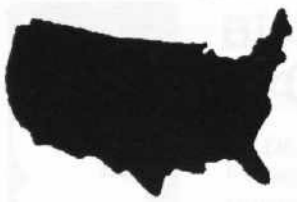

A Badger in Gopherland Suffers 'Sports Shock'

By Larry Lennert
Golf Course Superintendent - Hillcrest Country Club, St. Paul

EDITOR'S NOTE: The following article, written by a man born and raised and educated in Wisconsin, appeared in the Vol. 20, No. 8, November 1991 issue of the Minnesota Golf Course Superintendents Association newsletter, HOLE NOTES.

It is reprinted here with permission.

The dreary situation Larry writes well about in this piece has gotten even worse since its publication. With one exception.

The Badger football team beat the Gopher football team in the Hump Dome in the next to the last game of the year.

On Wisconsin!

Imagine growing up twenty minutes from Lambeau Field and spending seven years at the University of Wisconsin. Then imagine moving to the home of the Vikings and Gophers, your hated NFC Central Division and Big Ten rivals. Please understand if I sound a bit incoherent, but I'm suffering from "sports shock." However, it didn't start out that way.

When I first moved here in April to assume the duties of Golf Course Superintendent of Hillcrest Country Club in St. Paul, the North Stars were just starting their playoff miracles. Since Wisconsin doesn't have a National Hockey League team, I adopted the North Stars and rode their emotional roller coaster all the way to the Stanley Cup finals. Coming from Wisconsin, it was quite a thrill to cheer for a winning team.

I felt my first tinge of "sports shock" when the baseball season opened. I've been to a number of Brewer opening days, and not being able to even listen to the game on the radio made me a little edgy. However, once the Brewers went into the tank, I didn't feel so bad. In fact, when the Twins started their winning streak, I found myself cheering for them. Since the Twins are in the AL West and the Brewers are in the AL East, I could rationalize this split loyalty.

At the time of this writing, the Twins had just defeated Toronto four games to one in the ALCS. Unbelievably, both of my adopted Minnesota teams had reached the championship of their respective sports. What sports euphoria for a winner-starved Cheesehead!

However, even the success of my adopted Minnesota hockey and baseball teams did not lessen the "sports shock" than I fell into when the football season started. Every sportscast, every sports page, on billboards and on buses, all I saw or heard was Viking or Gopher football. I started to get ill even at just the sight of the color purple or maroon. It wasn't just the saturation of Viking and Gopher propaganda that got to me, but the total lack of information about the Packers and Badgers as well.

The worst day was that first Sunday in more than 20 years that I sat down in front of a television and couldn't watch a Packer game. That's when I knew I had "sports shock." I made a frantic call to my brother in Wisconsin and asked him to tape the game on his VCR and send it to me. I now receive tapes of Packer and Badger games, and I have to watch these games the day I receive them. Anyone who would intentionally watch a Packer or Badger loss after the fact must be ill. I admit I have a problem.

The reason I've shared this story with you is because I think that too many Minnesota sports fans take their teams for granted. Your pro hockey team went to the Stanley Cup Finals and your college hockey team always competes for the WCHA title. Your baseball team won the World Series in 1987 and probably will have won it again by the time you read this. The Vikings and Gophers will finish the season with better records than the Packers and Badgers.

So, the next time you get down about the Vikings or Gophers, just think about this: it could be a lot worse; you could be a Wisconsin sports fan.

P.S. Thanks to all of you for making me feel welcome during my first year in Minnesota.

Biological Turf Disease Control — *Progress, Promises and Problems*

By Dr. Gayle L. Worf
Professor and Extension Plant Pathologist
University of Wisconsin-Madison

You may be following the research reports, along with me. They are still only slightly more than a trickle, but they are there. I'm talking about the results of efforts by turf pathologists in scattered laboratories around the country that hint of fungi and bacteria that might be introduced into our turf environment to combat turf pathogens and successfully maintain crop health in lieu of chemicals or pesticides.

You may also agree with me—we need some successes in this arena!

Whether or not you share the perception of a growing vocal segment of our society that we are major contributors to the decadence of our environment(!), it would sure be nice to be able to spring forth with a new and different control method that would benefit our public relations portfolio. My perception is—if could put one good biological product on the market that is biologically sound and economically cost-effective, we could leverage that success into great goodwill and much incentive towards better and more imaginative disease control programs.

