(Continued from page 9)

Well, no one is quite sure how it originated. One 12th-century historian said it was the length of Henry the First's outstretched arm as measured from the tip of his nose, a contention that causes modern historians to roll their eyes.

Others think the yard was a double cubit, originally a Roman measure used in surveying. Still others say it was the measurement of a man's waist.

Whatever, the name has no relation to that grassed area around my house that usually needs mowing! Instead, the word comes from the Old English **gierd**, meaning wand or stick.

•

The full moon closest to the autumnal equinox is the harvest moon. It rises at almost the same time several nights in a row and seems to climb slower and shine redder and brighter than any other moon of the year. In fact, it makes so much light that men have been known to stay in the fields the night through, working by the light of the moon.

The next brightest full moon, in October, is called the hunter's moon. Eric Sloane quotes from an old almanac: "The moon of September shortens the night. The moon of October is hunter's delight."

With that small matter clarified, how straight are you as to what a "blue" moon is?

You have heard the old saw 'once in a blue moon'. What does it mean?

The definition will tell you. A blue moon is the designation given to the second full moon to appear during the same month. It's a phenomenon that occurs about every 32 months.

No one seems to know the origin of the well traveled phrase 'once in a blue moon', although one source I read speculated it harks from the 16th century.

•

One of the few things Bill Clinton does that meets my approval is play golf. He is another of the 20th century presidents who enjoys the game. Clinton has shown he will play in just about any weather.

In fact more of the presidents since 1900 liked golf better than any other hobby.

William Howard Taft could be found on the golf course so often that he was chided that presidential duties sometimes interfered with his game! He claimed to play to keep his 300 pound weight under control.

Dwight Eisenhower was so avid about the game that he had a green on the White House lawn and a driving range in the basement.

In addition to Clinton, Taft and Eisenhower, golf presidents included Woodrow Wilson, Warren Harding, John Kennedy, Lyndon Johnson, Jerry Ford and George Bush.

•

A Wisconsin resident of significant renown during his career had a lot to do with formalizing the use of the word turfgrass.

The word turf is used commonly throughout Europe. It was derived from Sanskrit darbhus, a tuft of grass.

Over time there was a mixed use of "turf", "turf grass" and "turf-grass". A perusal of old books and journals show these different forms.

In 1952 Charlie Wilson proposed to the Northern California Turfgrass Council that "turfgrass" be one word. The council agreed. They presented Charlie's proposal to the Turfgrass Committee of the American Society of Agronomy. In 1953 the ASA agreed, and since then the single word use has been in effect. U.S. and English literature use "turf" to describe the growing mowed and maintained sod, and "turfgrass" to describe the grasses used to produce turf.

Thanks, Charlie!

•

In 1916 the USDA and the USGA agreed to cooperate in grass research, and a limited number of turf plots were established at the Arlington, Virginia Experimental Farm. The farm was operated by the USDA's Bureau of Plant Industry.

That agreement was expanded in 1922, and so were the research plots at the Arlington Turf Gardens.

Today, the Pentagon sits exactly on top of those turf plots. When it was built in 1942, the Pentagon replaced the Turf Gardens and they were moved to Beltsville, Maryland.

•

Snow is a major part of life in Wisconsin and impacts significantly on our golf courses. Most of us are happy to see snow most of the time.

But not always. No one needs the misery brought on by major snow storms. And we've had some major snowfalls in our state. Here are the records:

1. Most snow in a season—241.4 inches at Gurney in Iron County in 1974/1975.
2. Most snow in a calendar month—honor (or sympathy, depending on your point of view) again goes to Gurney for 80.5 inches during December of 1968.
3. Most snow in 24 hours—26.0 inches fell on December 27, 1904 in Neilsville in Clark County.
4. Most snow from a single storm—30.0 inches in Racine on February 19 and 20, 1898.

These totals are impressive, but when put up against national records, they are dwarfed.

1. Most snow in a season—1,122.0 inches at the Paradise Ranger Station on Mt. Rainier, Washington in 1971-1972.
2. Most snow in a calendar month—390.0 inches in January, 1911 in Tamarack, California.
3. Most snow in 24 hours—75.8 inches at Silver Lake in Boulder, Colorado on April 14 and 15, 1921.
4. Most snow from a single storm—189.0 inches at Mt. Shasta Ski Bowl in California on February 13-19, 1959.

•

This isn't purely a golf course story, but I thought you'd enjoy it since we see so many players in action—all kinds of action. Like throwing clubs, for example.

I love former tour player Tommy Bolt's story about how he taught Arnold Palmer to throw a club.

"I always thought Arnold was the worst club thrower I ever saw. He would hit a bad shot and throw the club backward. Finally, I had to take him aside and tell him that if he was going to throw clubs he should throw them in front of him. That way you can pick them up on the way to the green."

I thought about the story last year while I was getting a club out of a tree for one of our members. I asked him that if next time he wouldn't please throw it down the fairway!

