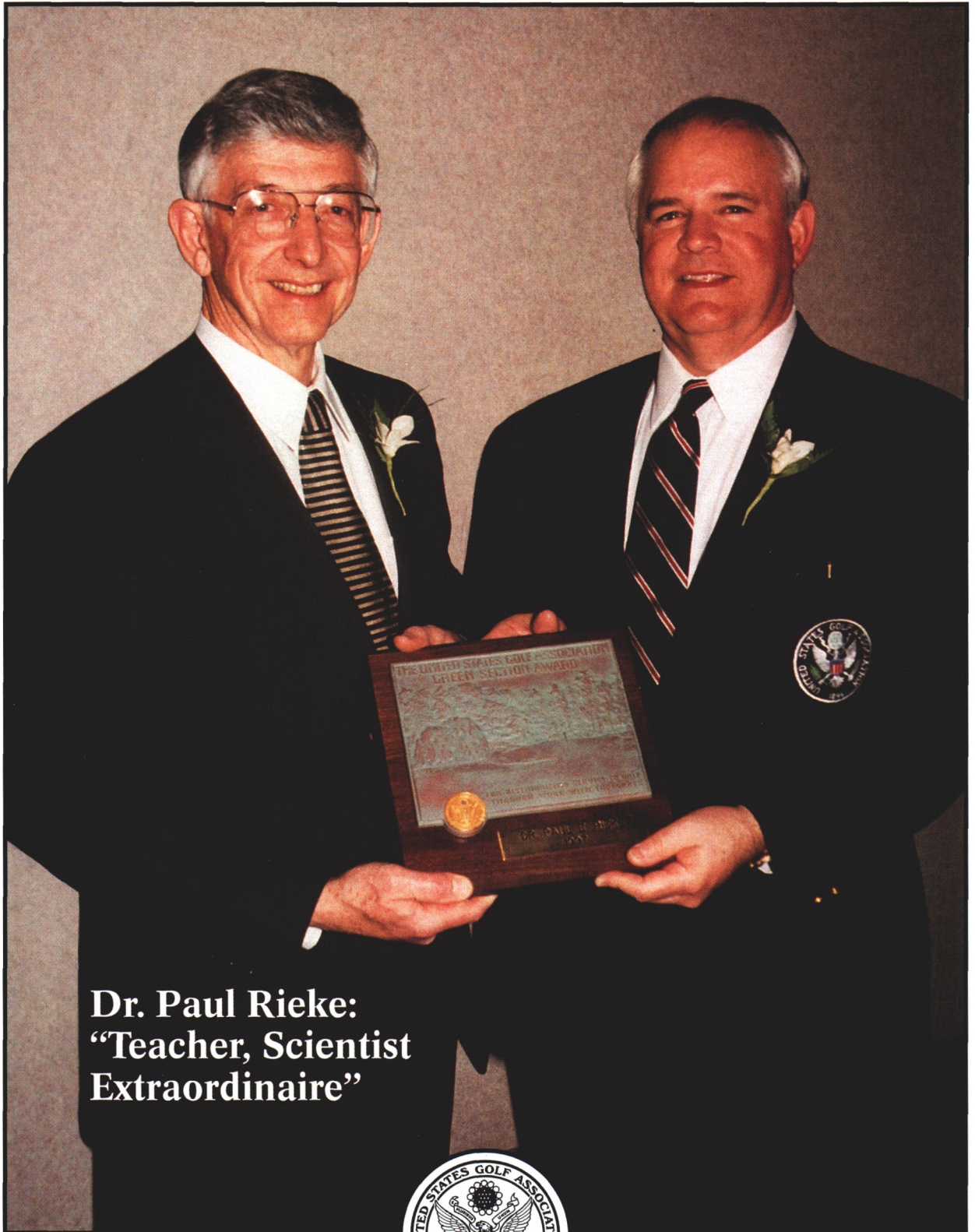


USGA® GREEN SECTION Record

Volume 35, Number 3

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**Dr. Paul Rieke:
“Teacher, Scientist
Extraordinaire”**



A PUBLICATION ON TURFGRASS MANAGEMENT

BY THE UNITED STATES GOLF ASSOCIATION®

Cover Photo: Dr. Paul Rieke accepts
the Green Section Award from
C. McDonald England, chairman of
the USGA Green Section Committee.



Quality installation, attention to detail,
and good technique are the keys to
success when using sod to repair
damaged areas. Whitefish Lake Golf
Club offers a tip to benefit all who face
this task on the golf course.



USGA President Judy Bell, with Pete
Smith, superintendent at Shinnecock
Hills Golf Club (N.Y.), credits the efforts
of golf course superintendents as the
unsung heroes of the game.

USGA® GREEN SECTION Record

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Dr. Rieke has many achievements to his credit,
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DR. PAUL RIEKE RECEIVES 1997 GREEN SECTION AWARD

DR. PAUL RIEKE, a researcher, teacher, and state turfgrass extension specialist at Michigan State University for the past 35 years, has been selected to receive the 1997 Green Section Award from the United States Golf Association. The award recognizes outstanding service to the game of golf through work with turfgrass. It was presented to Rieke in February at the annual conference of the Golf Course Superintendents Association of America (GCSAA) in Las Vegas, Nevada.

Dr. Rieke's academic record includes undergraduate and M.S. degrees from the University of Illinois and a Ph.D. in soil chemistry from Michigan State in 1963. His record of service to the turfgrass industry and the game of golf is extensive, and for this he has been widely recognized by many regional, state, and national organizations. In 1996 he received the Distinguished Service Award from GCSAA.

Those who wrote in support of Rieke's nomination praised his many achievements, but none more than those related to his work as a teacher. He has taught well over 1,000 undergraduate students in the fields of turfgrass management and soil science, many of whom have gone on to prominent positions as golf course superintendents, academicians, industry leaders, and agronomists for the USGA Green Section. Many of his graduate students also have gone on to highly successful academic careers. One of his former students said, "He has a way of explaining things so you can understand them. He makes it interesting, relates to the students so well, and cares about his students. Taking a course from Dr. Rieke is an experience not to be missed."

It's not surprising that he has received teaching awards from both Michigan State University and the College of Agriculture and Natural Resources Alumni Association. He also has taught a plant nutrition/soil fertility workshop to golf course superintendents for 24 years in conjunction with the Golf Course Superintendents Association of America, a program that has reached more than 1600



Dr. Rieke takes time to describe black layer development in a green.

superintendents from more than 30 countries.

As a researcher, Rieke's expertise has been in the area of turfgrass soils, including fertilizer and irrigation needs. Among the highlights have been studies concerning advanced technologies for soil and tissue testing, and crucial work in the practice of water injection and other types of soil cultivation. He has received well over \$500,000 in grants to support his research work, and he was instrumental in establishing the Robert W. Hanncock Turfgrass Center at Michigan State, dedicated in 1981.

The USGA has benefited directly from Rieke's research expertise as well. As one of the founding members of the USGA's Turfgrass and Environmental Research Committee, he has had a profound influence on the direction the Committee has taken in funding turfgrass research. He is one of only two scientists to have served on the committee since its inception in 1982 until the present time, and his practical advice and thoroughness in evaluating research proposals is deeply appreciated and admired.

As extension specialist for the state of Michigan, Rieke counseled hundreds of golf course superintendents over the years, and has responded to thou-

sands of phone calls from superintendents, other turf professionals, and homeowners. For many years he has organized the Michigan Turfgrass Conference, one of the most successful regional programs in the country. He also has spoken at hundreds of meetings and conferences in the United States and in many other countries on issues related to golf course maintenance and management.

A theme common to the many letters of support for his nomination was his concern for others and his willingness to sacrifice for them. Whether as a teacher, counselor, or extension specialist, Dr. Rieke has always found the time to help when his phone rings or a student walks through the door. Never one to seek the limelight, he has served quietly but extremely effectively, building a groundswell of admiration from all who have known him over his 35 years in service to the turfgrass industry and the game of golf. As with many great leaders who are held in esteem by their peers, Dr. Rieke has led not by words, but by his commitment to others and their needs.

In accepting the award, Dr. Rieke said, "This is a great industry in which I have many friends."

Dr. Rieke, your friends thank you for all that you have given.

Teaching Young Dogs Old Tricks

February 11, 1997, Las Vegas, Nevada

FOR THE 16TH CONSECUTIVE YEAR the annual Green Section Education Conference was held in conjunction with the Golf Course Superintendents Association of America International Turfgrass Conference and Show. This year more than 1,600 people attended the Green Section's program on Tuesday, February 11, at the Las Vegas Convention Center. Joe England, Chairman of the Green Section and member of the USGA Executive Committee, welcomed the group, and James T. Snow, National Director of the USGA Green Section, served as moderator for the afternoon's program of 13 speakers who addressed this year's theme, "Teaching Young Dogs Old Tricks."

DEDMAN CURVES

Reflections on learning, earning, laughter, and keeping a good balance in your life.

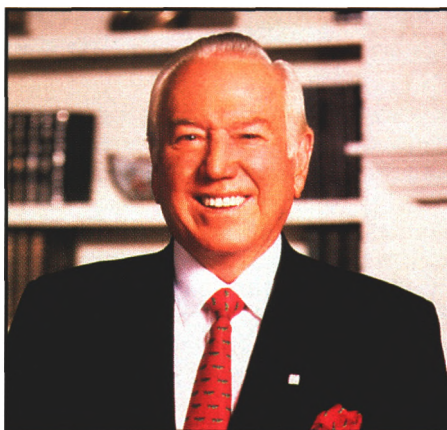
by ROBERT DEDMAN

HAVE YOU heard the difference between a fairy tale and Texas tail? A fairy tale commences once upon a time and a Texas tale commences.

I tell a lot of jokes along the way. I guess, in great part because of that, I'm perceived by a lot of people as being a jokester. I'm perceived perhaps by a lot as just being a big joke. I think it's so important in life that we always take our assignments seriously and the problems seriously, but never limit ourselves too seriously. Whenever we do, in my judgment, we can get so tense and intense that we lose our sense of humor. And, quite frankly, we can burn out too quickly.

We also lose the positive mental attitude it takes to seek and find solutions to big problems. We lose the people articulating skills that it takes to build a consensus necessary to solve the big problems. We also lose the leadership skills that it takes to implement solutions for people. In my judgment, nobody wants to follow a sourpuss. Everybody wants to follow somebody who is positive, sees solutions, and is trying to effect them. So the thrust of my remarks here today will have, hopefully, plenty of humor in them.

There are several more beautiful things about humor. I think that the



Robert Dedman

more we laugh, the more we live. There's another beautiful message in humor and laughter. To have it yourself, as a rule, you have to give it to someone else. We laugh in almost direct proportion to the degree we give laughter to others. So it's such a beautiful message — the more you give it, the more you live.

There are just a lot of reasons to have humor; it's the best quality any executive can have, and all superintendents are executives. If you make it fun and have a sense of humor, you won't burn out. You will have people who will emulate you, follow you, and will want to work *for* you and *with* you forever.

Today, I'm going to talk just a little bit about the importance of keeping your balance. I know superintendents have good educations and are the most conscientious people in the golf industry. We do surveys in our own company, where we have several hundred agronomists, and they have higher educational levels and technical credentials than we have in any of our other disciplines, and we have more than 26,000 people in our business. We have the longest term employment with superintendents as partners; they stay as employed partners longer than anyone else, and it's that kind of a glue that holds our company together. So that I know that with all the tensions that can happen in the golf business, superintendents can have high stress levels because they're highly conscientious and highly intelligent.

So I'm going to talk to you about keeping your balance, keeping it all in balance, and looking after *all* of your life, not just your business life or your golf superintendent life. I'm going to enlist the aid here of this four-legged chair that, in my judgment, can make a better speech than I could ever hope to make.

It's very important to keep your balance. A chair just sitting there makes a statement in and of itself, that if any of the four legs were broken or not

looked after, the whole chair would come falling down. I submit that if you don't look at every element of your life, you'll come tumbling down just as truly. I mean by that, you should not only look at your business life, which all of you are highly conscientious about doing, but you should look after your home life, your love life, and your sex life.

I might observe very quickly that if all three of those are the same, than it obviously saves a lot of time. But also you ought to look at your other lives, too, to stay balanced and to live out your whole life with a lot of happiness and fun in it. That would include your athletic life, your church life, your civic life, your social life, your cultural life — all of the various parts of your life. You need to do it through budgeting and time management. Planning. A chair speaks to the importance of staying balanced.

I'll name each of the legs on the chair to add a certain amount of continuity to my remarks. **P, L, A, and N (Planning, Learning, Attitude, Nice)**. In other words, do it by planning and weekly time budgeting.

