a definite need for an effective alternative to mercury and it is needed now. If an alternative is not found, the spoiled American golfers will need to lower their standards.

Wisconsin finally has a permanent research facility that will benefit all turfgrass managers, but it will not eliminate the need for field research. If a real replacement for mercury is to be found.

it must perform under the extreme conditions of the snow belt.

I think everyone agrees that winter can be devastating to turf. Spring can be especially stressful for superintendents because many times they receive the blame for winter kill. One observation that I have made since moving to the northwoods is that golfers here expect winter kill. Unlike many golfers in southern Wisconsin, golfers here do not hold superintendents accountable for the weather. In fact, when the course comes through the winter

with minimal damage, they consider the superintendent a savior.

It is obvious that all golf course superintendents in Wisconsin have the same concerns about winter. Without question, sound cultural practices, modern technology and human ingenuity are the keys to success.

I have learned much from my innovative colleagues in the north. I think superintendents in the northwoods have been and will continue to be in the forefront of winter turfgrass management. Climate and location dictate this.

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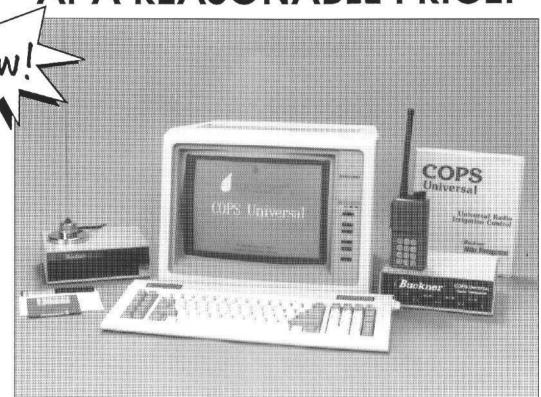
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# The Shop—Home Away From Home

By Monroe S. Miller

There is no place quite like it. For me and a lot of my friends who are golf course superintendents, there aren't too many other places we'd rather be than in our own golf course shops.

A shop certainly doesn't compare with home or the golf course itself. But on the other hand, it is much better than "the office" so many people work in. It is rarely that I say to Cheryl, "I'm going over to the office."

Ah, the shop. Why is it we all like these places so much? Why are we so interested in them?

What inspired Bob Erdahl to write so many thousands of words about Wisconsin golf course shops? Could he have done that if his shop was no more than a 10' X 10' office?

I doubt it. These places, where we spend nearly as much time as we do on the golf course, have some universal appeal that nearly everyone who has ever been a golf course superintendent can relate to and appreciate.

This will probably get me crucified, but one well of appeal as far as I am concerned is that the shop is a man's place.

As a rule, shops are big; they have lots of room to move around in, room you do not find at home or that your neighbor cannot find at his office.

A shop is filled with all sorts of things men like, things like machinery and tractors. Shops are loaded with tools wrenches and table saws, drill presses and compressors. They have everything the world's most serious handyman would love to own and cannot because of space and money limitations. And aren't we lucky because we know how to use them all. Whether you know it or not, your shop is the envy of neighbors and friends and family!

A shop is a place where you can go and be yourself-no false airs necessary. If you rap your knuckles, you can go ahead and say whatever words come out! You can play the radio as loud as you like and listen to whatever station or cassette tape your heart desires. You can't do that at home, and your neighbor cannot do that in the bank where he works.

Most golf course shops are comfortable to us because they are symbolic of a corner of the world we control, a place that is ours. Shops usually, in fact, are a reflection of the golf course superintendent himself. If it is neat and clean and organized, chances are pretty good that the golf course is also. "Well run shop equals well run golf course" is a truism more often than not.

One is almost always comfortable in a place he is familiar with, and the amount of time spent in the shop surely leads to familiarity.

For some of us, a shop and its significance in our life goes back to youth. I quite agree with Bob Erdahl and his survey observations about the many dairy barns used for years as golf course shops; his comments addressed their inadequacy for this alternative use. He's right, of course.