•

Here's a short and quick way to estimate your bunker sand requirements.

1. Sand weighs about 96 pounds per cubic foot.
2. One ton of sand equals 22 cubic feet.

3. One ton of sand will cover 66 square feet of depth of 4 inches or 44 square feet at a depth of 6 inches.
4. An "average" sand bunker will use 5 to 8 tons of trap sand at a depth of 4 to 6 inches depth.
5. Formula to determine amount of trap sand required: length X width X depth X 96 divided by 2000 = tons of sand needed.

•

I once read how, in the early days of golf in America, players used a little pile of wet sand to tee up their ball on the tee ground when they started the play of a hole. I was contemplating whether the sand going between sharp reels and bedknives would be a bigger problem than the thousands of little pieces of colored wood we see on teeing ground at the end of each work day these days.

That led to a little investigative work on the wooden tee. A gentleman named Dr. William Lowell is credited with inventing the wooden tee. He was a dentist from South Orange, New Jersey who took up golf when he was 60. He disliked the grit and mess of teeing the golf ball on the pyramid of wet sand.

He used dental tools to whittle a golf tee as a substitute for sand. His playing partners referred to his wooden tees as "suppositories for wildcats"! His sons, however, saw the commercial potential in the tee and in 1924 Dr. Lowell received a patent for his invention.

It was named the "Reddy Tee" and came packed in boxes of 18 and sold for a quarter a box.

Lowell imagined golfers would leave them behind and use a box per round. He even planned on a biodegradable version until he realized golfers were hanging onto the wooden ones.

The wooden tee got a big boost when Walter Hagen tracked Dr. Lowell down in his dental office to get some of the wooden tees. Hagen was the U.S. Open champ at the time.

Advertised as the "Tee of Champions", 70 million Reddy Tees sold worldwide in 1929. By then everyone was catching up to Lowell, and his Reddy Tee Company office was closed in 1933.

But the wooden tee is still with us.

Mark Your Calendar NOW!

WTA Summer Field Day

August 16, 1994

NOER Research Facility

Saying Goodbye to a Golf Course

By Pat Norton

Saying 'Goodbye' to a golf course? Sounds a bit strange, I must admit! How can a human being even pretend to say goodbye to an inanimate object, such as a golf course? Isn't it weird that people can develop such strong bonds to objects, such as planes, trains, farms, or golf courses? Isn't it weird that men can fall in love with golf courses instead of women?

Isn't it weird that some amateur writer feels the need to write a column about his love for a golf course and the difficulty of saying goodbye to it? It all sounds pretty weird to me.

If it is strange or weird to have these feelings, then golf course superintendents everywhere are indeed a strange breed. Almost all superintendents have gone through this strange goodbye process. It's a process filled with emotion and reflection—of accomplishments, potential, and disappointments. Sometimes it's filled with too much disillusionment, resentment, and anger.

In this business, a guy oftentimes has to 'move on' in order to 'move up'. There's no corporate structure in place that permits a talented person to move into a new position with the accompanying new authority, challenges, and compensation.

The course structure that most all of us work within is well defined—it's a club structure, a municipal structure, a resort structure, or an ownership structure. The structure, or more simply 'the way it's gonna be', is usually determined by somebody else. It's their vision, or lack of it, that determines what type of golf facility will emerge.

It's the very fortunate superintendent who meshes so well within the structure that he/she has an integral voice in determining the future of the golf course. What the BOD or the owners want the course to be is exactly what the management staff foresees, and then twenty years of Nirvana follows.

More often than not, though, a guy begins to see the score after about three years. The club/park district/county board/owners sees the course operating only at a certain level. The funding is never limitless, so operations must be adjusted accordingly. And, the superintendent only fulfills certain functions, hence the position carries a limited value.

What starts out as a grand and glorious management adventure can develop into a monthly compromise with the budget, with "the powers that be", and with the golf course itself.

The superintendent sometimes compromises his talents and desires, strengths and dreams for the sake of fitting into the structure that's been determined by others. Doesn't it just drive you nuts what some of these people decide on as the best course of action?

What then, short of murdering your boss, would be the logical next step? Obviously, it should be to admit that a change is in order! It's critical to admit to yourself, as many of our WGCSA colleagues have done in my fourteen years of observation, that there's another path to follow. But, which path is the correct one?

Maybe it's a bigger, better club with everything that a guy always drools over...or maybe it's becoming a county golf czar a la Bill Knight...maybe it's escaping forever to 'El Caribe' with that sexy clubhouse waitress—there's tons of courses down there in desperate need of good management, I've heard...or maybe it's getting out of the green industry altogether.

I've heard that there are other, more normal ways to make a living—garbage collection, septic pumpage, insurance sales, or my personal favorite—being an assistant manager at a fast food joint. Wouldn't work for me though—I still remember my teenage designation as 'the slowest busboy in the history of the Monroe Country Club'. What a cloud to have over me for all these years.