I realized very early in life that there are 168 hours in a week. If you put 56 hours a week in bed doing whatever, eight hours a night, you have another 112 hours working out of bed. You can use those hours any way you want to. If you use 60 hours of gainful endeavor, either working at your club or on your course, or studying how to be a better superintendent, or even just playing some golf to help your knowledge of golf on the course, then you still have another 52 hours to do other things. And I submit that 52 hours properly deployed is a lot of time. How much time during a week do you dance, do you go to church, or do you make love? You think of all of these things and I'll say very quickly that 52 hours a week, properly deployed and time budgeted, means that you're not overworked when you work 60 hours a week.

I mention a 60-hour work week knowing it's larger than the standard. The difference between people who work 40 hours a week or less usually work for people who work 60 hours a week or more. Usually executives are people who work 60 hours a week or more across the board. And usually they get paid more per hour and they work more hours, 1½ times as long, so they usually accumulate more earthly resources than those who work 40 hours a week or less. But more impor-



The Fazio Course is one of three golf courses belonging to the Barton Creek Conference Resort in Austin, Texas.

tant than that, they have less time to spend their money so they have a propensity to accumulate it, invest it, and end up with better estates. They have more freedom and fun, places to go, and they look after the education of their children, and have a good time in life. So I really submit that the important thing is to do time budgeting.

Now planning is something that we do in our own company. We have all these little ditties: proper planning prevents pretty poor performance. You know, plan your work and work your plan. Plan for the best, pray for the best, and work for the best, but plan for the worst, too. Obviously, superintendents have to do a lot of planning. You have to plan for the worst, too, because the pumps do break down, the water source does get contaminated, sometimes you get some bad fertilizer or

chemical, and sometimes one of your people makes mistakes in how much fertilizer they apply, and sometimes the pumps don't work after the fertilizer has been put on.

I've had all of these things happen through the years. We've burned some greens or burned off some greens and had to start over. There are a lot of things that can go wrong, and when those things happen, you have to have plans on how to handle them. I could talk interminably on planning, but you'll be happy to know I won't.

The second leg of the chair is learning. The more you learn, the more you earn. The more you learn about your business, about how to handle and to work with it, how to keep your course better for less money, the better you will do as a golf course superintendent. You will be at the better courses, get



The Daufuskie Island Club and Resort, located off the coast of Hilton Head, South Carolina, is a new property in the collection of more than 260 CCA properties.

better compensation, and you will be better at keeping your staff.

It's very apparent in life that the more you learn, the more you'll earn. But right behind that is another thing — the more you learn, the more you'll live, which is probably a bit more important. It's not just your business life or your life as a golf course superintendent, but your total life. We know it's not a dress rehearsal we're going through; this is probably the real thing. We had better enjoy it and have a good time with it.

I think the more you learn about everything, the more intently you live. You can enjoy music without knowing anything about it, but the more you know about it the more you experience and live it. You can enjoy art without knowing anything about it, but the more you learn about it the more intently you live and experience it. You can enjoy wine without knowing about wine. But the more you know about anything, the more intently you experience and live. So keep learning about everything, including your own industry.

I wish somebody profound had said that trees are living sculptures by God as constant earthly reminders of his continuing love for man. Because if you see these trees as sculptures as you drive down the road, then you're really living. They're not just blobs on the horizon. If you really know when the different plants foliate and defoliate, then you're really living, experiencing the seasons, and know what's going on. So I will reiterate again: The more

you learn, the more you earn, but more important, the more you learn, the more you live.

The third leg on the chair stands for attitude. If there is one thing that you could give your children, more important than anything else, it would be a positive mental attitude. With a positive mental attitude, you will always win. With a losing or negative mental attitude, you will always lose. So, how do you do it?

I think the best way to get and keep a positive mental attitude is to see the humor in life, tell and receive lots of jokes. I remember as a young man I saw a cartoon one time that showed a couple of guys in chains. They had long white beards, and they were emaciated, their clothes were tattered, and they were on a ball and chain. They were obviously in a dungeon. There were cobwebs around and some rats over in a corner of the picture. The only caption under the cartoon was one saying to the other, "Now here's the plan."

If you have a positive mental attitude, you can always come up with a plan, you can always turn a lemon into lemonade, you can always make a success out of something. I've found there's a key to every lock, and I think humor helps when you get into tough times. You've heard all those ditties. If anything can go wrong, you know it will. Nothing is as simple as it seems. Everything takes longer than you think it will. How about Murphy's corollary — if you have a piece of toast with butter and jelly on it, the proba-

bility of it falling jelly down are directly proportional to the price of the carpet. Well, if you can just see the humor in these things.

There are a bunch of other little ditties. Somebody said, when things get really tough at times, remember, it always gets darkest just before it gets completely black. Somebody said one time to cheer me up, things could be better or things could be worse, so I cheered up and sure enough, things got worse. All those little ditties may not sound like they help, but they get you in a frame of mind where you learn. I remember to the effect that somebody said there's a light at the end of every tunnel. I cheered up because I thought I saw one until I realized it was a train.

The most important thing you can do with a positive mental attitude is set up win-win relationships. Make sure you and all your people win. Usually those who do a better job in life are the ones who win both ways — they win personally and they win professionally. In boy/girl relationships, if one is running at the expense of the other, the loser is going to cut off. In man/wife relationships, if either one is running at the expense of the other, as a rule, the relationship is terminated traumatically for both. It's true in friendships. When you think about it, you're an idiot if you ever expect more from your employed partners and your subordinates — better loyalty than you give them. So you're always an idiot if you think they owe me and I don't owe them anything.

The more you really work in life at setting up win-win relationships in every way, in every facet of your life, the more you're going to win. It really will be a winning experience for you. I have a few more ditties here about other professions. The developer's creed: a dollar borrowed is a dollar earned; a dollar refinanced is a dollar saved; a dollar paid back is a dollar lost forever. Or the CEO's creed: debt that does not come due before I retire or sell my stock is equity. See, you poke fun at everybody. The banker's creed: a rolling loan gathers no loss; you can't write it up, because it doesn't have a due date. You can poke fun at everyone here. The one that I've always enjoyed is the syndicator's creed: you know when you start a syndication, the syndicators have all the knowledge and the experience, and the investors have all the money. Three years later, obviously the syndicators have all the money and the investors a lot more experience.

The last leg on the chair is *be nice*. In my own case, my wife's name is Nancy, so it's easier for me to say the last leg on the chair ought to be somebody's name that you share your life with. If your spouse's name doesn't happen to be Nancy or something like it, and you want to tell the story to your kids for them to have a balanced life, you can tell them the last leg on the chair stands for N or be nice. I have a sign across my desk that says, "Keep your words nice and soft, just in case you have to eat them."

Remember when you were a little kid and your mother said, "Now play nice and be sure to share your milk and cookies with your friends." Well, that's profoundly good advice; be nice and learn to share. If you don't learn to share in life, and that's everything in life, you can get turned so inward and all you ever think about is I, me, and mine. You can get turned inward so badly that you'll be shriveled up on the outside and hard on the inside — like a prune — and that's obviously not good. The more you live outside of yourself and the more you're a giver, then the better and the more fun you're going to have in life.

Interestingly enough, the best way to be a success in business is to surround yourself with givers, because you'll always live with them. They won't be trying to figure out how they can cheat you, how they can not give an honest day's work for a great day's pay, how they can not go above and beyond exceeding members' expectations, as our motto states, and exceeding your expectations is one of ours. If you are a giver, it's easier to attract givers, and givers attract givers. So if you'll be a giver in life, you'll always succeed.

If you are a taker, I think all you're surrounding yourself with are other takers, and you'll always wonder why nothing is working right. It's who you associate with in life that is going to determine your personal and professional life.

I'll wind up here very quickly by quoting a couple of philosophers. At one time I made what I thought was one of the best speeches in my life, and when I got through and asked my wife what she thought about it, she said, "Well, it was a great talk, but you overlooked several good opportunities."

"Opportunities to do what?" I asked. She said, "To sit down."

You'll be happy to know that very quickly I will do that.

But I will give you some profound advice from two great philosophers. The first is Yogi Berra. Yogi said, "When you come to an important fork in the road of life, take it." You're going to think that's not very profound, and it might not be, and I may have attributed a bit more to it than it really warranted in Yogi's mind when he said it, but I think he's trying to say, you're all leaders. When you're faced with a decision to make, make it. Don't waffle on it. If you don't make it, someone else will do it for you.

If you're at a fork in the road and you just sit there, you'll probably get run right over. If you take either fork, you have a 50/50 chance of being right. No



The Cascades Course at the Homestead in Hot Springs, Virginia, is another CCA property.

matter how important any decision is in life, there's a rule that it is just the beginning of a series of decisions. The sooner you get on with making them, the quicker you can rectify them if you haven't made it 100% correctly the first time. Obviously, the more you learn about things, the probability is that you'll make the decision correctly the first time and the more decisive you'll be. When the staff comes to you and says, "What do we do here?" they're looking to you as the decision maker in your operation.

The other philosopher had a bit more substance to what he was saying. Plutarch was a great Roman philosopher. He said that only a fool learns from his mistakes; a wise man learns from the mistakes of others. If you have the positive mental attitude we're espousing here today, you can continue on. A brilliant man not only learns from his mistakes, but more importantly, from what he's done right, and even more importantly, from what others have done right. That's where the more knowledge you get, the more

you can learn how somebody else faced the problem and did it correctly the first time. When you make a mistake, you know, you still don't know what will work, all you know is what didn't work. So you still have to figure out what to do and you need to talk with somebody, consult with somebody, do the studying that you can continue to do in lifetime learning so you'll know how to do it right the first time. That's why Emerson said, "Hitch your wagon to a star and you'll go very far." Get role models and a good education, because the more you get, the more probability you'll have of making the decision right the first time.

Obviously, I get really turned on when I get among such a kindred group of people. I love golf and I love superintendents. I wish, if there is such a thing as reincarnation, that I'm reincarnated as a superintendent. I'd love to work on golf courses all day long, being out with the birds, trees, the green grass, and the flowers. All of that is one of the most important fun-filled things you can do in life and in our own business.

We often say it's fun to be in the business of selling fun and interestingly enough, the more fun we have, the more money we make. And, interestingly enough, the more money we make, the more fun we have. So those things are reciprocal of each other. I'll reiterate, we only pass along this way one time, so listen, enjoy it, and have a lot of fun in it. I think of those great words from Longfellow:

*Lives of great men all remind us
We can make our lives sublime,
And departing, leave behind us,
Footprints on the sand of time.*

Obviously, the golf courses in this country and the world are some incredibly beautiful footprints in the sands of time. The institutions like Pinehurst and Homestead will go on forever, as will the USGA, thank goodness. And all of you are making some beautiful footprints in the sands of time. You flatter me by asking me to be with you here today and with your kind eyes.

ROBERT DEDMAN is chairman of the board of Club Corp International, based in Dallas, Texas. Club Corp owns and operates 260 properties, employs more than 26,000 people, and has built its reputation on providing high-quality service.

THE BEST TURF TIPS OF 1997

One of the most popular annual features of the Education Conference is the Best Turf Tips. This year, 10 of the Green Section's agronomists reported on some of the helpful ideas and ingenious innovations they came across while visiting golf course superintendents in every part of the country during 1996. The Turf Tips appear throughout this issue.

SAY HELLO AND TEACH

A new idea to help golfers learn how to repair ball marks.

by PATRICK M. O'BRIEN

BALL MARK REPAIR is one of the tasks a golfer can carry out to really help a golf course superintendent protect the appearance and playability of the course. But even with the annual anti-ball-mark campaign carried out by many golf courses, golfers often forget to make the repair. This damage is easy to fix and takes very little time to do, but superintendents constantly look for ways to influence golfers to carry out this chore. Unfortunately, even those golfers who do take the time to repair ball marks often do not do it correctly, and incorrect repair can delay healing just as long as neglect does.

The concept of repairing a ball mark is not easy to understand just by looking at line illustrations and color pictures, but a golf course superintendent in the Atlanta, Georgia, area may have come up with an idea that does a better job of teaching golfers how to do this task.

Ouch!

The impact of a descending golf ball as it hits a putting green is a violent process. According to Frank Thomas, USGA Technical Director, "The speed of the golf ball is approximately 60 to

70 mph as it approaches the putting surface." The golf ball is also spinning at the same time, causing not only a depression from the high speed of impact, but tearing the turf as well. "It is a type of wear injury," says Dr. Bob Carrow of the University of Georgia. From an agronomic viewpoint, the weight and speed of the golf ball results in damage to the turfgrass leaves, crown, and roots. The leaf tissue receives the greatest injury from the impact and the shearing effects of the ball spinning. Other plant damage occurs to the crown and roots behind the ball from displacement during impact.

Recovery depends on several factors, including the turfgrass variety, season of the year, irrigation and fertilization practices, and amount of thatch. Under ideal conditions, it usually takes 7 to 14 days for a ball mark to recover, if correctly repaired. It takes twice as long if improperly repaired. New leaf growth usually originates from surrounding crown tissue adjacent to the injury. For example, bentgrass in the late summer will recover more slowly due to the shallower and finer roots that are more susceptible to tearing injury. On the other hand, bermuda-

grass will recover more quickly in the late summer, with its stronger roots and more active growth.