But at least part of why I like the shop and like being in it is because I had the same feeling about the dairy barns on our family farm. When I was a kid, a lot of hours-free hours-were whiled away in one of those barns.

A lot of other hours were spent in those barns working, just as in my shop of today. A dairy barn was really busy twice a day—milking time in the morning and in the evening. A shop has its peaks, too.

The barns I grew up with had a key feature every shop has-a radio. Granted, back then it was an old dusty bakelite tube radio that went on when the light switch was turned on, and not a new, small AM/FM Cassette model like we now have. Even today, I like the Philco radio better than a Sony.

In those days the programs I most liked didn't have much music-Gunsmoke, the Jack Benny Program, The Lone Ranger or Dragnet. Our barn was where I went to listen to Wisconsin football games in the fall; the Badger basketball games in the winter.

Listening to the "television of the mind" created images of news reporters and commentators not seen on television in the 1950s. Often the best way to spend a quiet, lazy summer Sunday afternoon was in the barn listening to the great Milwaukee Braves and imagining the heroics of Adcock, Aaron, Mathews, Spahn, Burdette, Burton and the rest of that great team. Nowadays, I might find an assistant waxing his car in the shade of the shop on a summer Sunday afternoon, listening to the Brewers on the radio. Different time, different players, same script.

A barn had many other familiar sounds; its residents provided the most

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familiar. The sound was a comfortable blend of cows and calves, cats and sometimes kids. You could hear the cows' rhythmic chewing of hay, the clatter and bang of stantions, and the steady pulse of the milking machines at milking time. They were all very comforting.

Stop and listen closely in your shop sometime. You will find, as I have, that it has a chorus of sounds found nowhere else—laughter, greensmowers, a compressor, clanging wrenches and the big furnace blast. Every shop has creaking doors and pipes that rattle. I'll bet those sounds that you know are peculiar to your own shop and probably reassuring and comfortable to you.

All three of my daughters have, on innumerable occasions, commented on the smell of the shop.

Often I stop at the shop on the way home from church in the winter and run in to make certain the furnace is working or to pick up something from my office. It usually only takes me a couple of minutes.

But the instant I get back into the car and close the door, one of the girls pipes up with "you smell like the shop!"

They do not imply it is a bad smell, just distinctive. In fact, when Christie comes into the shop with me, she frequently stops as soon as she is in the door, draws a deep breath and lets it out slowly and says, "Boy, I like the smell of the shop, Dad."

It is a difficult aroma to describe—a mixture of gas, oil, machines, fertilizer and paint, I guess.

Whatever it is, that smell will be with her forever. The smell of a dairy barn will be with me forever, distinctive and pleasant. I liked it—an aroma of animals, hay, feed and wood. And, like Christie, I also love the way my shop smells.

Unfortunately, the modern shops of today are looking more and more alike. Almost all of us build rectangular metal buildings. Pretty boring architecture.

Architecture is another one of those things I love about rural Wisconsin barns. I was really lucky when young because I had an uncle whose farm had a round barn. What a unique and fascinating building that was.

Bob Erdahl and Carl Grassl are in situations that required their new shops NOT look like most of ours do. I readily admit I'm jealous. Their buildings have a style and shape that set them apart, just the way Wisconsin barns used to be.

The only two characteristics of a Wisconsin dairy barn that I was able to design into our shop during its planning were a loft and a site that was dug into a hillside.

Most barns had the better part of three sides into a hill, leaving one side exposed. It was a practical design for a couple of reasons. This feature let you drive implements into the hay mow area at a ground level, which in turn made the unloading of hay and grain a lot easier. It also let you use that drive for equipment storage for part of the year.

A barn built into the hillside meant, for practical purposes, that the milking was done in an exposed basement. This made for a very warn parlor in the winter and a very cool one in the summertime.

The other old time feature my shop has is a loft, albeit a partial one.

A barn loft was one of the greatest places on a farm. It was a great cathedral kind of place; you had to tip your head way back to see the peak. Light streaming in through cracks between the boards created an eerie atmosphere at times.