After the decision to move on has been made, it's time to say goodbye to friends, neighbors, fellow employees, professional colleagues. Most of us know the feeling. Amidst the excitement of the new opportunity is the sadness of realizing that most of these people will fade into your past as have others who were once considered great friends.

Saying goodbye to the course itself is more of a mental, silent type of thing. Usually the course itself doesn't talk back to me as I make my rounds over it, muttering and swearing to myself as I go. I should probably ask its forgiveness for my management sins and be thankful that it doesn't speak up and tell my successor about all of my 'screw-ups.'

I'm going to make a special point of saying goodbye to the trees on the course, since Frank Rossi has now established that woody ornamentals do have the ability to communicate with humans.

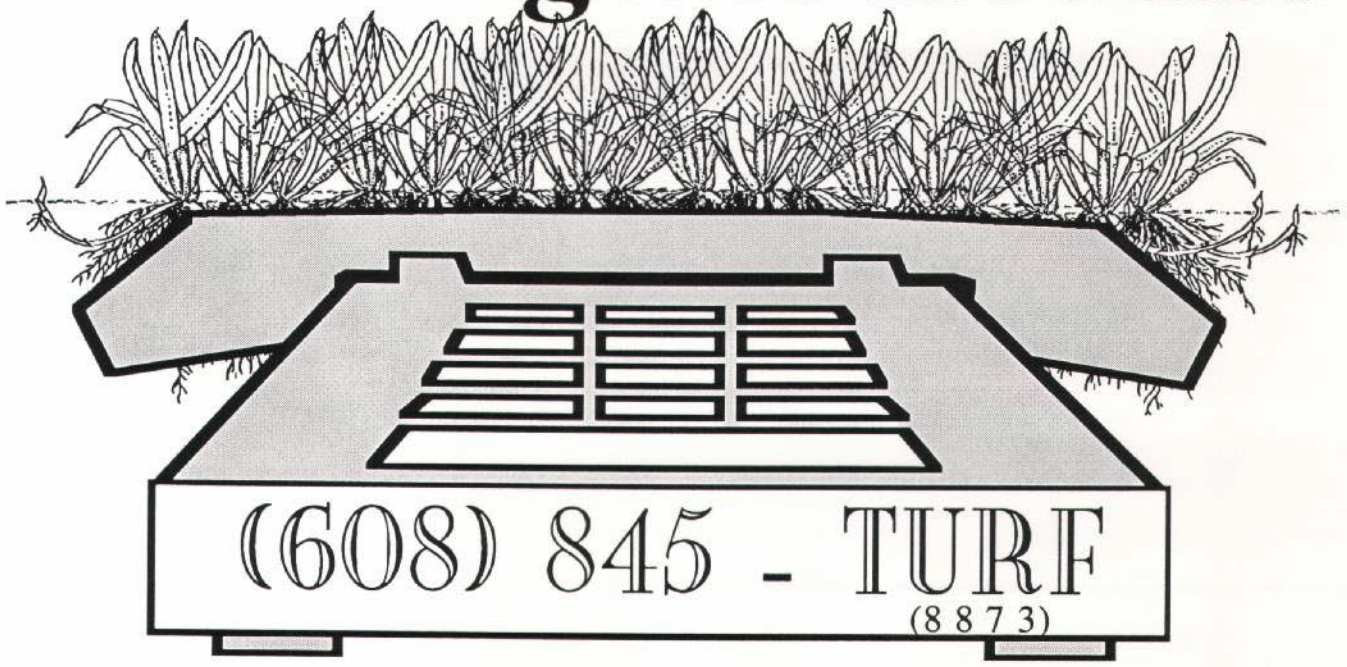
Seriously though, fellow employees are very tough to say goodbye to on the last day...these are the people who would probably follow you into hell if you asked them to. Saying goodbye to military friends, who face tough situations together, must be alot more difficult.

People have gotta follow their dreams—it's the American Way. I'm guessing that I'll resurface somewhere south of here, in Illinois. Hopefully my family will forgive me my ambitions and follow me to the prairie southwest of Chicago.

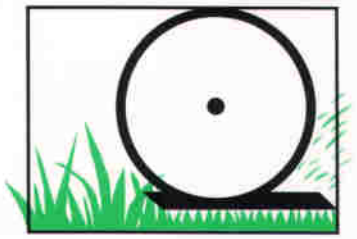
We may have to leave my nine year old son Ryan behind in Onalaska —I think he's plotting my murder, disability, or some very serious revenge. I have dreams nightly that he's after me with a kitchen knife or his Cub Scout slingshot.

Better yet, he'd love to have my head on a tee right about now and see if he can win himself a long drive contest. I had better be watching my back until I can sneak out of town.