Several laboratory and greenhouse studies have identified a number of organisms that suppress turf pathogens, including *Pythium aphanidrematum* and other *Pythium* species. Catherine Smejkal, along with Dr. Jennifer Parke in this department, conducted several growth room studies two winters ago looking at possible turf disease control activity of organisms Dr. Parke is experimenting with as vegetable disease control possibilities. We also cooperated with Russ Spear and Dr. John Andrews a couple seasons ago, along with Jeff Bottensek at the Stevens Point Country Club. Andrews and colleagues have identified a genus of the fungus *Athelia*, which will work under snow to decompose scab pathogen-carrying apple leaves. We thought it might somehow colonize the grass surface and suppress *Typhula* or *Microdochium* (gray and pink snow mold organisms).

One of the best successes reported to date was by Burpee and colleagues at Guelph in the mid-eighties, before he moved to the warmer climates of Georgia. Using a saprophytic species of *Typhula (T. phacorrhiza)* which we see occasionally growing over corn stubble in Wisconsin (and other places), they reduced by about 75% the gray snow mold incidence in Canadian plots. He and others have produced similar levels of success with brown patch control, using closely related fungal species of the disease-causing *Rhizoctonia*.

The basic tenet of all this, of course, is to find an organism that is ecologically compatible to the niche that the turf pathogen occupies, and somehow displace or suppress it. And closely related species are logical possibilities. I was intrigued by some work that Dr. Bill Pfender reported not too long ago in Kansas about his use of *Limonomyces roseipellis* in suppressing the survival of the pathogen that causes tan spot disease in wheat. The degree of suppression was from 50-99%. But there's a downer—*L. roseipellis* is the causal agent of pink patch in turf! How many golf course superintendents and homeowners would support distributing that organism as a biological control agent?

That's identical to our opposition to the proposed (no longer!) use of *Verticillium dahliae* as a biological control agent for velvet leaf in Wisconsin. It's a lethal pathogen, and velvet leaf causes serious problems in our soybean fields. But that organism is also the cause of our ash decline, as well as diseases on other crops. And the organism survives indefinitely in the soil.

So there are many obstacles.

One of the more recent, and perhaps optimistic, reports is by Eric Nelson and Cheryl Craft at Cornell, where they are researching the bacterium *Enteroacter cloacae*. This organism has been used as a biological control agent against a number of plant pathogenic fungi. That could be a significant plus from a developmental perspective. It's one thing to find a useful organism that can pass the various biological criteria (including many we've not touched). But it also has to be made available to the superintendents. Pharmaceutical concerns are much more intrigued by the idea of investing in developmental research for such biologicals than formerly, particularly if the market potential appears big enough to justify the risk and start-up costs.

Their research was on putting greens at the Rochester, N.Y. Country Club in 1988 and 1989 using the organism as a biological control agent for dollar spot. Application was made via inoculated top dressings. Their results were encouraging, but were variable, e.g., not a whole lot different than we encounter when we are trying to develop rates, procedures, and schedules for applying new fungicides!

When—if ever—will we see a commercial breakthrough? I can't guess. My crystal ball is broken. The awareness of biological antagonism and its potential precedes my entry into the plant pathology world. But two big differences have occurred over the past decade. Society is now ready for it—and business and fiscal support to develop it might just be the stimulus of the '90's to bring it about before this century is over!

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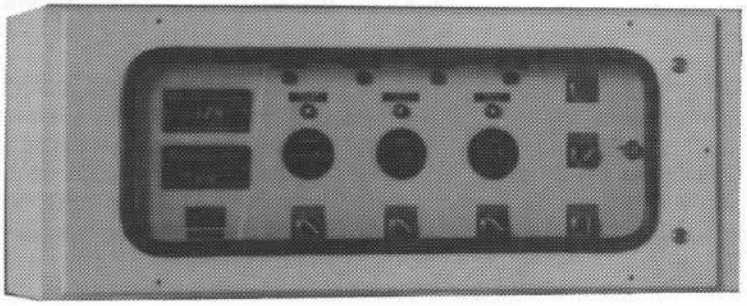