When the loft was full a hay you could climb to the very top and rest against a roof rafter and touch the ridgepole. A look down the ladder/haychute into the lower barn scared the living bejesus out of a kid. We would knock off wasps' nest, scare the pigeons out and dangle our feet over the edge of the stacked bales of hay.

So I was able to get a partial loft built into our new shop. It is weak in comparison to a barn loft, but a fairly reasonable compromise. The guys who spend many winter hours there like it a whole lot—it's warm, cozy and somewhat isolated. It is kind of quiet—a wonderful workplace when you need some solitude.

Those who concern themselves with status, whatever that really is, prefer to call the shop by some other name. I've always found that curious, but never as much as when I overheard two club directors in a conversation. One is a lawyer: the other is an accountant.

The attorney asked the CPA something about "his shop". My ears immediately perked up.

"What in the world are they talking about?", I wondered, nearly aloud.

He used "shop" a couple of other times and I finally figured out that what he meant was "office"!

Some of our guys are avoiding the word "shop" and here were two other professionals using the same word, very comfortably.

Fact is, neither a law office nor an accountant's office is a shop. They are too small, too clean, too quiet, too sterile, too restrictive, too boring, too sophisticated and too refined to ever qualify as a "shop". Nice try, but it doesn't work.

I'm the one who works in a shop, who relaxes in a shop, who even recreates in his shop. What a place—home away from home.

I think I'll head over there right now.

In Rembrance of

# Karl Junginger

November 30, 1991

Karl was one of America's greatest plantsmen and spent his life's work at McKay Nursery. He was known for his generosity, his kindness and his intellect. Those who knew him will miss him.



## A LOOK AT THE NEW ONES

By Monroe S. Miller

We have, in the past year, taken a fair amount of time looking at golf course maintenance facilities around Wisconsin. Starting with Bob Erdahl's excellent (and exhaustive) two part series last year, continuing with Carl Grassl's Blue Mound meeting and speech about his new shop and wrapping



Good design at Blackwolf Run allows for the storage of a tremendous amount of equipment.

up with a few personal thoughts in this issue's JOTTINGS, the subject has been well covered.

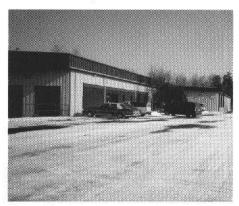
Thanks to cooperators noted here, take a look at the photos for a look at the newest and best shops in our state.



Bob Erdahl's new building at North Shore reflects it's very urban setting and concomitant zoning requirements. It is flanked by the barn it replaces and also some very expensive homes. This shop looks like a very nice stable. Ilike to call this beautiful building "the Yuppie Shop" (because of it's appearance, not Erdahl's status!)



The new building at Blue Mound Golf & Country Club has what Carl Grassl and Mike Lee have—class. No details left out here.



The earliest of the new generation of shops was probably the one at SentryWorld. Ten years later, as shown here, it's still an excellent facility. Thanks to Gary Tanko for the pics.



One of the really impressive things about the SentryWorld facility is it's enormity. This is a look at one little corner.



The shop that Marc Davison works from at Blackwolf Run is fantastic. Not only does it have a greenhouse, as shown here, but careful site planning kept it out of obvious view from the golf course.



#### SURVEYING THE NATIONAL SCENE

By Monroe S. Miller

The scope of this survey is quite limited. All questions were asked in New Orleans and presented only to those WGCSA members attending the 63rd GCSAA Conference and Show.

It's a little unfair in that regard since many WGCSA members are unable to attend the National.

However, this annual meeting is very valuable to those who chose to attend, and they have strong feelings about many aspects of it - good and bad.

This happens to be a good year for the subject under consideration. Since Bill Roberts is GCSAA president and since he is a WGCSA member, its entirely possible he will read this SUR-VEY. Few are in a better position to make changes.

Read on, Bill.