UW-Turfgrass Hotline



Sponsored by University of Wisconsin in cooperation with the Wisconsin Turfgrass Association



Using Rollers on Putting Green Surfaces

By Wayne Otto

It has always been my belief that it is NOT a good agronomic principle to use rollers on fine turfgrass, although several of Wisconsin's older golf courses used to own large sets of gang rollers. We still have a heavy, antique, 5-gang set on the premises at Ozaukee, which I'm sure religiously were used in the spring of every year on that "Mequon Gold" soil. Someone must have declared it was a good practice to roll fairways in the spring of the year after the frost left the ground to firm the turf to the soil surface and/or to level the heaving that was caused by the freezing and thawing that occurred during the winter. This may be necessary on muck or peat soils that really do heave, but not on high clay/silt content soils which have a tendency to get as hard as a rock without rolling (especially when the soil is wet in the spring of the year). You'll never see a "smart farmer" get on his fields too early when the soil is still too wet!

Last year, our Green Committee Chairperson sold the Board of Directors on purchasing a roller. He saw a roller on a practice green somewhere down in North Carolina, and found that the putting surface that was rolled was very smooth and obviously considerably faster than it was before it was rolled. So during the GCSAA show in 1993, it was my job to find a greens roller that would fit our needs out of the numerous rollers that were exhibited at that show.

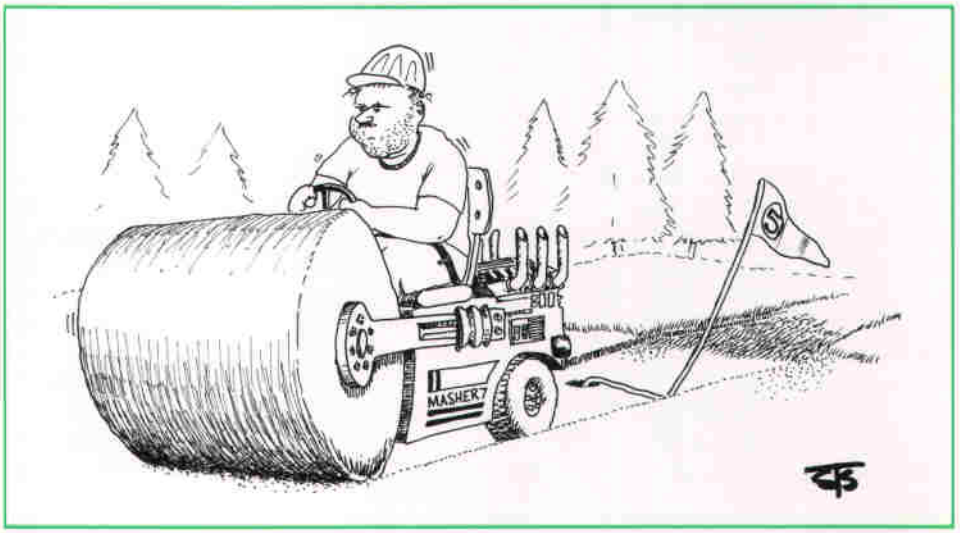
My decision, after looking at all those rollers and comparing notes with other superintendents, was that the rollers mounted on a triplex mower would not be good for us because of the turning of the machine on the surrounds of the green. That is why we elected to go with a machine that moved "sideways," especially after talking with some turf managers in the Mid-Atlantic and Northeast USA, who had some experience with rollers. In May of 1993, we purchased a roller that could be transported across the course by trailer, or driven across the course at 5 mph. The rollers do not scratch or dent by running the machine across gravel or asphalt paths. Both rollers drive, so the machine climbed the steep undulations on Ozaukee's greens, and it was fairly "user friendly" to the operator compared to some other rollers that we had looked at.

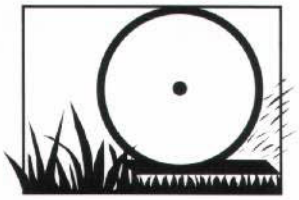
I am now of the opinion that the greens roller can be a useful management tool for us, if we don't misuse it. I believe at Ozaukee there will be minimal damage from rolling our greens that have a 2" build-up of sand from the light/frequent applications of 100% sand topdressing that we have applied for the past 18 years. However, the abrasiveness of the sand particles may cause damage to leaf tissue if we overdo it. Therefore, it is my belief that rolling putting surfaces with a greens roller on a daily basis is too much.

What kind of a schedule for rolling did we come up with at Ozaukee? The roller is only used for special days (which is usually once/week or less) and other events when we want to give the place that little extra polish. We do find that the putting surface is smoother after rolling and the Stimpmeter reading is increased between 8-12 inches. The surface is faster the next day following rolling by 4-6 inches. The putting surface that is mowed with a walking mower equipped with a grooved front roller has Stimpmeter readings that are 6 or more inches more than that which is mowed with a triplex mower that has a grooved roller on the front and a solid roller on the rear of the fixed (non-floating) cutting unit. That rear drum of the walking mower does make the surface smoother. Everyone knows (or should know) that "a bouncing golf ball never gets to the hole." The more it bounces, the more it slows down. The bottom line is that the ball rolls further on a smooth surface, no matter how you achieve that end.

