



# The Florida Green

Spring 1993



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Number 2 Green*

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# CONTENTS



SPRING  
 1993

### PRESIDENT'S MESSAGE JOBS ON THE LINE ..... 6

Our jobs have gotten tougher and more demanding year after year, and, other than ourselves, who can we count on to help us meet these challenges and remain among the employed?

### FOREWORD THE STORM OF THE CENTURY ..... 6

Regardless of what you tried to do, the climatic conditions proved once again that you are at the mercy of Mother Nature.

### SPOTLIGHT GCSAA ELECTS NEW OFFICERS ..... 12

Randy Nichols, CGCS, Cherokee Town & Country Club, Dunwoody, Ga., was elected president of the Golf Course Superintendents Association of America (GCSAA) during the association's recent annual meeting in Anaheim, Calif.

### COVER STORY BRADENTON COUNTRY CLUB ..... 16

Jim Svabek is an anomaly in this business. It is rare to find a superintendent with the kind of tenure that Jim has earned at the Bradenton Country Club. It is a 25-year-long association that has been forged by Jim's hard work, enthusiasm, professionalism, and patience.

### RESEARCH REPORT OTTO SCHMEISSER RESEARCH GREEN ..... 30

During the summer of 1990, the FGCSA in cooperation with the University of Florida built a 20,000-square-foot golf course putting green at the Fort Lauderdale Research and Education Center. This field laboratory's first research project, a nitrogen source study, is explained by Monica Elliott, Ph.D., and Marcus Prevatte, IFAS researchers.

### HANDS ON HOW ARE THEY DOING? ..... 42

Superintendent Prentiss C. Knotts has developed a system of rating each employee for each task, each and every day. Using a ten-point scale, the quality and efficiency of each employee is recorded daily on each job assignment..

### AFTERWORDS THROUGH THE LOOKING GLASS ..... 56

Your trip through the state "Regulatory Wonderland" is ready for you, if you're ready for it. You'll learn just how it feels to get bureaucratic whiplash.

### GREEN SIDE UP WHO'S ON FIRST? ..... 64

Since golf courses are operated on an economic calendar instead of an agronomic calendar, we need to know what days or even half-days that we can't have the golf course for normal operations. To gain that knowledge requires us to do a better job of communicating.

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# Advertiser Index

|                                   |    |                                    |        |
|-----------------------------------|----|------------------------------------|--------|
| A. Duda & Sons .....              | 23 | Miles Inc. ....                    | 57     |
| AFEC Fertilizer & Chem .....      | 22 | Milorganite .....                  | 53     |
| Almar Chemical Co. ....           | 62 | Nor-Am Chemical Co. ....           | Insert |
| AmerAquatic Inc. ....             | 12 | Nucrane Corp. ....                 | C3     |
| Aquatrols Corp. of America .....  | 14 | Nutri-Turf, Inc. ....              | 35     |
| Arbor Tree & Landscape .....      | 51 | Partac Peat Corp .....             | 29     |
| Central Florida Turf .....        | 47 | PermaLock Inc .....                | 63     |
| Chemical Containers, Inc. ....    | 47 | Rhone Poulenc .....                | 4      |
| Delray Stake & Shaving .....      | 51 | Rhone Poulenc .....                | 59     |
| DowElanco .....                   | 45 | Ringer Corp .....                  | 27     |
| E.R. Jahna Industries .....       | 18 | Safety Storage Inc .....           | 54     |
| Floratine Products Group .....    | 55 | South Florida Grassing .....       | 10     |
| Florida Silica Sand .....         | 29 | Southern Mill Creek Products ..... | 25     |
| Golf Agronomics Supply .....      | 23 | Spread-Rite, Inc. ....             | 29     |
| Golf Ventures .....               | 43 | Standard Sand & Silica .....       | 45     |
| Harrell's, Inc. ....              | 19 | Subaqueous Services Inc .....      | 39     |
| Haz-Stor .....                    | 37 | Sunniland Turf Products .....      | 31     |
| Hoechst-Roussel Agri Vet Co. .... | 61 | Terra International, Inc. ....     | 62     |
| Hunter Industries .....           | 15 | Tifton Physical Lab .....          | 30     |
| Lebanon Chemical Co. ....         | 48 | TMI Turf Merchants .....           | 41     |
| Lesco, Inc. ....                  | 1  | Tom Burrows Turfgrass Svc .....    | 14     |
| Lesco, Inc. ....                  | C2 | Toro Dealers of Florida .....      | Insert |
| Lesco, Inc. ....                  | C4 | Valent USA .....                   | 13     |
| Liquid Ag Systems, Inc. ....      | 33 | Vigoro Industries .....            | 7      |
| Lofts Seed, Inc. ....             | 21 | Woodbury Chemical Co. ....         | 11     |
|                                   |    | Zeneca .....                       | 9      |
|                                   |    | Zeneca .....                       | Insert |