1. How did you get to New Orleans?

Airline 29 Train 5 Car (or Truck) 9

2. Did your spouse come along?

Yes 18 No 25

3. Did any of your children come along?

Yes 4 No 39

4. Are you here at company expense?

Yes 41 No 2

5. How long are you staying?

3 days or less 3 4 days 15 5 days 11 6 days 3 7 days or more 11

6. Did you play in the GCSAA tournament in Jacksonville?

Yes 4

7. Did you stay in one of the hotels

recommended by GCSAA? Yes 38 No 5

8. Are you continuing on from New Orleans for a vacation?

> Yes 6 No 37

Are you concerned about how expensive it is becoming to attend the GCSAA Conference?

Yes 31 No 12

10. Do you consider New Orleans a favorable or unfavorable site for this annual meeting?

> Favorable 17 Unfavorable 26

The results are self-explanatory. Most (me included) didn't like New Orleans and therefore didn't bring family with them.

The length of stay was pretty much determined by attendance at a one or two day seminar.

Although not reflected in the SUR-VEY results printed here, those concerned about the cost were emphatic in their feelings. The fear is that the National is moving beyond the financial reach of some of our members.

When the subject of cost was introduced, those playing in the tourney were livid. I don't have personal experience with the event, but it was clear the participants were very upset over the level of spending reached by it.

Questions about spouses, kids, and New Orleans almost always brought up the fact that WGCSA members are anxious to return to Orlando, San Francisco, or Anaheim. They feel safer in those places.

I'd guess most, then, are anxious for 1993 to get here.

Hollywood, here we come!

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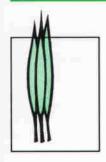
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# Mowing Height and Vertical Mowing Frequency Effects on Putting Green Quality

by Tom Salaiz

Upon reading the title to this column, some of you are probably saying to yourselves, "Gee, I didn't realize they were already doing research out at the Noer facility; I thought the place was just completed last year."

Well you're right. The research I will be sharing with you in this column was work I conducted at the University of Nebraska-Lincoln while working on my Master of Science Degree.

The purpose of my research was to evaluate the effects of mowing height and vertical mowing frequency on putting green quality. Many cultural practices are involved in managing creeping bentgrass putting greens. Developing a greens management program that will maintain adequate putting speed yet produce a healthy turf is a difficult task for many golf course superintendents.

There are many cultural practices involved in the management of greens, and some of them such as mowing height, if altered to increase putting speed, may be detrimental to the health of the turfgrass. Research is lacking not only in determining the effects of cultural practices on putting quality, but also in determining their effects on the turf microenvironment and how a turf responds to such changes.

Knowing which cultural practices optimize putting green quality and maintain a healthy turf will help the golf course superintendent develop a sound greens management program. Part of such a program may involve raising the mowing height to improve the physiological condition of the turf and utilizing vertical mowing to enhance putting quality. This hypothesis formed the basis for my research.

The study was conducted on a Penncross creeping bent-grass green established in 1986 at the John Seaton Anderson Turfgrass Research Facility located near Mead, Nebraska. Data was collected from June 1989 through October 1990. Light sand topdressing was applied biweekly. The study site was not aerified due to potential interference with thermocouple wires located 1 inch beneath the soil surface. Fertilization was applied to the test area at 4 lb N, 2 lb P, and 4 lb K per 1000 ft-2 per season, using urea, treble superphosphate, and potassium sulfate as the sources of N, P, and K, respectively. Urea and potassium sulfate were applied in 16 applications from April through mid-November. Treble superphosphate was applied in four applications, two in spring and two in fall. Daily irrigation was based on a three day replacement of 80% potential evapotranspiration accumulated over the previous three days.

Mowing height treatments were 1/8, 5/32, and 3/16 inch. The study was mowed five to six times per week and mowing direction was changed daily. Vertical mowing frequency treatments were 0, 1, and 2 times per month. Vertical mower knife spacing was 0.5 inch, and the depth was set so that the knives entered the canopy surface only, providing a groom-

ing affect. It is important to keep in mind that actual vertical mowing gangs were used, not true grooming units. Mowing height and vertical mowing frequency treatments were arranged so that all possible treatment combinations were studied.