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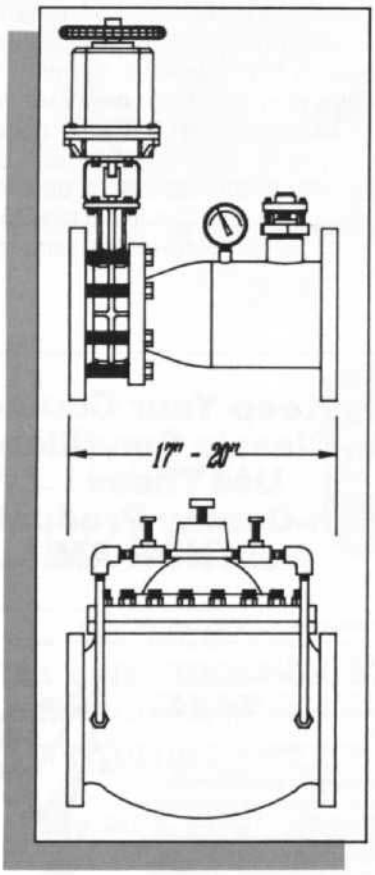

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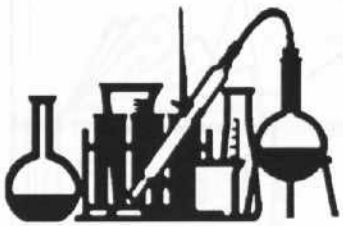
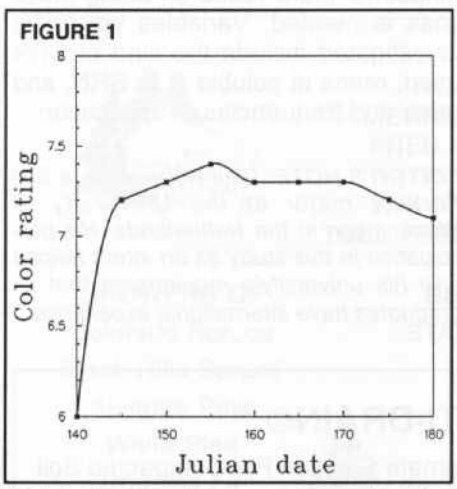


Fertilizer N Combinations: How Good Are They?

By Paul Bouwens and Dr. Wayne Kussow
Department of Soil Science
University of Wisconsin-Madison

A common practice in the turf fertilizer industry is to blend together two or more N fertilizers with different N release rates. The reasoning behind this practice is that adding a soluble N source to a slow-release N (SRN) fertilizer provides more rapid color response followed by relatively uniform turfgrass color and growth for a period of several weeks. This idealized color response is illustrated in figure 1. Note the use of Julian rather than calendar dates. This is done because in using computers to operate such graphs, we cannot use calendar dates such as May 28. Rather, we have to use Julian dates in which January = Julian day 1 and December 31 = Julian day 365. Thus, the time frame in figure 1 is from May 20 (Julian date).

FIGURE 1

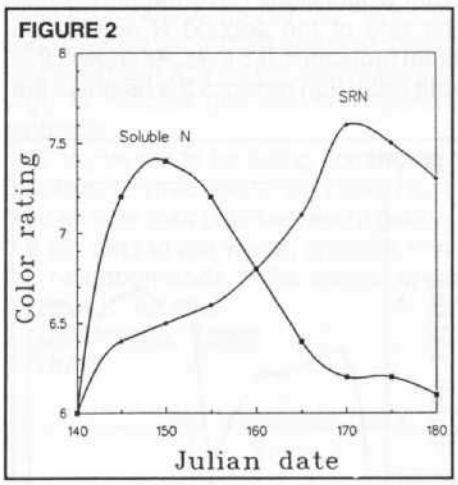


Ideal turfgrass color response to a fertilizer containing a combination of a soluble N source and a slow-release N source.

For some time now I've been asking myself the question "Do soluble N - SRN combinations truly provide the type of turfgrass response that is illustrated in figure 1?". If we look at the individual color response curves for a soluble N and for an SRN (figure 2), we note that there is a substantial period of time during which both N sources are supplying N to the turfgrass. Logic says that under these circumstances the N contributed by the two N sources has a additive effect on turfgrass color.

Adding together the color responses from the soluble N and the SRN (figure 2) leads to figure 3. If this is what is actually happening, then we're certainly not getting the nice uniform idealized color response shown in figure 1.