## Welcome!

The Florida Green welcomes the following new advertisers

|                                |    |                               |           |
|--------------------------------|----|-------------------------------|-----------|
| DowElanco .....                | 45 | PermaLock Inc .....           | 63        |
| Floratine Products Group ..... | 55 | Safety Storage Inc .....      | 54        |
| Haz-Stor .....                 | 37 | Subaqueous Services Inc ..... | 39        |
| Partac Peat Corp .....         | 29 | Zeneca .....                  | 9, Insert |

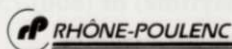
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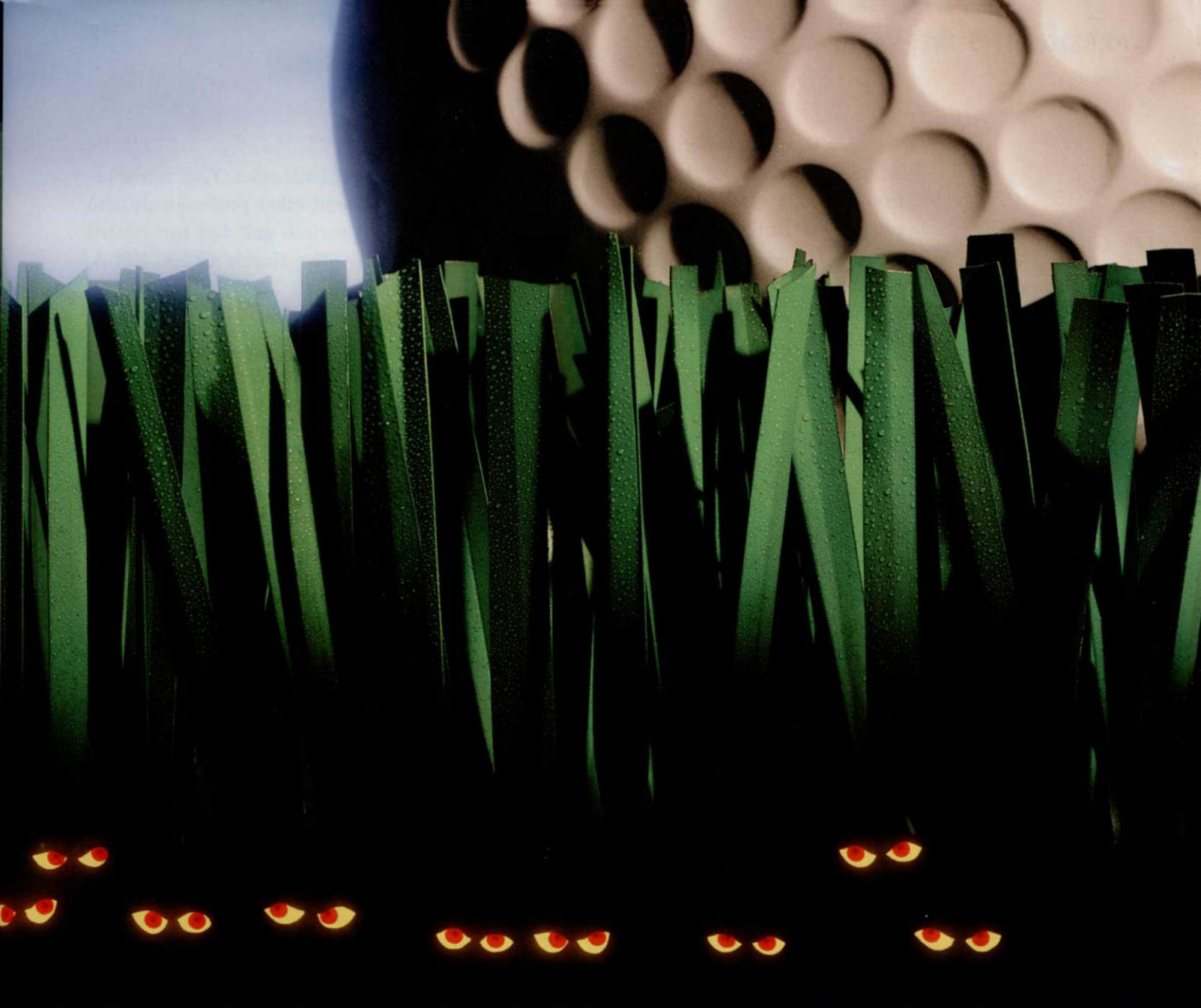
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As I sit down to write this President's message, my staff is out cleaning up the debris from the "killer storm" that ripped across the country March 12-13.