#### **Turfgrass Color and Quality Ratings**

Color and quality ratings were taken every two weeks in 1989 and more frequently in 1990. Color ratings were based on a one to nine scale with 1 = straw brown, 6 = light green, and 9 = dark green. Turfgrass quality ratings were based on a one to nine scale with 1 = poorest, 6 = acceptable, and 9 = best putting green quality. Uniformity, density, texture, growth habit, smoothness, and color were taken into account in making turfgrass quality ratings.

#### **Putting Speed**

A Stimpmeter was used to give an indication of putting speed by measuring the distance of ball roll. Distance of ball roll can then be related to putting speed. The United States Golf Association (USGA) has conducted extensive research on the Stimpmeter. They have evaluated Stimpmeter measurements on golf courses throughout the United States, including championship courses. From their research, general ranges for putting green speed have been determined (Table 1). In my research, two measurements were taken in each of four directions on each plot. The eight measurements per plot were averaged and recorded as the putting speed for that day.

Table 1. Reference chart relating Stimpmeter measurements to speeds for membership and tournament play.

Relative green speed	Stimpmeter Measurement			
	Member (m)	ship Play (ft.)	Tournan (m)	nent Play (ft.)
Fast	2.6	8.5	3.2	10.5
Medium-Fast	2.3	7.5	2.9	9.5
Medium	2.0	6.5	2.6	8.5
Medium-Slow	1.7	5.5	2.3	7.5
Slow	1.4	4.5	2.0	6.5

From: Hoos, D.D. 1982. The green section's Stimpmeter: Most think friend-some think enemy. USGA Green Section Rec. July/Aug. 1982. pp. 9-10.

#### **Rooting Distribution**

To evaluate treatment effects on root distribution, six soil core samples per plot were obtained three times during the season. Each 12 inch soil core was divided into three 4 inch sections in 1989 and four 3 inch sections in 1990. The core samples were hand washed to remove all soil, and the remaining roots were dried and weighed.

#### Soil Temperature

Since soil temperature extremes have a large affect on turfgrass root production, hourly soil temperatures at one inch depth were measured for each plot using thermocouples. Maximum, minimum, and average daily soil temperatures were recorded.

#### Results and Discussion

Vertical mowing at 1 and 2 times per month did not influence color and quality in either 1989 or 1990. This was a little surprising since it was anticipated that vertical mowing would provide a smoothing effect and improve turf quality. Mowing height, on the other hand, had the greatest influence on turf color and quality as expected. At the higher mowing heights, the added vegetation makes for darker green color and increased quality. In 1989, color increased by 0.5 of a rating unit for each 1/32 increase in mowing height, while quality increased by 0.3 of a rating unit for each 1/32 increase in mowing height. In 1990, the changes were more drastic, with both color and quality increasing by 0.8 of rating unit for each 1/32 increase in mowing height.

As with the turfgrass color and quality ratings, vertical mowing frequency had no affect on putting speed, root distribution, and soil temperature. Again, these parameters were influenced by changes in mowing height. A lack of grain due to foot and vehicle traffic may explain why vertical mowing had no effect on ball roll. One of the benefits of vertical mowing as a grooming process is a reduction or prevention of grain. Therefore, if grain is lacking to begin with, then vertical mowing may not be beneficial. Putting speed differed among mowing heights in 1989 and 1990. Distance of ball roll was reduced in both years by increasing the mowing height from 1/8 to 3/16 inch. However, based on USGA membership standards, putting speeds rated fast for all mowing heights in 1989. In 1990, putting speeds rated fast for the 1/8 inch mowing height, and medium-fast for the 5/32 and 3/16 inch mowing heights. The light frequent sand topdressing and a sound management program were sufficient in producing high quality putting green conditions in both years.