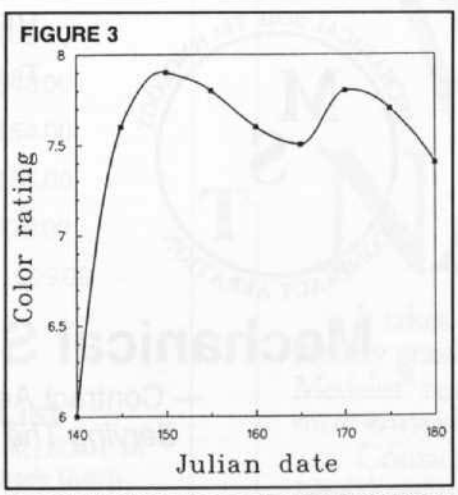
FIGURE 2



Typical turfgrass color response to a soluble N source and a slow-release N source.

This past summer the opportunity arose to test the idea that, contrary to popular opinion, combinations of soluble N and SRN do not necessarily provide the pattern of turfgrass color shown in figure 1. Paul Bouwens joined me for a four-month internship and I presented this concern to him as a research topic.

FIGURE 3

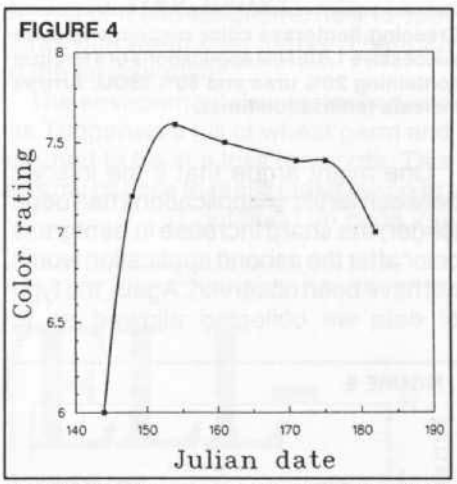


Hypothetical turfgrass color response to an application of a fertilizer containing a combination of a soluble N source and a slow-release N source.

For the project we elected to use urea as our soluble N source and IBDU (ParEx 31-0-0 Fine) as the SRN.

When we applied a combination of 20% urea and 80% IBDU to creeping bentgrass at the rate of 1.0 lb/M on May 24, the color response observed is that shown in figure 4. While this color response pattern is not exactly that predicted in figure 3, it is also not the idealized response shown in figure 1.

FIGURE 4



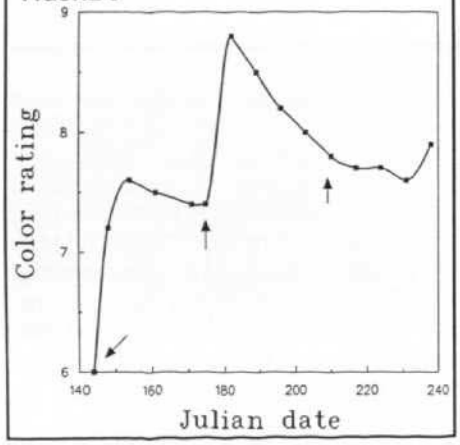
Creeping bentgrass color response to a 1.0 lb N/M application of a fertilizer containing 20% urea and 80% IBDU.

In our study, we repeated the application of 1.0 lb N on June 24 and again on August 2. Color responses to all three N applications are shown in figure 5. Surprised? We were. The very sharp increase in bentgrass color after the second N application was not anticipated. I'm fairly certain that had we continued the study longer, we would have observed a similar dramatic increase in bentgrass color in September. Unfortunately, we had to stop our field observations on August 29 so that Paul would have time to complete analysis of clippings for N and prepare his internship report before returning home to the Netherlands.

The design of our study allowed us to at any time partition the turfgrass color into responses to the individual 1.0 lb N applications. When we did this (figure 6), the reason for the sharp increase in

bentgrass color after the second application became apparent. We were still getting significant color enhancement from the May 24 application. In fact, on July 1 nearly 40% of the bentgrass color was attributable to the May fertilizer application.