If you are using walking greens mowers, you are rolling putting surfaces each and every time that you mow the green, whether you like it or not! If you used a greens roller in addition to the greens mower, you would be double-rolling on the days you used it. As a management tool, rolling can be done on certain days instead of mowing, causing less stress upon the turf.

Is rolling for everyone? No, but if you are trying to routinely maintain conditions that are expected at the finest facilities in today's golf world, the roller is a management tool that can help you attain that goal. Along with making the putting surface fast, using a greens roller may actually also cause *less stress to the turf* than double-mowing or other management practices and techniques that we use to produce playing conditions that players are demanding.





Rolling Greens At Westmoor

By Jerry Kershasky

CAUTION!
MAY CAUSE EXTREME BALL ROLL
AND
PHYSICAL DAMAGE TO THE SOIL

Rollin', Rollin', Rollin'.....n
Keep those doggies rollin'.....n
Rawhi.....de.

Nope. Nope, that's not it; let's try it again, from the top.

Rolling, Rolling, Rollin.....g
Keep that golf ball rollin.....g
"Super"hi.....de.

We need it rolling faster
No matter if the weather's wet
or dr.....y

Rolling, Rolling, Rollin.....g
Stimp it out above 10 fee.....t
"Super"hi.....de.

Okay, do you get it? If you are old enough to have actually watched the TV show "Rawhide", or if you saw the movie"The Blues Brothers", and caught the part when they were playing a gig in the country western bar and sang the theme song from Rawhide, you may recall the melody. And if you do, you will be able to sing my verses, which I always sing when I'm out rolling my greens to pick up that extra 6 inches to a foot of speed. If you don't sing the song, you won't get as much speed out of your rolling. Real cowboys, I mean real superintendents always sing in the saddl... Cushman!

By now, 1994, you all have probably read articles on, or listened to talks given by Dr. Jim Beard and others on what to expect from greens rolled with heavy rolling implements. So what I am about to tell you is most likely what you have already heard, only now it will be coming from one of your "good ol' boys" from WESconsin. Or is that WISconsin? Forgive me—my pronunciation is still running afoul with Rose Bowlitis.

Anyway, we started rolling greens at Westmoor back in the mid-to late 1970s to quicken the pace for some of our Club events. At the time, we borrowed some dandy heavy cast iron rollers. They were arranged in a three gang frame and wide enough to cover the tire tracks of the Cushman truckster we pulled them with. We borrowed them from Jack Soderberg, the "Master of Speed" back in the 1970s when he was golf course superintendent at Merrill Hills. These rollers produced a smooth surface and quickened the ball speed by about one foot. They were great, but no one produced them anymore and the rollers that were on the market at the time did not hold a candle to those old cast iron rollers.

So, we built our own "Tri-rollers" out of 20" PVC pipe filled with concrete. We matched the weight and size of the old cast iron rollers and, not surprisingly, we matched the results. Roll the green, pick up a foot of speed.

We continued to roll for only major Club events. Then in 1982 we hosted the Wisconsin State Open Golf Tournament at Westmoor. Jack Daughterty was my assistant at the time and was about to start his second year in the Turf Program at Penn State. He thought stimping the greens from the spring season through the tournament would be a good school project, so we did that. We started rolling the greens for the tournament along with double mowing about six days before the event. Prior to these procedures, the greens stimped out at 9 feet. As we progressed with the double mowing and rolling, we achieved a final speed of 10'8" to 11' the day of the tournament. Back in 1982, that was pretty fast and several of the players thought it was too fast. But the majority of the contestants like the speed.

After the event was over, we found that our members liked the increased speed. They wanted us to provide it more frequently. We started rolling more frequently and built another set of tri-rollers so we could get done faster and beat the play. About the only problem we had with our setup was that we needed to have very experienced people driving the Cushman—one slip of the clutch or too much speed on a turn would result in more damage than good.

We continued to search for a better roller, one that any crew member could operate with little chance for error and yet fast enough to stay ahead of early play. We were also looking for an economical way to accomplish the task.

Two years ago we found such a roller. Individual rollers mount on the cutting frame members of a triplex greens mower. You've probably seen them by now, either at trade shows or in magazine ads. They are easy to use, and any staff person can operate them. The triplex mowers have good transport speed and you can roll a green as fast as you can mow it.

The speed you pick up depends on several factors: weather (higher humidity results in less speed pick up in both cool and warm temperatures), season (you won't gain as much speed in late May through June as you will after July 5th), and frequency (one rolling should net 6 inches to a foot whereas a double rolling should net 8 inches to one foot 2 inches. You start losing the full effect of rolling after about 16 hours, and no difference in rolled areas versus non-rolled areas seems to exist after 48 hours.