Vertical mowing had no affect on root distribution in either year. Differences in root distribution among mowing heights did not begin to show up until 1990. Root production at the lower sampling depths increased as the mowing height increased. This is due to increased leaf area and, therefore, increased photosynthesis and photosynthate (carbohydrate) supply. The higher mowing height also provides for a cooler environment for root growth as the soil temperature showed. Maximum daily soil temperatures were lowest under the higher mowing heights due to increased insulating and evaporative cooling effects of the vegetation.

Based on the relatively fast and medium-fast putting speeds observed at the highest mowing heights in both years, recommending higher mowing heights on putting greens can be justified. Golf course superintendents can obtain acceptable putting speed at relatively high mowing heights by maintaining a sound management program. Lowering the mowing height to increase putting speed causes the turfgrass to

undergo physiological changes that increase its susceptibility to environmental stresses such as temperature and drought. Although vertical mowing at the frequencies studied did not affect any of the parameters measured, future research should address more frequent vertical mowing using greens conditioners or groomers since many turfgrass managers experiment with these. Traffic should be incorporated into future investigations to simulate actual playing conditions.



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# John Deere Team Championship

By Gordon Waddington

The much heralded John Deere Team championship was, once again, a proven quality tournament. The 3-day event was held November 21-24, 1991, at the Tournament Players Club in Scottsdale, Arizona.

Old Hickory Golf club was, by default, Wisconsin's entry this year.

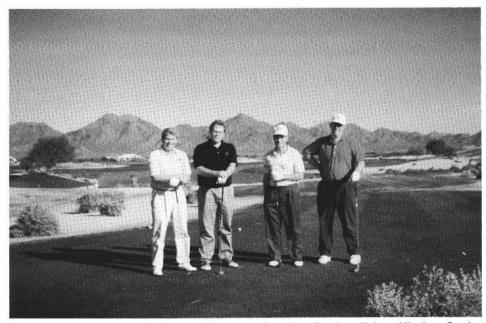
We felt momentum going into the golf tournament, after being one of the four chosen in a \$20,000 drawing. Our prize was a \$2,500 gift certificate.

But, as the pressure rose, Old Hickory faded back. We finished "somewhere in the middle" of the 32 team scramble format.

The overall purpose of John Deere's format was to encourage camaraderie among fellow professionals. We all share in our enjoyment for the game of golf and for all that it has provided for us personally, professionally, and for the future of the industry.

At no time did we ever feel pressured to buy any John Deere products. Overall, our group left feeling personally rewarded by staying and golfing at one of the premiere resorts in the country.

Other highlights of the event included an evening poolside buffet, an oldfashioned southern style Bar-B-Q, bon-



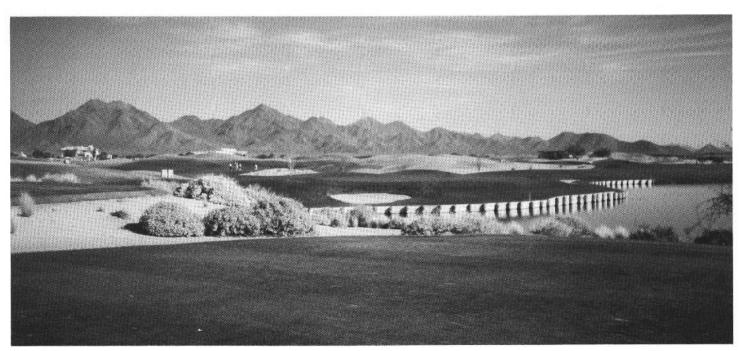
(From L to R) Ed Witkowski, Joe Stadler, Wayne Siegfried, Stephen Kaiser. Missing; Gordon Waddington, Superintendent.

fires with a country band playing, and a formal dinner with Dave Stockton as the featured speaker.

Besides being provided with great variations in breakfast buffets, we received complimentary on course lunches, un-

limited range balls, and great golf!

Much thanks should be extended to John Buck and Ed Witkowski of J.W. Turf for their contributions to our enjoyment. Thank you to Bill Frank and his Horicon Turf Division for their support.



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