The Mark Hoban Method

Mark Hoban, certified golf course superintendent at The Standard Club, Duluth, Georgia, has come up with a new idea to help golfers learn how to fix a ball mark correctly. Each spring, Mark selects a major golf event at the club and stands behind his favorite green. After each group has completed the hole, Mark introduces himself and demonstrates the proper technique for repairing a ball mark. Mark also answers any questions about the procedure. After the demonstration, Mark gives each golfer a repair tool as a keepsake.

Golfers Remember Mark

During the rest of the golf season, Mark receives many benefits from this spring communication event. Everyone knows that Mark is the superintendent, and they ask him to demonstrate to guests how to repair ball marks throughout the year. The members also understand that Mark's putting green maintenance objective to keep the green surface dry and firm helps to reduce ball marks.

Ball marks are one of those "under everyone's nose but too close to see" issues that isn't addressed enough. The active role taken by Mark Hoban has helped alert his membership about how they can assist their golf course superintendent with ball mark repair. At The Standard Club, more golfers are repairing ball marks the correct way. It's amazing what a little teaching time and communication can accomplish.

Giving golfers a free repair tool will encourage players to fix ball marks.



PATRICK M. O'BRIEN is director of the USGA Green Section's Southeastern Region.

SEW IT SEAMS

Old parts can become useful tools for sodding putting greens.

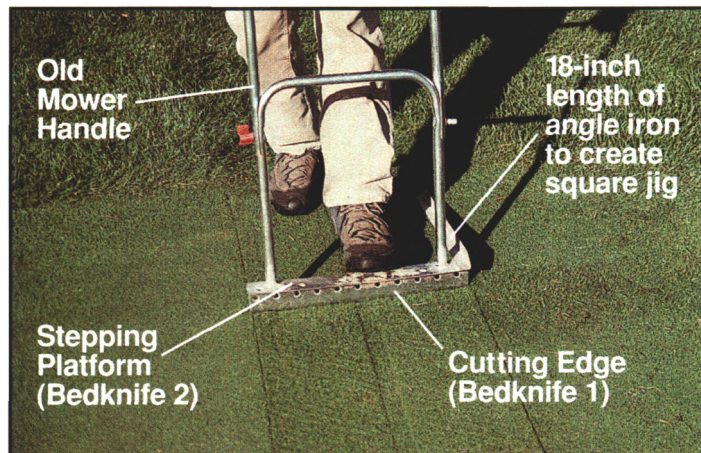
by MATT NELSON

THE NEED to use sod for putting green repairs or establishment eventually arises at most golf courses. As with most aspects of turfgrass management, sod work on putting greens demands precision, attention to detail, and good technique. In fact, work done on putting greens is often the most noticeable work conducted on the golf course, and justifiably so. Fifty percent of the game occurs on less than two percent of the entire golf course acreage — the putting green. With today's cutting heights and player demands for putting surface quality, there is no margin for error when it comes to installing putting green sod.

Whether establishing a new green, recapturing lost portions of shrunken greens, or repairing damage from environmental influences, mechanical accidents, or vandals, job quality is critical when using sod. Job quality will directly influence the rate of establishment, mowing quality, ball roll, and, ultimately, the time it takes for the sodded area to attain maximum playing quality. This is just what Dick Collins, superintendent of Whitefish Lake Golf Club in Whitefish, Montana, and his crew realized while working with putting green sod during a construction project in 1992.

The golf course was being converted from a 27-hole to a 36-hole facility, and two existing greens were reconstructed to accommodate the rerouting and design changes. These two greens were sodded to return the existing nine holes to play quickly. Putting green sod for the project came from the two greens to be reconstructed and from an established putting green nursery. Layering was not of much concern since the root zones were very similar.

Upon starting the project, the crew realized that the best fit and highest quality were attained when individual sod pieces were laid in precisely the order in which they were cut. With a project of this magnitude, though, logistics proved difficult. After some discussion, the crew concluded that if they had some sort of tool or jig that



Two bedknives, an 18-inch length of one-inch angle iron, and an old lawnmower handle were used to create this tool which cuts perfectly square pieces of sod. The 18-inch square pieces are easy to handle and fit well together.

could cut perfectly square pieces of sod, the order of sod replacement would not matter and they would attain a perfect fit with every piece. Since the sod cutter produced 18-inch-wide strips, a tool that could cut perfectly square 18-inch lengths would be best. Square pieces can be laid in any orientation and fit very well together. Eighteen-inch square pieces are also easy to handle. Large pieces that require rolling can more easily fall apart or become stretched, and they may require timely modifications.

When crew members expressed their desire for such a tool to golf course mechanic Curt Ost, two discarded 18-inch bedknives, an old lawnmower handle, and a piece of 1-inch angle iron were combined to make the idea a reality. The bedknives were welded together perpendicularly, with one knife serving as the cutting edge, and the second serving as a stepping platform to drive the cutting edge through the turf. An 18-inch length of 1-inch angle iron was welded at a right angle to the left edge of the bedknife cutting complex. This created an 18" x 18" square. Lastly, the lawnmower handle was attached for ease of use.

Once this tool was taken to the field, job quality and efficiency improved dramatically. Pieces were uniformly installed and the seams were tight. Not only were perfectly square pieces of sod harvested, but the tool proved to be very easy to use and gentle on the operator's back, too! The angle iron

side aligns the tool with the sod cutter line, and the tip to the previous cut. One person can quickly cut hundreds of square pieces of sod.

This tool also can reduce waste when making repairs to putting greens using sod. An article written by the USGA Green Section's Mid-Continent Director, Paul Vermeulen, describes squaring-off the targeted area to facilitate ease and quality of repairs (*Green Section Record*, May/June 1996). By squaring-off the selected area, it is conceivable that an exact amount of sod can be transplanted by using this tool and measuring lengths divisible by 18 inches.

Whether repairing small damaged areas, or establishing an entire putting surface, quality installation is the key to success when using sod. In-house sodding projects will require a putting green nursery (which should be identical to the existing greens in grass composition and root zone), time (this should not be a rush job!), and good technique. This Turf Tip emphasizes the benefits of crew continuity and stresses the importance of an innovative mechanic and recycling. The next time you are poking around in your shop, remember, there just might be a use for those old bedknives and mower parts, or *sew it seams!*

MATT NELSON "seams" perfect to attend to the needs of golf courses in the Northeastern Region as agronomist for the USGA Green Section.

RING MANAGEMENT

A useful tip to help you get rid of mower ring around the collar.

by JOHN H. FOY

THE INTRODUCTION of the triplex putting green mower in the late 1960s was a significant event in the golf course maintenance industry. These units provided savings in manpower hours for routine mowing of putting surfaces, and in turn helped control course operating costs. Since their introduction, modifications and further improvements in the performance of these mowing units have been made by the various manufacturers. Today, in addition to routine mowing, they can be used for other operations, such as verticutting/grooming, spiking, brushing of topdressing material, and rolling of putting surfaces.

However, the occurrence of "triplex rings" has been a problem associated with their use. Around the perimeters of putting surfaces, a ring-like pattern can develop where the triplex mowers are used to make the final cleanup cut. Over time, a progressive deterioration in turf quality and coverage can occur. Triplex ring problems result from the mowers being operated on the same path day after day when making the cleanup cut, and the perimeters of the putting surfaces receive double traffic. Thus, along with increased soil compaction, additional wear and abrasion are exerted on the turf. These turf wear problems are even more pronounced in locations where tight turns must be made and/or severe surface contours are present. The rate of turf deterioration greatly accelerates during periods of environmental stress or when other growth-limiting factors come into play.

Over the years, various measures have been used to try to counteract the occurrence of triplex rings. One of the most common has been to skip the cleanup cut two or three times per week. When this mowing schedule is used, it is also a standard practice to dew whip the perimeters of the putting surfaces so that the golfers do not notice the ragged cut pattern during the early morning hours. Altering the cleanup cut in from the edges and then back out, along with extra aerification of the putting green perimeters, has helped. Unfortunately, these measures have not always been adequate in

alleviating or preventing the occurrence of triplex rings.

In keeping with this year's conference theme of "Teaching Young Dogs Old Tricks," my Turf Tip comes from Frank Sbarro, golf course superintendent at Sawgrass Country Club in Ponte Vedra Beach, Florida. Sawgrass Country Club is a 27-hole private facility that was the early host site of the Players Championship. As with most facilities, very high member expectations exist, yet walk mowing of all of the putting surfaces, particularly through the long, hot, and humid summers of northeastern Florida, was felt to be labor-intensive and cost-prohibitive. An old trick for dealing with triplex rings is to use a walk-behind mower for the cleanup cut. In some cases, walk mowing the cleanup cut of problem greens during stressful periods has been adequate. At Sawgrass, routine walk mowing the cleanup cut around all of the putting surfaces has totally eliminated triplex rings. For labor efficiency, the staff members

assigned to daily course setup (changing of hole locations and tee marker placement) also mow the cleanup cut. Thus, one triplex mower plus one utility vehicle with a walk-behind mower on a trailer is sent out per nine holes.

Furthermore, regardless of whether triplex or walk-behind mowers are being used, having them set up with smooth rather than grooved front rollers is another beneficial old trick for reducing mechanical stress and turf damage. Over the past couple of years in Florida, the use of smooth front roller setups during winter overseeding establishment or when adverse environmental conditions are occurring has become a common practice.

As they say, "What goes around comes around," and this is definitely the case with walk mowing of cleanup cuts and the use of smooth front rollers.

JOHN H. FOY has been director of the USGA Green Section Florida Region since 1990, based in Hobe Sound, Florida.



Regardless of whether triplex or walk-behind mowers are being used, care must be taken to avoid the problem of triplex rings around the perimeter of putting greens.



Moving the clean-up pass on putting greens in one foot every other cut is one solution to relieve stress and the occurrence of triplex ring.

Sage Advice From A “Young” Pup

All that glitters is not gold, and all that is new is not necessarily better.

by WILLIAM H. BENGEYFIELD

I’VE BEEN a very fortunate pup! Since 1948, I’ve had the great privilege of being a part of the turfgrass management scene associated with golf. When Larry Gilhuly invited me to participate in the Green Section’s annual education conference, I decided to catch up on some homework. After all, I’ve been in “retirement” since 1990 and not exactly on the cutting edge of research. Surely, I thought, science and technology have passed me by.

Nevertheless, I haven’t exactly been dead these past seven years. Consulting in Spain at Valderrama Golf Club, where the Ryder Cup will be played this September, has been a rewarding challenge. The *Green Section Record* and *Golf Course Management* magazines are still the best in the business. I’ve kept up with the pesticide advisor and applicator exams and attended the GCSAA Conferences.

Overall, the basic precepts of good turfgrass management are the same; they haven’t changed one bit! In fact, I doubt they will ever change. Harry Truman once said, “The only thing new in the world is the history you haven’t learned.” I like that. Another quote I like is from Ogden Nash. He said, “Progress might have been all right once — but it’s gone too far!”

Thus, if I may, I’d like to remind you of some simple “facts” and “truisms” of yesteryears. I like to think of them as Magical Facts that worked then, have largely been forgotten or pushed out of the way by *progress*, but will still work for you today!

Fact No. 1

You have heard it said and it’s true: We live in the high-tech age! But I like what the Green Section’s Jim Moore said about this in his Turf Tip a few years ago. He titled the article “Hi-Tech Can’t Replace Common Sense!” Frankly, I wish we lived in an age having more common sense — but that may be expecting too much. *Good common sense is one of the most*



Bill Bengeyfield

important keys to good turfgrass management!

Our schools and universities are turning out a lot of high-tech graduates, but somehow they’ve missed courses in Common Sense, Logic, and Problem Solving. Here is a beautiful example of it for you — automatic irrigation systems.

Mike Huck, another great guy with the Green Section, recently wrote an article on high-tech irrigation systems. You should read it. He truthfully points out that we now have fantastic capabilities: elaborate computerized control panels with dozens of flashing colored lights, hooked up to an automatic weather station, a technicolored video screen, satellites all over the place, digital printouts — the works! The whole thing (sprinklers, wires, computers, pipes, satellites, etc.) costs about a million dollars. Water can be turned on and off with split-second accuracy. You can do anything with it!

Well, almost anything. Unfortunately and too often, you really can’t irrigate very well with it. Why not?

Because someone in the *irrigation loop* didn’t spend enough time thinking about what the system is expected to do. They didn’t think about proper

sprinkler head triangulation and placement, about sprinkler head capabilities to fit different circumstances, about nozzle performances, about adequate pressures throughout the system, etc.

In a word, someone forgot what an irrigation system is really all about: complete coverage, the right precipitation rates for the area in question, proper control, and someone who knows how to irrigate properly. We have a million dollars worth of flashing lights, but we have poor coverage and poor results.