Similar results have been noted by others testing out the rolling of greens. You can get all that information by subscribing to the Turfgrass Information File (TGIF) at 517-353-7209. But they will not tell you the final magical ingredient needed to achieve those last few inches of speed.

Yup, you guessed it; get that melody down!

Rolling, Rolling, Rollin.....g
Keep that golf ball rollin.....g!

The Questions Keep Coming

By Monroe S. Miller

Thanks to Dave Smith and Dave Van Auken from me. Their kind responses to earlier questions demonstrated at least two people had given thought to them and thought they merited a response. They're a couple of great guys. I know others who had at least discussed some of the dozens of queries put forward. I even caught some grief for asking a few. That's the way it goes.

Since I'm not the brightest guy around, my head is always full of questions. Here are some more:

1. Why is it so difficult for Wisconsin golf course superintendents to complete the research rebate forms from Ciba Geigy? It's been estimated that we left between $5,000 and $10,000 on the table in 1993 that could have been dedicated to the bentgrass/putting green research we are supporting at the NOER Facility. I mean, how dumb can we be? One distributor even mailed the form and copies of invoices to each of his customers. All that was required was about 90 seconds time to generate hundreds of dollars from individual golf courses. Let's vow not to let it happen again in 1994.

2. Do you have a NO SMOKING policy in your shop?

3. Have you read about the fine meted out to Merrill Hills because of the shop fire a few years ago? The state, one would guess, was trying to make an example of them.

4. Which reminds me—you did complete your SARA Tier II paperwork, didn't you? It was due on 3/1/94, but in this case "better late than never" applies.

5. After the Symposium, the EXPO 94 and the Northern Great Lakes meeting in Rhinelander, do you ever wonder why you attend the GCSAA conference?

6. Do you have employee procedures and guidelines that pass legal muster?

7. Why does confusion still reign among the O.J. NOER **Research Foundation**, the University of Wisconsin **Foundation**, the O.J. NOER **Research and Education Facility**, the **Symposium**, and the **Wisconsin Turfgrass Association**? Can you imagine the chaos if we changed the name of the WTA to the Wisconsin Turfgrass Foundation, as some have suggested? Some people wouldn't know what the hell was going on! (Some don't right now).

8. It may be that only an editor would wonder (or care) if greens mower and top dressing are one or two words. Or whether the machines we use are aerators or aerifiers. Or whether triplex should be hyphenated. Or whether there is such a word as fiveplex, and if there is, should it be hyphenated? Maybe, in the last instance, the word should be quinplex.

9. Why do monthly WGCSA meetings have to cost so much? Ask yourself this question: if the money had to come out of my pocket, would I pay to go to our monthly meetings?

10. Were you either surprised or frightened by the results of the GCSAA Mortality Study?

11. Speaking of the GCSAA study about what makes superintendents die, do you feel the association should have released the results to the public? The question, obviously, is inspired by the negative reaction by the likes of Paul Harvey.

12. When does your course usually open—last week of March (or sooner), first week of April, second week of April (or later)?

13. How can you possibly get even distribution of fertilizer through an irrigation system—the techniques of fertigation? Look at coverage of fairways, even with a double row irrigation system—there are areas of 1X, 2X, 3X and 4X coverage. I can't imagine applying fertilizer that way.

14. How do you feel about custom application of fertilizer or even fungicides?

15. Speaking of contracting services, have you either used or been tempted to use any of the many aerification—from deep tine to hydrojet to Greensaires—operators available?

16. What's your reaction to the first contracted maintenance of a golf course in Wisconsin—the Bruce Co.'s relationship with the new Bishops Bay golf course?

17. Do you have any opinions—pro, con or neutral—about including an advertising piece in the envelope that brings you your copy of *THE GRASS ROOTS*? P.S.: Keep this in mind—it's profitable to do so.

18. Did you ever think how nice it would be if sprinkler heads were made of clear plastic? It would make troubleshooting a whole lot easier.

19. How many of you have hired your own kid(s) to work for you on the golf course? Is this nepotism or just plain good business? Did it work out well? Were other staff members affected by it, one way or the other? How did course officials react? Or didn't they know? Any advice for me?

20. Do you recognize Tom Schwab without his mustache? (He hadn't seen his upper lip in over 20 years!)

21. Didn't you really enjoy having the spring business meeting on February 28th, a time when there was NO chance of interference with the golf course and opening preparations?

22. How do you determine the playability of your golf course?

23. What will be the hot topic of discussion in the area of golf course management this year? Let's see—we've recently had rollers, walkers, rain, rain, rain, winterkill (is that one word or two words?), fast grass, short fairways, pesticides, and on and on the list goes. What will this year add to the list?

24. When will golf players ever learn that their golf course is supported by and growing on **SOIL**? Are they unable to say that beautiful word? Go on your own personal campaign to educate those ignorant of the proper language regarding the growing medium that blankets our globe.