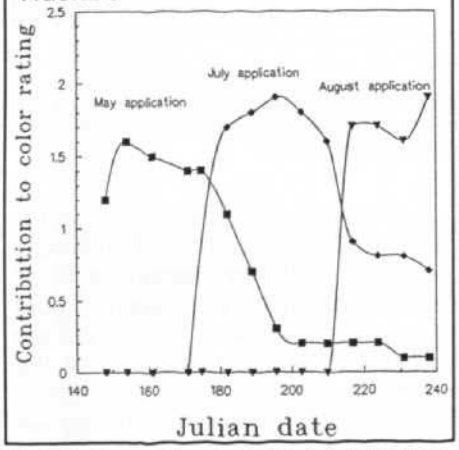
FIGURE 5



Creeping bentgrass color response to three successive 1.0 lb N/M applications of a fertilizer containing 20% urea and 80% IBDU. Arrows indicate fertilization times.

One might argue that if the interval between fertilizer applications had been longer, the sharp increase in bentgrass color after the second application would not have been observed. Again, the type of data we collected allowed us to

FIGURE 6

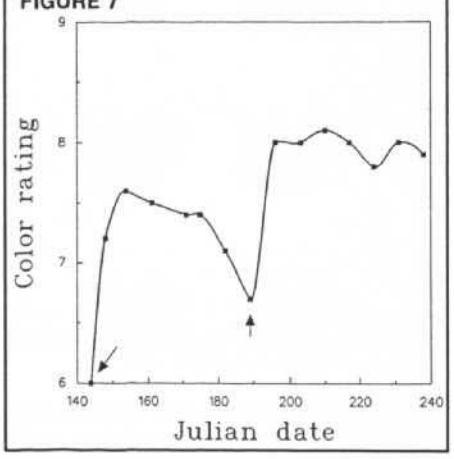


Contributions of successive 1.0 lb N/M applications of 20:80 urea-IBDU combination to creeping bentgrass color.

simulate what effect a longer time interval between the first two fertilizer applications would have had on bentgrass color. When the interval was increased from 31 to 45 days, the expected color response to two successive 1.0 lb N applications is that shown in figure 7. Increasing the interval between applications prevented the color response to the second application from rising to excessive levels (> 8.0 color ratings), but the change in bentgrass color between July 8 (Julian date 189) and July 15 (Julian date 196) was just as large as before. Not only this, but increasing the time interval between fertilizations allowed the bentgrass color to drop unacceptibly low (color rating < 7.0).

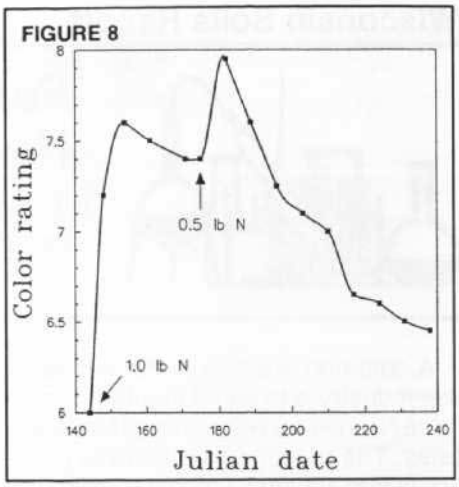
It might also be argued that only an idiot would apply 1.0 lb N to bentgrass in mid-summer. Because we had recorded color responses to urea and IBDU applied at different rates and had found responses to the two to be additive when applied together, we can also simulate bentgrass color responses at rates other than 1.0 lb. Figure 8 shows what would likely have happened had the rate of the second N application been reduced to 0.5 lb/M. As shown, this rate reduction reduces the height of the

FIGURE 7



Simulation of creeping bentgrass color response to a 20:80 urea-IBDU combination applied at a 45-day interval rather than a 31-day interval (Fig. 5). Arrows indicate fertilization times.

FIGURE 8



Simulation of creeping bentgrass color response to successive applications of a 20:80 urea-IBDU fertilizer at rates of 1.0 lb and 0.5 lb N rather than two 1.0 lb rates (Fig. 5).

peak in color response in early July, but the overall pattern of color response is far from being uniform over time.

These initial research results raise some serious questions regarding the full value of combining a soluble N source with an SRN. Earlier greenup is the only advantage we could see. The major disadvantage is sharp swings in turfgrass color resulting from successive applications of such N source combinations. More research along these lines is needed. Variables yet to be investigated include the kind of SRN used, ratios of soluble N to SRN, and rates and frequencies of application.

EDITOR'S NOTE: Paul Bouwens is a Soil Fertility major at the University of Wageningen in the Netherlands. His participation in this study as an intern helped fulfil his university's requirement that all graduates have international experience.

"Did You Hear the One About the Golf Course Superintendent?"