High-tech? *Yes!*

Common sense? *No!*

Fact No. 2

Another problem I see today is an overconcern with *thatch*. Why is thatch so widely condemned? Why does everyone want to get rid of it?

I think I know. Our training, our professors, our textbooks, and just about everything we read and hear tell us — *warn us* — that thatch is bad and we must get rid of it.

To the contrary, I believe thatch plays a very important role. In fact, it is more important today than ever before.

But before discussing *thatch*, let’s first agree what it is. Dr. Marvin Ferguson’s *Dictionary of Turfgrass Terms* says, “Thatch is that tightly intermingled layer of dead and *living* parts (roots, shoots, stems, stolons, leaf tissue, etc.) that develops between the green vegetation and soil surface.”

In this day and age, I believe we need thatch on greens of ½ to 1 inch in thickness. Here are my reasons:

- Thatch reduces soil compaction.
- Thatch moderates soil temperatures.
- Thatch limits evaporation of soil water.

Furthermore, a proper amount of thatch is absolutely necessary in providing a degree of resiliency on the putting surface, i.e., an ability to “hold” a properly played shot. A proper



It doesn't matter how sophisticated the irrigation system is on the course; it still comes down to the fact that the system needs to provide quality coverage and the operator needs to make sound decisions when programming the system.

amount of thatch is essential to good putting qualities — a tight sod and a smooth surface. Why do you think we have far more complaints today over “spike marks” on greens than we had 10 or 15 years ago? Today, spike marks are a major complaint. Why?

A proper amount of thatch is essential for resistance to heavy traffic wear, ball marks, and damage of any kind.

Thatch is an important factor in all of the above. The fact is, thatch (the *proper amount* of thatch) is essential to a good putting green. And yet, time and again, our university people and too many superintendents preach that the thatch layer is bad and must be eliminated!

Why is this bad advice today? Because greens are being mowed much more closely and much more frequently today than ever before. Double cutting is now practiced even for club tournaments, let alone heavy rolling and triple cutting for major championships.

In the past 10 or more years, we have followed a tremendous reduction in fertilization rates on greens. With moderation, I think this is a good practice, but it certainly has reduced turf growth and thus thatch development.

Whether public or private, golf courses have more play, wear, and compaction today than 20 or 30 years ago. High-performance greens are expected by golfers today at all times. Everything we do to meet that expectation reduces thatch: close and frequent mowing, frequent use of groomers, verticutting, frequent topdressings, brushings (we've never had so many different kinds of brushes), and frequent rollings (more compaction and wear).

Ah, you may ask, “What about thatch and disease?” It's true! *Too much* thatch means greater disease susceptibility, and too much thatch can lead to other problems as well — *but not a managed thatch layer* of ½ to 1 inch. Today we have machines and techniques that easily can control thatch. We have great fungicides available for any disease problem. They're expensive, but they work. We have the ability to control diseases and thatch!

Fact No. 3

Another wonderful way to control thatch if need be — and do yourself a lot of other good — is with lime. We have forgotten the magic that can be found in lime. You should know about it. It's one of the first chemicals used on golf courses, and we inherited the idea from the farmer and his pastures. Believe it or not, lime can actually cause grass to grow!

When the U.S. Amateur was played at The Country Club in Brookline, Massachusetts, in 1934, lime was used for lines around the greens to control the gallery of that day. Now, of course, we use yellow ropes. Twenty years later, in 1954, a very dry spring occurred in New England. Strikingly, around every green was a noticeable line of green grass caused, naturally enough, by the lime application 20 years earlier. There are photos to prove it.

A few years ago, a young, college-graduate golf course superintendent asked what he could do to reduce the deep accumulation (6 to 8 inches) of thatch on his greens. His membership was upset. Footprinting was very much in evidence, and this young fellow was under a lot of pressure.

I told him of a lesson I was taught many years ago by O.J. Noer, one of the great pioneers in turfgrass management for golf. O.J. and I were making a golf course visit together in Victorville, California, in 1954. The greens had a lot of thatch on them and O.J. said, “You'd be smart to apply some hydrated lime to these greens two or three times a year for the next couple of years. Use about two pounds per 1,000 square feet in early spring, early summer, and again in fall. In a year or two, you'll have a lot less thatch.”

It worked! Two years later these greens were in great shape, and excess thatch no longer was a problem.

It seems hydrated lime immediately furnishes free calcium, slightly raises the pH level within the naturally acid thatch layer, and causes soil micro-organisms to work overtime, feed on the thatch, and, in nature's own way, substantially reduce excess organic matter.

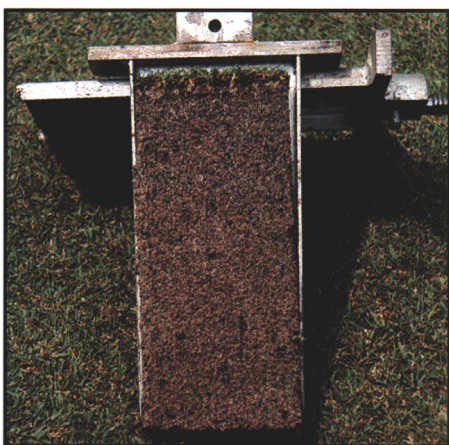
When I told my young friend this story, he showed considerable doubt, furrowed his brow but nodded in agreement and left.

About two weeks later he was back with another question. “You know,” he said, “I've checked your story about using hydrated lime with several other superintendents and university people. They've never heard of it! Who can you name as an authority to substantiate what you have said?” Obviously, he never knew O.J. Noer!

You see, we have forgotten the magic of lime. Even under alkaline soil conditions, as was the case at Victorville, California, thatch layers are just naturally acidic, and hydrated lime will work wonders. Oh yes, an 80-pound bag costs about \$6.00. The original thatch-lime research was done at The University of Rhode Island in the 1930s.

Let me tell you another story about lime. It also works. When I first came to the Green Section in 1953, Tate Taylor was recognized as one of the outstanding superintendents (greenkeepers) of the day. He was one of the first college graduates in our business. Later in his career, he became a member of the Green Section staff. Tate was not only college smart, but field smart as well.

During one of our many bull sessions, Tate said, “You know, whenever you visit a golf course and the superintendent is having trouble with a couple of greens and he has tried everything he knows and nothing



A good root zone mix is the baseline for quality greens, but it is critical that a proper layer of thatch develop to provide resiliency and good putting qualities before opening new greens for play.

works, tell him to try a little lime. Either hydrated lime at two or three pounds or ground limestone at 5 or 10 pounds per 1,000 square feet. Then, stand back. Nine times out of ten, within a few days the situation will improve or be totally solved."

I've told this story at least a dozen times to superintendents who were in trouble and had tried everything else. And in every case, the lime worked! When all else fails, try a little lime and remember Tate Taylor.

There's another use for lime. Frequently in the fall or even a difficult summer, greens may become a little thin and open. Algae will soon form and then crust over. It may become black and start to flake. If allowed to go unchecked, it will smother the grass and inhibit recovery. Now it's true you can spend money on algicides and wetting agents and what have you, and they'll probably work. You can also dust a little hydrated lime, at the rate of about two pounds per 1,000 square feet, over the algae and it will disappear. One or two additional applications may be needed every other day or so, but have no fear, it will work; just give it a few days.

The only word of caution I can give when you use lime is to be sure to separate its use by a week or so from any applications of a readily soluble nitrogen fertilizer. If the two materials are applied too close together, they could cause a leaf burn.

We seem to live in an age of excesses. We go overboard from one fad to the next. We like to follow trends. This isn't good turf management, and it isn't good for the turfgrass manager or his future.

Low nitrogen levels for greens have been the rage for years and *moss* became a problem. High nitrogen levels were "in" 20 years ago and disease problems were rampant.

Very high potassium levels have been "in" in the recent past, but we knew potassium was important to cell wall thickness, winter hardiness, and wear resistance in the 1930s. There's nothing new here!

Because of the Stimpmeter, golfers thought all green speeds should be 12 feet or more just a few years ago. Today, most golfers are happy with 8½ feet, and they enjoy *green* greens all summer.

In the recent past, someone has been promoting and recommending the frequent rolling of greens. I have a problem with this, especially the long-term effects of it. It doesn't make common sense, no matter who may proclaim its virtues or the research. To prove the point, I can personally tell you of a real horror story of a prominent golf course where it was practiced and met with disastrous failure!

Another update. Synthetic high-analysis, slow-release fertilizers were the rage 20 to 25 years ago on greens. Now they are starting a comeback, supposedly because of environmental concerns. I think they have a place in certain programs and conditions. But bear this in mind: Their rate of nutrient release is determined largely by soil temperatures and/or soil moisture levels. Once applied, you no longer have control over their release rate, and conditions may bring about nutrient release at a time when you do not want additional growth or stimulation. *Make sure you use them properly.*

I'm also concerned with fertilizers having exotic analyses and promising cure for this or that. They *may* have a place but are too often not the panaceas claimed.

Finally, Green Section greens are built with 80% sand, more or less. And

people believe they will drain no matter how much water is applied. Right? *Wrong!* The recommendations developed by Dr. Marvin Ferguson were designed to *reduce soil compaction*, not allow excess irrigation. The idea that anyone may apply as much water as he likes to Green Section greens simply does not know (1) how to irrigate properly, and (2) the truth about the management of such greens!

Where's The Common Sense?

And so we have come full circle. Moderation in *all things* — that's the answer. We must properly use the knowledge we have. Lime in excess can cause problems. Thatch in excess is not good management. But this does not mean we can forget their basic importance, uses, and techniques. I plead with all of you not to overlook the wisdom and experience of the past. They are rich and valuable. Let us guard against a headlong rush to invent something new when we already have an effective and inexpensive answer from the past.

Believe me, that *Bridge to the Future* has its foundations in the experience of the past.

Oliver Wendell Holmes once said: "Science is a first-rate piece of furniture for a man's upper story — if he has common sense on the ground floor. But, if a man hasn't got plenty of good common sense, the more science he has, the worse for his decisions and those he serves."

The Noers, the Taylors, the Graus, the Fergusons, Radkos, and Steinigers have already left us a treasure of knowledge. Shouldn't we use it?

WILLIAM H. BENGUEYFIELD retired as National Director of the Green Section in 1990, after 34 years with the Green Section staff. His influence on promoting sound golf course management is spread far and wide.

Proper management of nutrients and environmental conditions is key to controlling moss on putting greens.



MULCH-A-MATIC

A rotary mower blade that turns a standard deck into a mulching deck.

by PAUL VERMEULEN

ALL OVER THE COUNTRY, golf course superintendents are either trading in or retiring their trusty (rusty?) rough gang mowers for multi-deck rotary mowers. The disenchantment with gang mowers is easy to appreciate and is due to a combination of factors, including:

- Bogging down in wet conditions.
- Clutter, such as small tree branches, clogging the reels.
- High cost of maintenance (reel grinding, bearing replacement, and overhauling of gearboxes).
- Inability to mow areas covered with leaves.
- Poor maneuverability in heavily wooded areas and on steep slopes.

While rotary mowers have become the new undisputed kings of the rough, their standard decks could use some improvement. One common problem associated with standard decks is that they can leave the playing surface covered with clumps of grass and leaves.

To address this problem, manufacturers are attempting to develop mulching decks with sealed openings that recut large clippings and other debris until they are small enough to fall into the turf canopy. By sealing the opening, however, mulching decks tend to struggle and often bog down with unmulched clippings when the turf is dewy or wet. Ideally, superintendents want the clean cut of a mulching deck and the ease of mowing of a standard deck during wet conditions.

To reap the advantages of both the standard and mulching decks, Ron Briminger, golf course mechanic at Norwood Hills Country Club in St. Louis, Missouri, developed an ideal hybrid — a standard deck with his own revolutionary mulching blade. The genius of Ron's blade is the four louvers on the opposite side of the cutting edge. These louvers redirect a high percentage of the air flow towards the center of a standard deck so that large clippings and other debris are recut over and over. The result is roughly

a 30% to 50% reduction in the amount of grass clippings and leaves left on the playing surface.

To make the blades available to the turf industry, Ron sold his blade design to Frederick Manufacturing Corp. in Kansas City, Missouri. They in turn sell the blades nationwide under the name Gator Mulcher™ through Silver Streak Distributors. The blades are made to fit a long list of commercial mowers, including top brands such as Bunton, Dixie Chopper, Honda, Jacobsen, John Deere, Lesco, Toro, and Walker. The

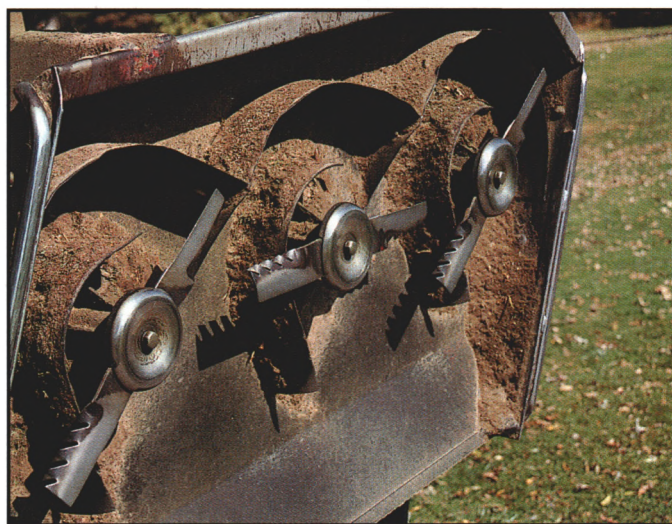
blades also are made in universal sizes of 19", 20", 21", and 22".