25. He's done it for so long now that we take it for granted: therefore, won't you join me in thanking Randy Smith for the superb job he did again this year in preparing and distributing the WGCSA Directory? Nice work, R.J.!

Getting the Most Out of Fungicides

By Dr. Julie Meyer
Department of Plant Pathology
University of Wisconsin-Madison

With current attempts in keeping fungicide use to a minimum, every single application of fungicide is important. Therefore, it is a good idea to think about how to apply fungicides in a way that takes full advantage of their fungicidal properties. This will ensure greater success with disease control and will make the most out of time and money spent. There are several ways to do this.

Use the optimum dilution rate. The initial dilution level of the spray mix can significantly affect how effective the fungicide treatment will be. Strangely (from a plant pathologist's point-of-view), fungicide effectiveness has historically not been the criteria used to determine the optimum dilution rate of the spray mixture. For example, large amounts of water were used with the old cadmium and mercury-based fungicides because of their toxicity to turf. More recently, the practice of spraying large areas has dropped the common dilution level to 1 or 0.5 gallons of water, or even less. The most effective dilution rates for most fungicides, based on fungicide effectiveness and longevity of control, lie somewhere in between. Table 1 lists some common fungicides and their optimum dilution rates for several common foliar diseases. The optimum dilution rate for control of root diseases such as summer patch, necrotic ring spot or take-all patch is somewhat higher because the fungicide needs to reach the pathogen on the root system. For example, Bruce Clarke, turf pathologist at Rutgers University, reported at the 1994 Wisconsin Turfgrass EXPO that fungicides used to control summer patch (*Magnaporthe poae*) were more effective when applied with 4-5 gallons of water compared to lower dilution rates.

No rainfall or irrigation after treatment. Many of you worry about summer showers or autumn rains when planning a fungicide treatment. And worry you should! Rain that occurs after a fungicide is applied but before the leaves are dry will indeed wash away some of the material and result in a less effective treatment. Systemic fungicides are slightly less affected by rainfall after application. However, they will be more effective if allowed to dry. This raises the question of applying fungicides with a low volume of water, and then turning on the irrigation system to "water in" the material. Unfortunately, this practice is likely to reduce the effectiveness of protectant fungicides. Although it may not reduce the effectiveness of systemics very much, it will not make them more effective either. The bottom line is that the initial amount of water used in the spray formulation is likely to determine the effectiveness of the fungicide treatment.

A sticking agent will help to increase the fungicide effectiveness and longevity of control. A sticker will not keep the material on the leaves if they get wet before the fungicide has dried, but it will help keep the material on the leaves if rainfall or irrigation occurs shortly after the material dries on the leaf.

Reduce calibration, mixing and application errors. Errors in mixing and applying fungicides are common. Probably the single most important thing to reduce error is to make a priority of keeping the spray equipment calibrated and in good working condition. This is common sense, but is a frequent point where errors are made, effectiveness is compromised and money is wasted. Tank mixes are popular and can work, but it is especially important to read the label for potential incompatibilities. If the materials in the mix are physically or chemically incompatible, they will not work for you and may burn the turf. Finally, attention to good technique is important when applying the fungicide, so that a thorough, even application is made.

TABLE 1

Optimum dilution rates for some common turf fungicides

Fungicide	Optimum dilution/M[1]
Daconil 2787®	1 gallon
Dyrene®	1-2 gallons
Bayleton®	2 gallons
Chipco 26019®	0.5-4 gallons
Banner®	2 gallons
Vorlan®	1-2 gallons

[1]Materials applied at low label rates in 0.25, 0.5, 1, 2, 4, 8, 16, or 32 gallons water/M. Diseases were dollar spot, brown patch or melting out. From: Couch, H.B. 1985. *Golf Course Management* 52: 73-76.

Good cultural practices. Good cultural practices such as adequate and timely fertilization, timely irrigation, keeping mowing heights as high as possible, controlling thatch and managing for good soil quality keeps plants growing vigorously. Vigorous plants are naturally more resistant to plant diseases and can help keep pathogen populations in check. Over time, this will enhance the effectiveness of fungicides and reduce the number of applications needed.

Applying fungicides at an optimum dilution rate, with well-calibrated equipment, alone or in a sound, proven tank mix, with careful attention to thorough, even coverage will make these materials work for you the way they were intended. This may not only ensure greater success in disease control, but may also reduce the number of applications needed; thereby saving money and minimizing exposure to applicators and to nontarget organisms. This is the ideal situation we are striving for.

THE LONG STIMPMETER

By Monroe S. Miller

Summer sort of smacked me right in the face early this morning. Some people think the early time of the day—dawn—is cool and pleasant. They obviously don't get up early often enough to know the truth.

It had rained pretty steady for three days and finally, this morning, it had stopped. The heavy air remained, moist with humidity.