By Rob Schultz

One of the perks of working for *The Capital Times* is an interesting conversation anytime I want to sit down with one of my coworkers in the cafeteria.

To say my newspaper has a liberal slant to it is like saying the Soviet Union's economy is in a little bit of trouble. Liberal thinkers flood my newsroom and they love to get on a platform and try to right all the world's wrongs.

The environment is a perfect example. A few days before Christmas one of our reporters who covers the environment bumped into me as I was banging my head against a cafeteria table in an attempt to drum up an idea for this month's GRASS ROOTS column.

"Killers," the reporter said.

"Huh?"

"Killers. Golf course superintendents are killers," the reporter repeated between gulps of his granola bar and fruit drink.

I tried to ignore my coworker by focusing on my Twinkie and Diet Coke. Finally, I congratulated him for talking in such concise sentences and then asked him to explain why he felt such a strong urge to criticize golf course superintendents.

"They've got to be killing something. Pesticides, weed killers, they spray that crud all over their courses, and it gets in the air, gets in the water, spreads into the neighborhoods. Who knows what it's doing," he said.

"Dandelions," I said.

"Huh?"

"Dandelions. My yard was full of dandelions this summer," I repeated.

"So."

"So, I wanted to spread some industrial-strength weed killer all over my lawn this summer but I got talked out of it," I said as I opened a bag of Doritos.

"Who talked you out of it?"

"You won't believe this," I said as I looked my coworker right in the eye, "but a golf course superintendent talked me out of it and taught me how to spot spray with weed killer that isn't harmful to the environment."

The environmental writer looked into his Tupperware full of wheat germ and seemed to be at a loss for words. This was my chance to really make my point.

(Continued on page 29)

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(Continued from page 27)

"There probably are few people who understand chemicals and how they work with or against the environment more than golf course superintendents," I said. "They have to be knowledgeable because they are constantly attacked by both sides. On one side is the golfer who wants his course looking pretty and on the other side is the environmentalist who probably thinks aerifying is dangerous.

"Anyway, most superintendents have degrees in agronomy and they attend seminars all across the country where they are kept up to date by the world's best turf grass researchers. We could only wish doctors would keep as up to date on medical issues the way the golf course superintendents keep up to date on environmental issues.

"In fact, if you need a good source for many of your stories, don't hesitate to call a golf course superintendent. They probably know more about subjects like aquifers than those lunatics at the Department of Natural Resources. And they won't jump up on a soapbox every time you call them like the lunatic at the DNR."

Finally, the reporter walked away mumbling and left me in peace to play with my junk food as I continued my attempt to drum up an idea for my column. Suddenly, I had it all figured out.

"Nickel," I said to myself.

"Nickel?"

"I wish I had a nickel every time a reporter, environmentalist, golfer, golf course builder, neighbor or friend called a golf course superintendent to get an answer to a question. I'd be a millionaire."

For instance, I started thinking about how I needed a golf course superintendent's advice just a few weeks ago. In a not-so-brief moment of insanity, I had just agreed with my wife that we needed to build an 800 square foot addition to our house. But I was told that in order for the construction equipment to travel to the back of our house, a beautiful blue spruce in our front yard would have to be uprooted and moved.

I never heard of a tree moved in December unless it was cut down with a hacksaw and placed in somebody's living room with tinsel draped all over it.

The construction guy told me not to sweat, that it would live. He told me I should trust him.

There was no chance that I was going to trust him. Since I needed to find somebody to trust, I called University Ridge superintendent Jeff Parks. His calming voice and intelligent responses helped settle down this neurotic reporter. When I hung up, I had the feeling he had plenty of experience dealing with neurotics who called to ask advice on moving trees or how not to stripe their lawn when they fertilize.

Unfortunately for Parks and all other superintendents, many of those people are also the first to point fingers and accuse them of hurting the environment. It's just another example of how misunderstood golf course superintendents have been over the years.

I swallowed the last few drops of my Diet Coke, stood up from my chair and headed toward my desk. My mission was accomplished. The theme for my column was complete. Now all I had to do was write it.

"Winter," I typed into my word processor.

"Winter?"

"Yeah, winter. Now I know why golf course superintendents love winter. When nothing is green, inquisitive environmentalists, golfers, neighbors and friends disappear.

"For four beautiful months, fingers stop pointing and the phone doesn't ring."

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