Gator Mulcher™ blades offer an easy way to retrofit existing rotaries so that they have the advantages of a mulching mower and the power of a standard mower in wet conditions. The retrofit takes just a few minutes with a handy air wrench and can be made with a minimal investment.

PAUL VERMEULEN is director of the USGA Green Section Mid-Continent Region.

To enhance clipping recycling underneath standard rotary decks, superintendents can equip them with mulching blades.

A blade that has become popular for this purpose is the Gator Mulcher™. Its revolutionary design creates an air flow towards the center of the deck through a series of four louvers.



The genius of the Gator Mulcher™ blades is the four louvers on the opposite side of the cutting edge. These louvers redirect a high percentage of the air flow towards the center of a standard deck so that large clippings and other debris are re-cut over and over.

ANOTHER COVER-UP

An inexpensive, effective way to maintain dry topdressing.

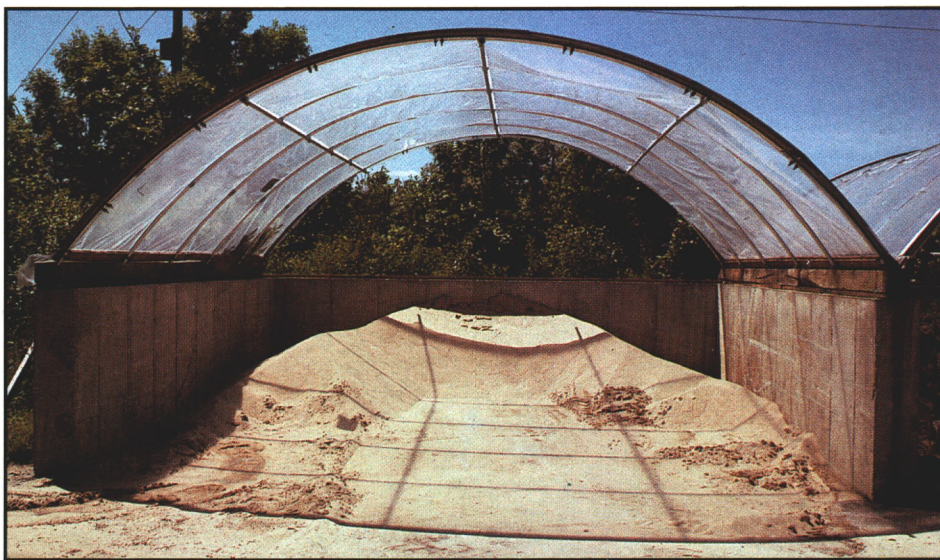
by BOB VAVREK

SUPERINTENDENTS generally agree that topdressing greens at two- or three-week intervals throughout the season will result in smoother, more consistent putting surfaces. Topdressing sand-based greens at regular intervals is an absolute necessity for preventing thatch accumulation. Many older soil-based greens are topdressed with sand or a blend of sand and peat to (1) improve drainage, (2) increase resistance to compaction in the root zone, and (3) provide more consistency in playing conditions among greens.

Frequent, light topdressing is a labor-intensive, time-consuming task that often disrupts play. The use of dry materials can significantly increase the efficiency of the topdressing process. Concrete or wooden topdressing storage bins are found at many golf courses. Few, however, are provided with any overhead protection other than plastic sheeting or a tarp. Anchoring a tarp over the stockpile with old tires or cinder blocks does not allow the free exchange of air and moisture, and damp topdressing is the result.

Ed Kirchenwitz, the golf course superintendent of the Straits Course at Whistling Straits in Kohler, Wisconsin, has engineered a simple, effective, inexpensive way to cover topdressing storage bins. The design is a modification of the semicircular, plastic-covered greenhouse structures commonly used in the horticulture industry.

The framework for the cover consists of parallel metal hoops mounted in holes drilled into a railroad tie base. The holes must be drilled at a fixed angle into the ties to ensure a consistent height across the top of the structure. The hoops are placed at four-foot intervals along the ties and stabilized by three metal-pipe crossbars. Lengths of pressure-treated lumber (10' x 1" x 4") are bolted at the base of the hoops along the railroad ties to hold the plastic cover in place. Three-foot lengths of the lumber are used to secure the plastic cover along the arc of the front and back hoop.



A plastic-covered roof can readily be installed over existing topdressing bins to provide effective protection from the elements.

The pressure-treated wood is anchored to the metal hoops using 3" carriage bolts through a flat steel bracket. The brackets are made by cutting a length of $\frac{1}{8}$ " x $\frac{1}{2}$ " steel stock into 3" sections and drilling a hole at each end to accept the carriage bolt. A 6-mil-thick plastic sheet, treated to resist UV degradation, is then used to cover the hoop framework. The plastic is stretched across the hoops and secured to the boards along the base of the railroad ties by sandwiching the sheet between another length of 1" x 4" lumber. One-inch wood screws are used to fasten the two boards together once the plastic is pulled tightly between the wood. A length of rain gutter can be mounted along the railroad ties, where the plastic meets the top of the bin, to collect and move water away from the base of the topdressing shelter.

The cost of the material to cover a 17' wide x 20' deep topdressing bin was approximately \$500 and required about 20 hours of labor. Materials and hardware for the cover included: 6 hoops, 3 stabilizer pipes, 18 cross connectors (stabilizer to hoop), 6-mil UV-treated plastic sheeting, 16 10-foot lengths of 1" x 4" pressure-treated lumber, 80 $\frac{3}{8}$ " x 3" carriage bolts, 6 feet

of $\frac{1}{8}$ " x $\frac{1}{2}$ " metal stock, and two 20-foot lengths of rain gutter.

The plastic shelters work surprisingly well, considering the bins are open to the elements across the entire front and part of the back. In fact, keeping the front and back of the shelter open is the reason why high winds do not cause the roof to lift off the bins. According to several superintendents, rain rarely reaches the inside of the shelter. Since air freely circulates around the sand, any moisture in the topdressing can evaporate rapidly — unlike what occurs under a tarp.

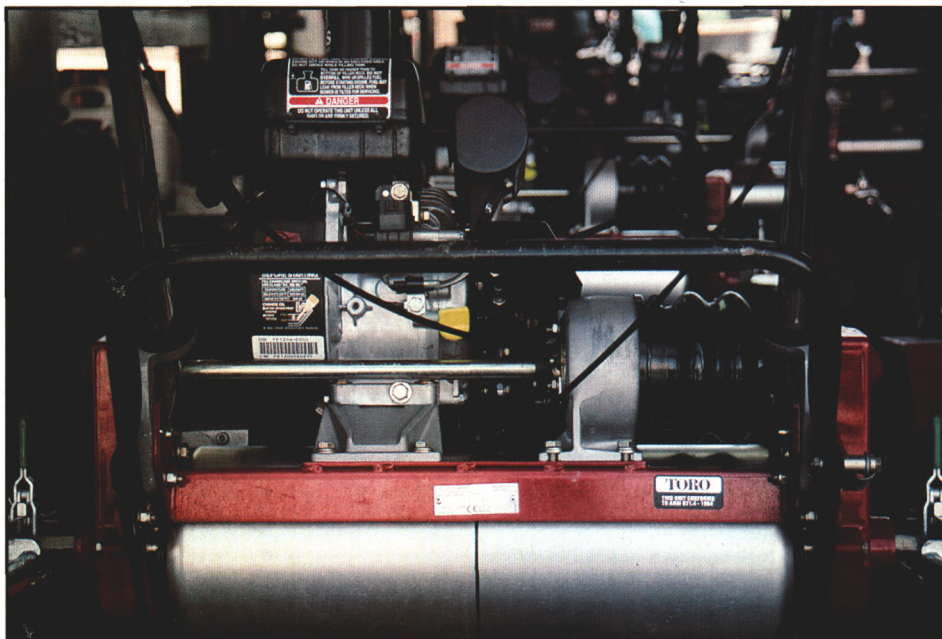
The most common problem associated with this shelter is from equipment operators who damage the framework when topdressing is placed into or removed from the bins. If the height of the hoop framework is designed to accommodate the type of equipment that will be used in the bin, there will be much less risk of structural damage. In contrast to the political *cover-ups* frequently reported in the media, this type of cover-up produces positive results.

BOB VAVREK is an agronomist for the USGA Green Section North-Central Region, based in Elm Grove, Wisconsin.

'OIL PAINTING'

Color-coding dispensers and equipment fill ports effectively communicates the proper fluid each reservoir requires.

by MIKE HUCK



Color coded equipment fill ports and bulk dispensing units communicate to the operator the proper lubricant to use.

COMMUNICATION with employees is an ongoing and never-ending challenge for any golf course maintenance organization. Whether it is a chemical application technique, operation of a mower, or required daily maintenance of power equipment, the

proper training of each and every employee is paramount. Factor into this equation the time and effort required to train new seasonal staff members in northern climates or the need for an interpreter where language barriers exist with immigrant employees,

and these communication challenges can become overwhelming. What appears to be the simplest of daily procedures can become the most frustrating and time-consuming of problems. Just when you think that a new employee has a good grasp of his duties, *Murphy's Law* jumps right out and proves you wrong!

Take for example the simple task of topping-off an oil reservoir before using a tractor or mower. Sounds easy, but an untrained operator may wonder, "Does that unit require 10W-30W or 20W-50W?" Using the improper fluid can cause serious and costly long-term problems such as an ailing hydraulic system or, even worse, a blown engine. If the mechanic is not available to inform the operator which lubricant is needed, valuable time also will be wasted researching the proper specification. This scenario does not even take into consideration the waste of time, money, and effort that is required for the equipment technician to drain, flush, and refill a lubricant reservoir contaminated with the wrong product!

Paul Janosik, golf course superintendent at the Foothills Golf Course in Denver, Colorado, solved these problems when he and his staff developed the oil painting system. This very simple idea virtually speaks for itself. Each fill port on every piece of equipment is color-coded to match the coordinating bulk dispenser unit. No longer must an operator look up the lubricant specifications or have to bother a mechanic when performing daily equipment services. This system saves time for both the mechanics and operators, and eliminates the chance of the wrong fluid ending up unintentionally in any unit . . . providing none of the employees are color blind!

So do some oil painting in your shop and eliminate one more worry from both your and your mechanic's long list of potential problems.

As agronomist for the Green Section's Western Region, MIKE HUCK always color-codes his Turf Advisory Service reports to the golf courses he visits.

Ryegrass Is Better Than No Grass

First aid for collars, traffic areas, and eyesores.

by STANLEY J. ZONTEK

ON MOST GOLF COURSES, I suspect there exists an area of bare soil or thin turf that is best described as an *eyesore*. You know the spot. That area of bare ground where sand accumulates on the collar, near a bunker, and no matter how much you hand water it or how many times you resod it, it still dies each year.

Time or budget never seems to be available to thoroughly renovate the area, redo the bunker, strip the sod, remove the zone of sand accumulation, and add fresh soil, thereby solving the problem.

Other candidates for renovation include areas where golfers walk on and off the green, always in the same spot, wearing out the grass. No matter what you try to do in terms of traffic control — signs, ropes, etc. — problem areas of this type are common on most golf courses. You may even dream about trying barbed wire. What other choices do we have?

Also, one of the newer problems we now see on golf courses is the decline of bentgrass collars on some new greens. Any number of explanations exist as to why these collar areas become thin and die. Probably no one single cause exists. However, the fact remains that on some new greens, especially in the Transition Zone region, the grass on some collars, for whatever reason, dies in the summer. This creates a problem much greater than an eyesore. It can be a huge public relations problem. Why is the grass on the new green, cut at a much lower mowing height, thriving while the collar area, cut at a higher mowing height (which should be better for the grass), is thinning and dying? Until such time as the experts can sort out the problem, the golf course superintendent still must grow grass in any and all of these problem areas. What to do?

Sometimes golf course superintendents need a grass that functions as a *Band-Aid*. This is the essence of my turf tip. Perennial ryegrass can serve as



Nice perennial ryegrass collar in the Transition Zone.

a short-term to intermediate-term *fix*, even in situations where this grass is not normally considered for use. That's right. Perennial ryegrass can be that grass.