The grass on our seventh fairway was covered with dew, and as my eyes surveyed the valley that divides the course east and west the mist rolled in like a fog from the ocean.

Already it was hot, and when the sun came out it would be miserable. Three days worth of uncut grass was trouble, no matter how you cut it. Clipping harvest is something we always do, but three days of growth coming off at once would make every mowing job take an unreasonable amount of time.

Fortunately, our course is well drained and the large ponds and puddles of water left quickly. I expected the crew would be out almost immediately, working around the few really wet areas that might remain.

Players who have been cooped up in the clubhouse for three days expect to play the minute the rain stops, making it important to compromise when you can reasonably do so.

The argument wouldn't be over opening or closing—we'd be open. The battle would be fought over carts.

Battle? Well, not really. I simply make the decision I have to and get on with my work for the day. The issue of cart traffic is non-negotiable with this golf course superintendent. Fortunately, most members agree with the philosophy although they often don't like the decision.

Hot and humid weather also brings disease pressure, makes golf course employees a little grumpy and causes clouds of mosquitoes to appear everywhere. This wasn't likely to be a fun day.

Worst of all, for me at least, is the issue of slow greens that comes with humid weather in the dead of summer.

That is why I'd decided to send extra walkers out so that we could cut the greens twice right away.

Driving my golf car carefully, I took a quick tour of the course, seeing nothing unexpected or unusual. Just a lot of long grass.

Everybody was rolling into work as I crossed the railroad tracks. My shirt was already soaked and I hadn't done anything but drive the course (which is what my crew says I do all the time anyway!).

It's an impressive sight—equipment and mowers lined up, fueled, adjusted and ready for 16 people. Dave started his day earlier than anyone else, and at 5:50 a.m. one can see he has done half a day's work already.

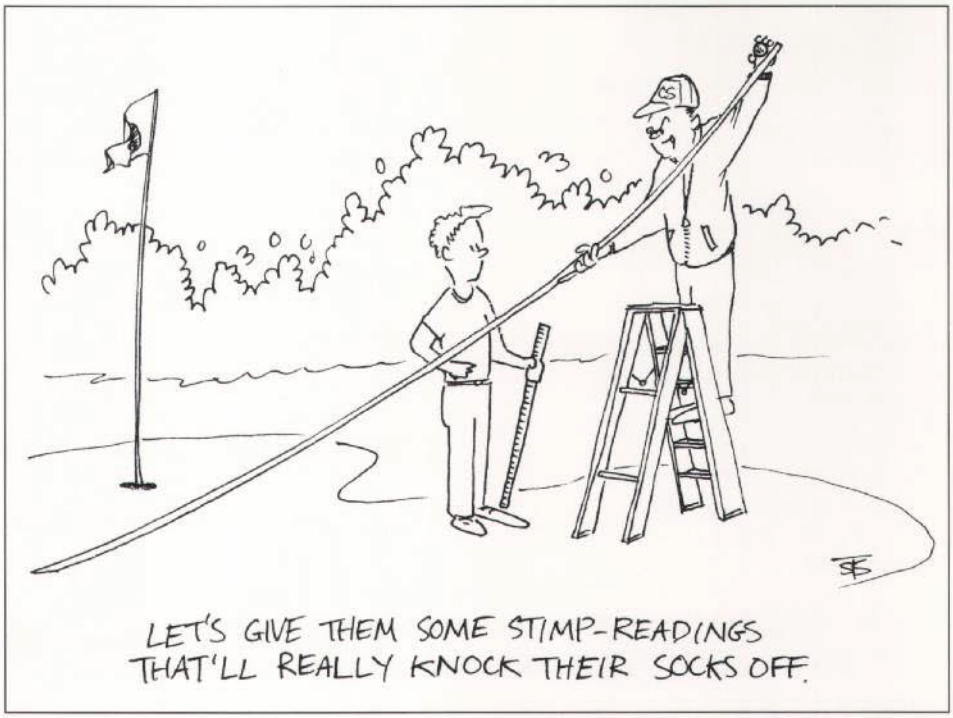
Rain filled days can be a major hassle in the life of a golf course superintendent. Most would prefer gentle rain that begins at dusk and ends at dawn. On the other hand, three days free from the golf course responsibilities give us a chance at some serious housecleaning.

You could see that today. The machinery sparkled, the shopyard was so tidy that you would never guess the activity it normally handles, and the shop itself was cleaner than the day it was built. I was pretty proud.

Once our young staff had individual assignments and took off for the course, the shop was quiet again. I poured myself a cup of coffee while Chad and Dave each popped open a Coke. We held our usual powwow, reviewing what we hoped would happen on this very uncomfortable summer day in Wisconsin.

Chad went out for a closer look for any disease and to make certain everybody was doing what they were supposed to be. He also had a selection of signs to use to direct golf cars away from wet areas. Nobody yet can

(Continued on page 21)



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