The most-often-asked questions about using perennial rye on collars or areas adjacent to the putting green include:

1. How about disease control? Won't the ryegrass become more diseased than the grass on the greens, especially during the hot, humid summer in the Transition Zone?

While ryegrass is susceptible to many diseases, most collar areas are sprayed along with the greens. As long as a reasonably comprehensive fungicide spray program is followed for the greens, including the ryegrass collars, disease problems with the collars have not been a huge problem.

2. How long will the ryegrass persist under these conditions?

Today's new generation of perennial ryes are remarkably persistent when growing at traditional collar mowing heights. Some ryegrass collars persist and perform well for years. To maintain good density, overseeding in the fall is a good idea.

3. How can the ryegrass be removed?

Chemically, products like chlor-sulfuron (Telar or Lesco's TFC) can

selectively remove perennial ryegrass from creeping bentgrass. Spot treatments with bentazone (Basagran) also chemically stress the ryegrass. Over time, gradual thinning of the ryegrass occurs, which allows the creeping bentgrass to gradually transition back into these areas. Finally, renovation and resodding is always an option.

4. Are there any other reasons for using perennial ryegrass in these collar areas?

Yes. For one, perennial ryegrass is recognized as being a tough, wear-resistant grass. On high-traffic areas, it just may be the best grass to use.

Perennial ryegrass collar areas can also serve as a buffer strip, in the northern half of the Transition Zone, between bentgrass greens and bermudagrass in the banks and approaches surrounding putting greens. Perennial rye is tolerant of a number of different products like ethofumesate (Prograss) and/or fenoxaprop-ethyl (Acclaim), which can help manage and control bermudagrass encroachment into greens. This is not a perfect solution to the problem, but it can provide the golf course superintendent with another option in the battle against bermudagrass encroachment into bentgrass greens.

5. How about the difference in color, texture, and playability between ryegrass and bentgrass? Will the golfers detect the difference?

Yes, there is a difference, but golfers probably will detect the difference between dead grass and bare soil more quickly and with greater passion than they will detect the difference between ryegrass and bentgrass. That's the point of this turf tip from superintendents of the Transition Zone. Ryegrass is better than no grass.

STAN ZONTEK directs the activities of the USGA Green Section's Mid-Atlantic Region. He is based in West Chester, Pennsylvania.

That's Why They Call Them Superintendents

Perhaps they can't fly and they wear name tags instead of a big "S," but in this game they are truly super.

by JUDY BELL

I'M GOING to tell you a little story about Chuck Clark, superintendent at Broadmoor Golf Club, and his crew. We had the Women's Open at the Broadmoor in 1995, and for three years I sort of lived with these guys. I was continually telling them to "bring in that side of the rough 2½ inches and cut this grass around the green just ⅛", and lower that area ⅛." I mean, I'm picky, there's no question about it.

So the day of the presentation ceremony when I thanked the crew, I said, "There's good news and there's bad news. The bad news is, the Open is over and we won't have this excitement next week, but the good news is I will be out of your face." They all screamed and cheered. That's the biggest applause I've ever received.

My dictionary says that super means above and beyond. It also defines the superintendent as one who has oversight of and exercises the charge of something. On the same page, I found the definition of superman and it meant the overman. I really liked that because all of the superintendents I know look over the whole world of that particular course that is your charge.

Last year, the USGA had a sensational championship season. More than 33,000 players entered and more than 600 sites hosted our qualifiers. The national championships for the most part ran on time. And as is the case each year, the supermen of each championship are the superintendent and crew. During our centennial year, the USGA produced three videos called *Heroes of the Game*, which included *Golf's Greatest Legends*, *Golf's Greatest Women*, and *Golf's Modern Heroes*. I'm ready for the title for the next one; it's *Unsung Heroes of the Game — Golf Course Superintendents*.

Just to glance at my own experiences these past years, I'm sure glad to know that these past 28 years have not been a dress rehearsal. I wouldn't want to do it again, but I loved every minute of it! I have really enjoyed working with the



Judy Bell

superintendents and the crews. Many times you make it possible for a championship to finish on schedule or simply finish. You know better than I do about weather and how fickle it is. You know we can't control it, but that's what separates our game from all the others. Weather enhances the experience of playing golf; however, I'm not so sure weather enhances your job. In fact, it can be a real pain in the neck. But maybe it doesn't hurt to make all golfers aware that it is the superintendent and the crew who must react to these outside elements on a moment's notice in a very creative way. It just isn't business as usual each day.

In 1989 our Women's Mid-Amateur was to be played at the Hills of Lakeway Golf Club near Austin, Texas. I arrived at the course the morning of qualifying after I was awakened about 4:30 a.m. by horrendous thunderstorms. Texans call them frog-strangers. When I arrived, Roger Harvey with the USGA Regional Affairs staff told me, "You're not going to play any golf today." Well, the super-

intendent, the crew, the director of golf, Clayton Coleman's staff, the USGA staff, and the volunteers all pitched in. We had to redefine some of the hazards. The biggest challenge was preparing a place in each bunker on the golf course that was not nearer to the hole where a player could drop her ball. We made it and only lost three hours to the clock. It was a miracle.

In 1982, the Women's Amateur was at the Broadmoor Golf Club. We had heavy rain all week — well, really all summer long. The South Course was terribly saturated even before we began. We had fierce storms every day, and early on Friday, we simply had to call play. We were looking at places to move the Championship to. One more drop would have put us out of business. We did finally finish, only one day late.

Then I take you to the 1987 Women's Open at Plainfield Country Club in New Jersey. This truly was the championship from hell. A tornado and heavy rains literally hit the course. I mean, we were lucky to have finished at all, let alone two days late.

In 1986, at Five Farms we had 11 inches of rain beginning on Thursday, only two pumps, and only one of those pumps worked! In 1989 it was the U.S. Open at Oak Hill and I can remember driving in one morning to see Joe Hahn and his crew and fire trucks pumping water out of the eighth fairway. If I hadn't known better, I would have thought they were emptying a natural lake. It looked like it was impossible. I didn't think we would play. And, as you know, we did.

In 1990, the Women's Open was conducted at the Atlanta Athletic Club with Ken Mangum as superintendent. We brought the players off the course an average of five to six times a day. They were very unhappy campers. In fact, on Saturday, only three groups played 18 holes.

In 1991, the Women's Open at Colonial Country Club was dry as a bone. The thermometer topped 100°F.



Newport Country Club (Rhode Island) lets nature take its course with an irrigation system for tees and greens only.

Tom Warner, the superintendent, was on every news and sports show in town showing his crew covering the greens with ice cubes to lower the temperature. You'll have to ask him if it worked. In 1992, the Women's Open was again at Oakmont. Thank heavens the greens were firm to begin with because Mark Kuhns and his crew, along with crews from nearby courses, squeegeed greens and pumped water out of bunkers more than once from the thunderstorms. And then in 1990, at the U.S. Amateur at Cherry Hill in Denver, and Dan Pierson will tell you that I am not exaggerating, we had a severe hailstorm with hailstones the size of baseballs hit the course four weeks before the championship. It was a disaster. And even you would say the course couldn't be brought back, but they brought it back in spades. Without the work of Chris Haig, his crew, and even the club's members, at the 1993 Women's Open at Crooked Stick in Carmel, Indiana, we never would have been able to play the final round after high winds, severe storms, and heavy rains knocked down trees and saturated the

course. I tell you this is the most damage that I have ever seen.

And for more heroics, how about last year's U.S. Open at Oakland Hills in Michigan? This course had conditioning as close to perfect as it could be, and then the day before the event, a severe storm hit. Just for starters, there was flooding, wading pools created everywhere, washed-out bunkers, and a lot of squeegeeing that had to go on. And I'll tell you, by Thursday morning, bunkers were back in shape, restored, and ready to go. The destroyed bunker on number 18 actually looked like it had been there forever. I think it was a better design than what they started with.

These are some of my experiences, and I'm just one of the many people who believe that you, as superintendents, are the real heroes of the game.

You may know I am from Kansas, where the GCSAA headquarters is located, and sometimes, just as in Dorothy's odyssey, my journey in golf has really been on a yellow-brick road. If this were the land of Oz and I could make three wishes, this is what I would

wish. First, I would wipe out the fixation golfers have with green speed. Where did we ever get the idea that a putting surface has to produce double digits on the Stimpmeter® to be good? Who says that faster greens are more difficult to putt? An argument could be made that on fast greens, all a player has to do is to get the ball rolling on the right line. Slower greens call for judging how hard to hit the putt, as well as judging the line. I'll tell you one thing — we were able to get firm greens at Shinnecock, but not lightning speed and — I rest my case — Corey Pavin was dead level par in winning.

Byron Nelson was asked what is the biggest difference in the game since he played. His answer was, "The lawnmower." Our Green Section did a survey of green speeds at noted golf clubs in the mid-1970s. The average was 6.5 feet on the Stimpmeter. At the 1985 Walker Cup Match at Pine Valley Golf Club, you'll be interested to know that the fourth fairway was a six on the Stimpmeter.

Secondly, I would get rid of soft greens. The firmness of greens is



At The Country Club of Brookline, the importance of having a quality superintendent and crew when reacting to unexpected events cannot be overstated.

critical, particularly when it comes to the best players in the world; otherwise, we are playing dart golf. This idea isn't new; over the years firm greens have caused players to develop more shots around the greens.

For my third wish, I would bring the fairway, the closely mowed area, up around the green wherever possible. I do believe that the U.S. Open setup with four- to five-inch roughs around every green has influenced the setup for many courses around the country. This ring of high grass serves as a backstop for shots that are too long. Why shouldn't the ball end up where you hit it rather than being trapped? I agree with the philosophy that around the green the farther you are from the target, the worse lie you deserve, but that's not true when you have this five-inch rough just off the green. The player who hits that almost perfect shot could be six or seven paces from the hole, yet deep in tall grass.

The U.S. Open rough around the greens has caused the pitch-and-run shot to virtually be lost. At Shinnecock, however, we moved the grass to fairway height around 13 greens and you will see even more at Pinehurst in 1999. At Shinnecock it was dicey; as nay-sayers claimed, the course would be softer. The truth is, players had choices to make — a chip shot, a pitch shot, a lob — all could be hit with a variety of clubs. After all, shouldn't choices be part of the examination? Besides, on so many courses across the country, it's doing what comes naturally to bring the fairway-length grass up around the green. It's much less contrived.

This game, as we know it, is all about imagination. It should be part of the championship test and it should be part of the everyday game. It's elusive; it's like a butterfly; you never quite catch it. But, you know, that's part of golf's charm.

The writer John Updike said, "All it takes for a golfer to attain his happiness is a fence rail to throw his coat on and a target somewhere over the rise." Well, that is the pure delight of golf.

As you know, though, the players at most courses are looking for a bit more than a target somewhere over the rise. They want your course to be as smooth and green as Augusta National, and, by the way, they also want their greens to be as fast as Augusta. Any member who owns a lawnmower is likely to think he is the one to give you the best advice.

One school of thought has it that today's equipment is making some very great old golf courses obsolete, and it's true that certain players hit the ball further, but does everyone? The throttle isn't wide open. The USGA does have rigid standards and limitations on the ball and the equipment. The relationship between improved distances and scoring on these great old courses comes from three factors — the player and the course both being in better condition and some technical advancements within the standards.

In working on course setup for many championships, I rode shotgun with the late P.J. Boatwright, former Director of Rules and Competitions for the USGA, for almost ten years as he did advance work and hole locations during the championships. As you can imagine, I finally got the paint can in

my hand and I've stayed involved ever since. It really is my favorite thing, and a big part of it has been that I've had the opportunity to work with superintendents and their crews and to get to know them. I think there is absolutely nothing better than being on a golf course at daylight with the mowers going, the fresh smell of cut grass, the dragging of fairways, holes being cut, tee markers being placed, and the sun coming up right over the hill. I learned from P.J. that the ultimate goal is to set up a fair test, and provide an examination for the players that calls for them to use every club in their bag and every shot they have. You know very well we can call for a certain setup, but you make it happen; you're the ones who get the work done.

At the USGA we strive to be good listeners. As I see it, the challenge is working through all of the technology, the information highways, and commercialism, while preserving that wholesome, simplistic side of the game. It's up to us to stretch our best minds and resources to preserve and protect golf's future. We need to encourage building courses where everyone can afford to play and where it takes less time to play. We just can't have too many little courses. In Summit, New Jersey, they have a nine-hole, par-3 layout. The registration fee for the season is \$15, and it costs \$2.50 a round. It operates 30 weeks a year to the tune of 41,000 rounds. It's not unusual to see a match consisting of a family or four 11-year-olds.

Our USGA education initiative focuses on turfgrass education, and, as

you may know, we support the largest private turfgrass research effort in the world. Since 1983 the USGA has funded nearly 100 research projects at 33 major land-grant universities at a cost of nearly \$15 million. The goal remains the same — to develop better grasses that use less water, fewer pesticides, and require less maintenance. And I'll tell you, our USGA agronomists are perhaps our best educators, supporting superior playing conditions and sound environmental practices. When it comes to a labor of love, I'll challenge anyone to match this group. It's no accident that Stanley Zontek got the Don Rossi Award and Jim Snow is the *Landscape Management* Person of the Year. I'm so proud of what they do and I salute each one.

I have to keep in mind, and you do too, that a typical golf course covers 150 to 200 acres. On the average, the rough and the out-of-play areas occupy about 70% of that land. With this statistic, it isn't any wonder that most of us end up hitting our ball in the rough a good share of the time. The statistic, however, presents great potential for golf courses to serve as suitable habitats for a lot of species other than golfers. Through our Wildlife Links

Program, I had the pleasure of meeting a red-cockaded woodpecker at the Mid-Pines Club, and at the same time, Bruce Babbitt, Secretary of the Interior. All of the USGA efforts have one central idea, and that is to ensure suitable playing conditions while providing a beautiful, healthy environment in which the game can be enjoyed.

We plan to expand our youth and education grant program this next year. Last year we made 31 grants; one went to build a series of holes in Kansas City, Missouri, where kids can learn to play the game. Tom Watson, who's involved in the project and told us about this opportunity, said we don't need elaborate bunkers, contouring, and spectator mounds; we just need a course where kids can tee up a ball and hit it into the hole.

Superintendents are all very talented, and every season you battle the elements that are beyond your control. At least you can say your job is full of surprise. In your work, more is not always better. In fact, my favorite irrigation system is at Newport Country Club in Newport, Rhode Island. When a member complains, Bob Reynolds, the superintendent, can honestly reply, "Just talk to the man upstairs!" because

there isn't an irrigation system through the green — it's just tees and green.

Many of you are pressured to push golf courses right up to the edge. Sometimes you're standing there on that limb by yourself, and the people who suggested you push it right up to the edge sort of fade into the background when it goes over the edge. At the USGA we want golf courses to allow the superintendent to be the communication link and the major player when it comes to decisions that affect the course. I mean, that's such a basic concept of good management.

We must remember that we didn't invent this game; we're just here to look after it, and you're the ones charged with looking after the playing fields. I've always appreciated why you're called super, which means above and beyond. Believe me, you are the unsung heroes of the game and we just couldn't play this game without you.

JUDY BELL has supported the USGA as a volunteer for more than 28 years. She was elected president of the USGA in January, 1996. She also fills her time as a successful businesswoman in Colorado Springs, Colorado, and has been actively involved in many civic activities.



Oakland Hills experienced a severe thunderstorm less than 24 hours before the start of the 1996 U.S. Open. The grounds crew reacted with speed and precision, and had the course ready to go for the championship the next day.

Using New Technology to Solve an Old Problem: Trees

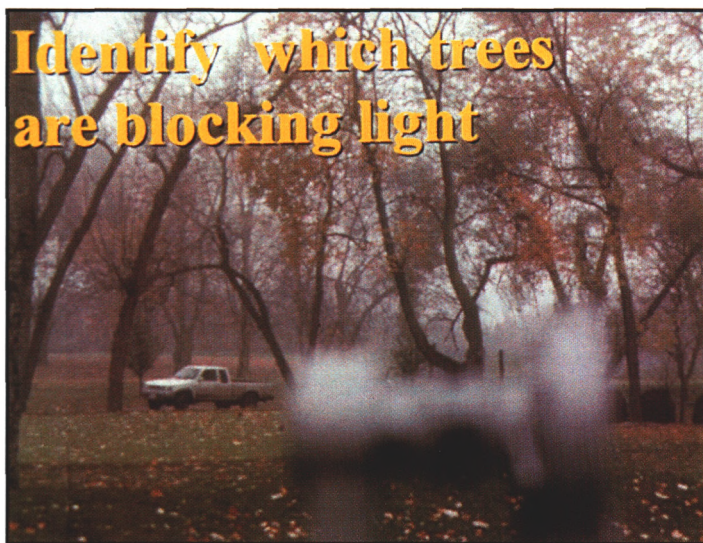
A computer program pinpoints the location of sunlight and helps with tree management.

by DAVID A. OATIS



Look down the site.

Simply look down the site on the sun location device and "identify precisely which trees, or branches of trees, are actually blocking the sunlight."



Identify which trees are blocking light

AFTER MAKING more than 1,200 Turf Advisory Service visits over the last nine years or so, I have come to the conclusion that there are just two types of golf courses in North America: courses that have already been over-planted with trees and courses that eventually will be! Trees are an important part of landscapes and a tremendous asset to many golf courses, but an overabundance of trees can cause many different kinds of problems. For starters, trees can cause playability problems; more significantly, they can make it physically impossible to grow healthy, vigorous turfgrass.

Unfortunately, man seems to have a pathological urge to plant trees, and golf courses are especially attractive sites due to their size. Even if a vaccine to combat this seemingly genetic disorder were developed tomorrow, it would be too late for the many courses that have already become over-planted. In these cases the only solution is tree removal.

Herein lies the crux of the problem: Few programs are less popular than tree removal. In fact, tree removal is so unpopular that it often is forbidden by golfers who love trees but do not understand how important sunlight is to turfgrass. Several Turf Tips aimed at increasing the awareness of tree-related concerns among golfers and course officials have been presented over the years. This Turf Tip is another in a long line of tree-related Turf Tips, but it utilizes *new technology to solve this old problem*.

The idea comes from ArborCom of Toronto and licensee Scott Robinson from Arborists Tree Service in Bracebridge, Canada. It has been used successfully at several courses, including Thornhill CC in Toronto, Canada, where Keith Bartlett is the golf course superintendent. Robinson uses a technique developed by ArborCom that combines specially designed software and sun location equipment. These tools allow him to identify the exact

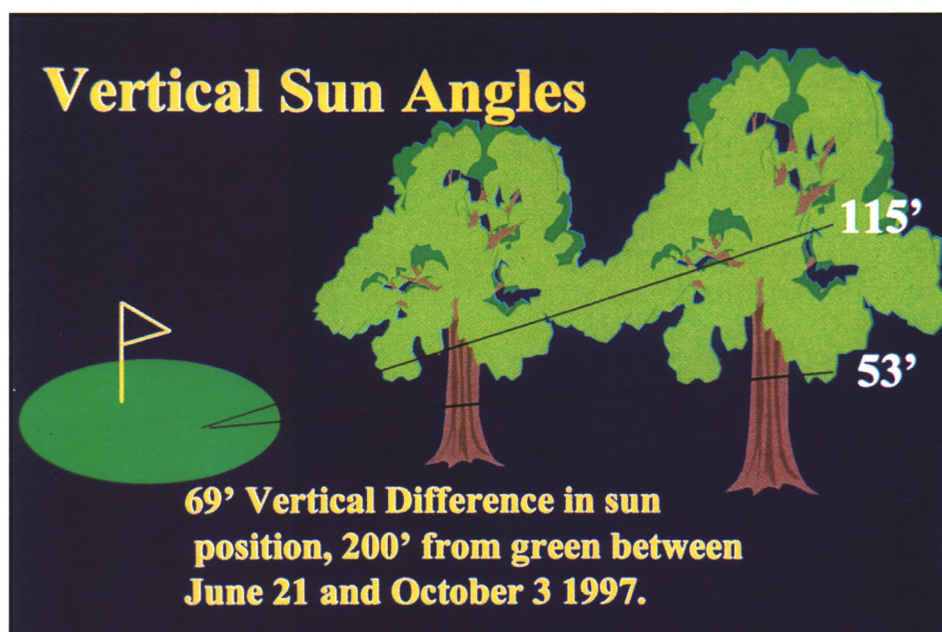
position of the sun, at any hour of any day, during the entire year. The information generated can then be used to help decide which trees, and even which branches of trees, need to be removed to increase sunlight penetration. The technique will help quantify the additional light to be gained and can help determine the potential value of the work *if it is performed*. This information is extremely useful in weighing the intrinsic value of a specific tree versus the increased light that would be generated by its removal. With foresight, the program can also be used to determine precisely where new trees should be planted to avoid future controversy. As Scott Robinson put it, "This process removes the guesswork by allowing me to pinpoint the exact location of the sun." The technique is so accurate and effective that unnecessary tree work is eliminated and, according to Superintendent Bartlett, "It saves as many trees as it gets rid of."

A compass by itself simply does not provide enough information. Computer software like ArborCom's, which uses astronomic algorithms to determine the sun's position throughout the year, is needed to make better-informed decisions. The sun does not rise precisely in the east, nor does it set precisely in the west, and the positions vary considerably during the year. You might be surprised to realize just how much the sun's positioning changes during the year. Here is how the technique works:

A computer generates the sun's coordinates in 15-minute increments for every day of the year, for a given geographic location (these coordinates must be recomputed for courses more than 30 miles apart). The sun location equipment is then set up in the shadiest portion of the turf area in question. Coordinates for a chosen time and day are entered into the equipment, which then indicates the position of the sun. By inputting multiple dates and times, sunlight and shade patterns can then be computed for various time periods throughout the year. This sunlight survey can be performed at any time during the year with equal accuracy.

This technique requires specialized equipment, data interpretation skills, and a thorough knowledge of trees. More than likely, your best bet is to hire an arborist with the technology and skill to plot sun locations to provide the service for you. Here is a little advice if you decide to give this technique a try:

- Have a tree crew present and equipped with radios. The offending



Sun angles in the horizontal plane vary throughout the year.

trees and/or branches can be removed as you survey each site without having to rely on anyone's memory. It is essential to have a tree crew present in cases where several layers of plant material exist around the site in question.

- Be sure to have course officials present for the assessment so they can authorize the work. Visual proof can influence the vote, and it is a good precaution to have witnesses.

- It is wise to shoot sun angles from multiple positions, so don't just have your consultant set the sun location up on the shadiest or weakest portion of the turf area. This is especially important for sensitive situations, such as

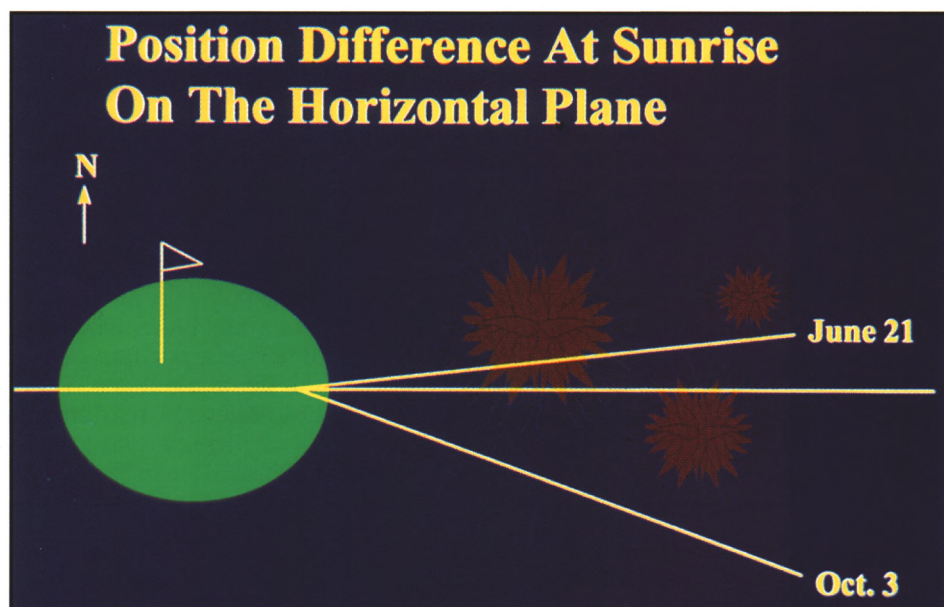
when the fate of a favorite tree is in question.

- Carefully consider the time of day and the time of year when increased sunlight penetration is most needed. Note that morning light is the most critical to turfgrass, but eight hours of direct light is the minimum considered necessary to produce quality turfgrass.

- A competent golf course architect and Green Section agronomist should also be included in the process to get different perspectives.

- For the more politically sensitive situations, have the sun location consultant develop and present a report, complete with pictures, diagrams, and a proposal for doing the necessary work.

This technique provides an easy and accurate means of documenting the amount of sunlight fine turf areas receive at various times during the year, and it helps identify which trees can be pruned or removed to increase sunlight penetration. Perhaps most valuable of all, this technique helps to assess the relative value of the work *before it is actually carried out*, and this will insure that you achieve the maximum effectiveness from your tree removal efforts. Politically, you will not find a more valuable tool. Try harnessing new science and technology to solve one of your oldest and biggest problems!



"The sun does not rise precisely in the east, nor does it set precisely in the west."

DAVID A. OATIS joined the USGA Green Section staff in 1988 as agronomist for the Mid-Atlantic Region. He currently serves as Director of the Northeastern Region.

Is It Really GUR (Ground Under Repair)?

How you answer this question will impact course maintenance, playability, and public relations.

by BOB BRAME



Excessive white paint, to mark Ground Under Repair, can reflect negatively on a maintenance program. Avoid marking areas that can and should be defined under Local Rules, such as gravel-filled drainage lines. If it is Ground Under Repair, then repair it as quickly as possible.

W E ALL HAVE pet peeves that bring quick and pointed responses. I confess the excessive marking of Ground Under Repair (GUR), which occurs all too often, is one of mine. Too much white paint alters the play of the game we all love, while communicating a less than positive message to golfers about course conditioning.

This Turf Tip was inspired by the 1996 Senior Open Championship at Canterbury Golf Club in Cleveland, Ohio. Unfortunately, several hydraulic leaks occurred on various pieces of equipment. Although grass killed by hydraulic oil does not look very pretty, it does not necessarily alter fair play. This point is especially true on closely cut surfaces like greens, tees, and fairways. A similar argument can be made for dormant bermuda or zoysiagrass — although they may not be green during the winter months, playability is just fine. The absence of green color is not

the standard for marking GUR. In fact, the lack of grass does not always call for white paint.

During the 1996 Senior Open, a hydraulic leak killed some grass on a fairway and on into the adjacent rough. The leak occurred while the mower was on the fairway. When the operator noticed the problem, the unit was immediately driven into the rough. The incident happened during a practice round, just before championship play started.

The damaged turf in the rough was marked as GUR, while the fairway kill was left for normal play. The hydraulic oil kill on the higher mowed (4-5") rough resulted in quick deterioration of the playing surface both in and immediately around the damaged turf. A player whose ball comes to rest on the damaged grass and yet up against the healthy tall rough surrounding it, would have an unfair penalty. Conversely, the closely cut ($\frac{7}{16}$ ") fairway

would not produce any real difference in playing surface where the grass had died vs. the surrounding healthy turf. (As the injured turf deteriorates and decays, it may eventually become necessary to mark the area on the fairway.)

Similar situations have occurred on greens. Hydraulic oil damage to greens causes very little impact on playability, at least during the first few days after the mishap. Sodding or plugging would, in most cases, require marking as GUR. A brown putting surface does not necessarily call for white paint.

It is important to remember that consistency is the key to marking GUR. All similar irregularities should be treated the same. It is a good idea to tour the entire course before bringing out the white paint. This procedure helps eliminate the possibility of treating similar conditions in different ways. When in doubt, it is much better to miss on the *no-paint* end of the continuum. Consistency is the key to fairness.

Communication is vitally important in golf course conditioning. The excessive marking of GUR can communicate poor maintenance practices. A recognition of the power in unspoken communication should combine with fairness and consistency to guide the marking of GUR. If it is truly GUR, then repair it as quickly as possible.

The rules governing the game of golf have their origin in two basic concepts. They are: (1) Play the course the way you find it, and (2) play the ball where it lies. Yes, there are times when, in the interest of fairness, portions of the course should be marked as GUR. However, all too often the marking of GUR is excessive. Think about it! Is it really Ground Under Repair?

BOB BRAME communicates his ideas on golf course conditioning as director of the USGA Green Section's North-Central Region.

FAKE RIGHT, THROW LEFT!

A simple change can make a big difference.

by LARRY GILHULY

THE SIMILARITIES between a golf course superintendent and a football quarterback are striking. Both are leaders of teams that rely totally on teamwork for success. Both ply their trades on grass fields. Both provide enjoyment and frustration for millions in their respective sports. Above all, both are always learning and inventive when presented with a particular problem.

The Coeur d'Alene Resort Golf Course is located in a scenic portion of northern Idaho. In addition to being the site of the famous floating green, this location provides a wonderful growing environment for creeping bentgrass. Indeed, creeping bentgrass grows so well that an accumulation of three to four inches of thatch had occurred on the fairways during the first four years following construction. Aeration and thatch control were minimal during the early years; however, it became obvious that the excessive thatch needed to be treated in an aggressive manner. Enter John Anderson, golf course superintendent and the new quarterback for the golf maintenance operation.

Superintendent Anderson's program for thatch control started in late 1995 with a three-pronged attack. First, the fertilizer and irrigation practices were changed to slow the accumulation of thatch. Second, a decision was made to treat the fairways similarly to the greens, with ongoing applications of sand. The equipment inventory was upgraded with newer spin spreaders to allow the rapid application of sand at light rates on a frequent basis, thereby avoiding interference with the playing guests. This part of the program has had a significant, positive impact on establishing fairway firmness and assisting in thatch degradation.

The third portion of the thatch control program was an intensive aeration schedule, with complete core removal. But, after taking approximately 18 hours to clean the par-5 first fairway (3.5 acres) in the fall of 1995, it was obvious that a faster solution was

necessary. What was the next play in the game plan? A long bomb to his mechanic, Ray Link, who scored the winning touchdown!

Mr. Link used his mechanical mind to come up with a simple and inexpensive method to address the concerns dealing with core removal from fairways. These problems included:

- Excessive time to complete core removal with one machine (100 yards at a time!).
- Wasted time transporting cores for dumping.
- Excessive equipment wear during core transportation.
- Excessive cost for additional equipment needed to speed the operation.
- Extended course disruption.

While all of these challenges seemed insurmountable, they were easily overcome by producing one small change to the delivery system of the Cushman CoreHarvester. The second, shorter conveyer belt that delivers the cores into the bed of the utility vehicle was removed and replaced with a belt twice as long that swivels to throw cores in the opposite direction! With this change, the following occurred during 1996:

- Core removal was four times faster when throwing cores into three utility vehicles.

- Time was not wasted in transporting cores with the machine used for cleanup.

- Wear on the equipment was decreased.

- Additional equipment purchase was not necessary.

- Course disruption was minimal.

Through the use of an outside machine shop, the frame used for the conveyer belt was remanufactured to fit the larger 6-foot belt. The changeover from regular operation to the reverse direction requires only five minutes and can be completed easily by one worker. The total cost for this change was approximately \$1,000 when completed by outside sources. The cost can be reduced to as little as \$600 if done in-house. For more information about this idea, contact Ray Link at 208-765-2947.

Do you have a situation where this idea would prove helpful? If so, remember to fake right and throw left!

As director of the Green Section's Western Region, LARRY GILHULY helps golf course superintendent-quarterbacks in 11 states come up with winning game plans.



Throwing aeration cores in the opposite direction greatly increases the speed of the operation.

Judy Bell Receives N.J. Turfgrass Association Environmental Award



Judy Bell, president of the USGA, was presented with the New Jersey Turfgrass Association Environmental Stewardship Award from Dr. Bruce Clarke of Rutgers University on December 11, 1996, at the New Jersey Turfgrass Expo in Atlantic City, New Jersey. The award was made in recognition of the dynamic leadership Bell has provided the USGA in taking an important role in developing programs and guidelines that address the issues of environmental protection as they pertain to the maintenance of golf courses.

Organic Matter Minimum Dropped from USGA Green Construction Recommendations

When the latest version of the USGA's recommendations for putting green construction was published in the *Green Section Record* in 1993, an organic matter requirement was included and was listed as 1% to 5% by weight (ideally 2% to 4%). Since previous versions of the USGA recommendations had reported organic matter by volume, there had never been a minimum organic matter requirement prior to 1993.

As many scientists and laboratory staff worked with this requirement, it became apparent that many good-quality root zone mixes were being rejected because the organic matter content was coming in at less than 1%, even though all other physical requirements (such as particle size distribution, porosity, and hydraulic conductivity) were being met. When the

organic matter content was increased to the 1% minimum, many of the mixtures would then fail for other reasons. We then tried reducing the minimum requirement to 0.7%, but then there was the dilemma of what to do when the recommendation came in at 0.6%, and so on.

Because some economical, good-quality root zone mixes have to be rejected because of an organic matter requirement with a range that was somewhat arbitrary in the first place, we've decided to eliminate the range altogether. The Green Section continues to recommend that organic matter be included in root zone mixes, but it will be up to the laboratory test to determine how much should be added. This policy will return us to the recommendations as they existed for the 33 years prior to the 1993 revision.

Jim Snow Named Person of the Year



Jim Snow, national director of the USGA Green Section, was awarded the 1996 Person of the Year Award in the golf category by *Landscape Management* magazine. Terry McIver, editor of *Landscape Management*, was on hand in Las Vegas, Nevada, to present the award to Jim during the USGA Green Section Educational Conference at the annual GCSAA Conference and Show.

Jim Snow has provided leadership for the USGA Green Section since being named national director in 1990. His background provides a wealth of experience for his current role. After graduating with a Master of Science degree in Horticulture from Cornell University, he was hired as an agronomist for the Northeastern Region in 1976, and served as director of the region from 1982 to 1990.

Jim's tenure with the Green Section coincides with a time of great advancement in golf course design, construction issues, new technologies in golf course maintenance, and environmental issues. His leadership and direction guide the USGA's Turfgrass and Environmental Research Program, and he has spearheaded the development and refinement of the USGA Recommendations for a Method of Green Construction. In addition, Jim oversees the Green Section's Turf Advisory Service, consisting of 16 regional agronomists who consult with golf course superintendents and course officials at more than 1,600 golf courses each year. He also is the editor of the *Green Section Record* magazine.

A significant contribution to the game of golf has been his support and development of the Audubon Cooperative Sanctuary Program for Golf Courses, in cooperation with Audubon International. The ever-growing program now has more than 2,400 registered golf courses working to promote ecologically sound land management and the conservation of our natural resources.



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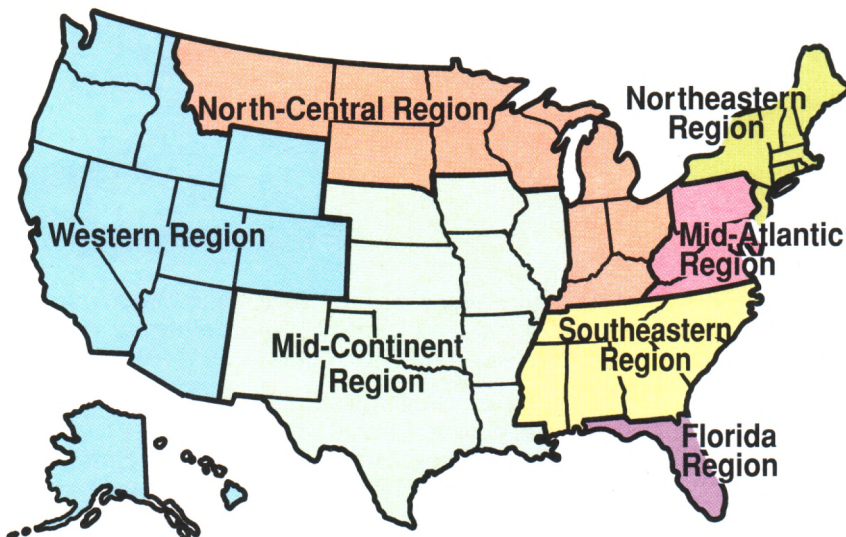
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TURF TWISTERS

BE PRUDENT

Question: This year there are several new pesticides available in my area that, according to university test data, appear to be remarkably effective. I am planning to use them on my greens and tees this season. Is that a good idea? (New Jersey)

Answer: Regardless of the available test data, it is prudent to proceed slowly with the use of new materials. It would be wise to first try the materials in test plots to determine their potential impact on your turf before you make large-scale applications to the golf course. Nursery greens are an excellent area on which to test new products that are available on the market.

IN CASTING THE DECIDING VOTE

Question: For the past few years, I have had trouble maintaining creeping bentgrass on four of the back nine greens. At the heart of the problem are tall trees that block the early morning sun in summer and completely shade the greens in winter. I have discussed removing the trees with the Green Committee, but several members refuse to take action, stating that such action would lower the course's USGA Course and Slope Rating. Is this a valid concern, and how much of an impact can tree removal around four greens actually have? (Missouri)

Answer: It is true that the actions of the maintenance department can affect the USGA Course and Slope Rating. For example, raising the cutting height of the rough and moving all of the tee markers back 10 yards can increase the Course Rating by 1.1. Removing interfering trees more than 15 yards away from the perimeter of four greens, however, would only have a slight effect on the Course Rating. For an exact determination, you would have to contact your local Golf Association to have the course re-rated by the Rating Committee.

WHEN MARKING THE GOLF COURSE

Question: It seems as if every year a controversy arises regarding who should mark the golf course. The two most likely candidates are the superintendent and the golf professional. In your opinion, which of these two individuals should be responsible for course marking? (Kentucky)

Answer: In most cases, the superintendent and golf professional should work together to properly mark the course. It will require input from both individuals to properly and fairly define hazards and ground under repair. However, when a tie occurs, the individual who will be making Rules decisions for the golfers should cast the deciding vote. This is usually the golf professional.