My golf course is a mess and looks as bad as it did after Hurricane Andrew, whose eye passed 70 miles south of here. We'll be cleaning up all week, but I feel extremely fortunate (again) when others so near suffered so much worse — Dan Jones, our Editor Emeritus from Banyan Golf Club, is only two miles from here and he has over 300 trees down and other serious damage from a tornado spawned by the storm. The thermometer is dropping,

and by tomorrow night we could reach the first freezing temperatures we've had in South Florida in over three years — a fitting finish to a strange and difficult golfing season.

For some superintendents, it may also mark the finish of their employment. Rumors and speculations are circulating about superintendents who may soon lose their jobs because of member unhappiness with course conditions this unusual and unpredictable winter season.

I received a call myself just this morning from the green committee chairman of a nearby club asking for help in finding a new superintendent.

It is unfortunate, unfair and ironic, that we are often the victims of our own professional expertise — our members have come to expect outstanding conditions at all times, believing us capable of circumventing even the powerful force of Mother Nature.

Our jobs have gotten tougher and more demanding year after year, and, other than ourselves, who can we count on to help us meet these challenges and remain among the

employed?

The answer? Each other. Your fellow superintendents and other professionals who belong to the various golf and turf-related associations — The Florida GCSA, FTGA, GCSAA, and USGA.

I've thought a lot about our professional associations since the GCSAA convention, and the message the membership was sending to the GCSAA Board and staff. Where would we be without these organizations?

Would we still be wearing overalls, working out of a barn, and jealously guarding our trade secrets for our personal job security? Would golf course maintenance have advanced to the high level it is today, without these professional associations pointing the way, providing education, funding research, and forging bonds of friendship and cooperation that last a lifetime?

It is hard for me to imagine a career in turf management without these associations. It is hard for me to imagine superintendents who fail to see the benefits of belonging to these associations.

The leadership of these organizations may move in directions that many members do not support, as demonstrated by the defeat of the GCSAA bylaw proposals, but this does not negate the overall positive contributions of the association. Neither does it negate the fact that everyone owes something to the profession that sustains him.

As we move forward with our professional association programs we need everyone to get involved. There are no free rides out there. If you're not a member of the FGCSA and FTGA then you should join today. Your support will help our industry to reach new heights and explore new directions for tomorrow's golf courses. Do your duty and call 1-800-732-6053 and 1-800-882-6721.

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Mark Jarrell, CGCS  
President  
FGCSA



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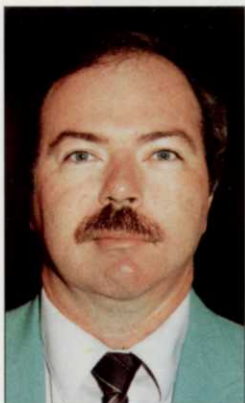
# PAR EX GETS TO THE ROOT OF THE MATTER AND NO DEEPER. ALL YEAR 'ROUND.



# At the mercy of Mother Nature

**‘ The biggest injustice is yet to unfold ’**

## Editorial License



Tom Benefield, CGCS  
Editor

Anyone who has seen recent newscasts can attest to the horrendous weather which has assaulted our nation. “The Mother of all Storms,” as one television station called it, rolled through our state with such fury and devastation that it brought back memories of the wrath of Hurricane Andrew. It will surely be remembered for a long time to come.

I think “the storm of the century” is a fitting end to an already disastrous winter season here in Florida, especially if you were trying to grow turfgrass. It began with the gruesome, depressing days of cloudiness and rain in December which continued into January. This fomented disease and thin turf around all sections of the Sunshine state.

Regardless of what you tried to do, the climatic conditions proved once again that you are at the mercy of Mother Nature. People raised cutting heights, sprayed greens two times per week with fungicide, spiked, top dressed and anything else you can think of to improve on a desperate situation, yet nothing seemed to help.

None of the superintendents I talked to expected to have summer rainstorms, humidity and overcasts skies in the middle of December.

The big problem is that these conditions are perfectly acceptable in the middle of July when all of the golfers are back up north. But when the summer conditions occur while they are down here, and they get exposed to what these conditions do to the turf, then that’s a whole different ballgame.

They have come to expect certain conditions during the winter when they are visiting here and any deviation from those conditions is difficult for them to understand.

And from the uproar which was created by mother nature, we find tremendous blame being laid at the feet of the golf course superintendent.

Fine, upstanding individuals who just in

November were doing a “great” job are now labeled and tagged as benign imbeciles incapable of the simplest tasks. This is an unfair and false accusation but nonetheless accurately reflects the sentiments of members.

The biggest injustice is yet to unfold. This will be the wide dismissal of superintendents this spring. I have no doubt that many of our members will be looking for new employment in a few months. Not because of their incompetence but because of the fickle nature of this business and the “one-upmanship” mentality of the members at the clubs they work for.

At a local superintendents’ meeting in March, the talk was all about the weather and the havoc it has created for golf courses. Only two people in the room said they had good greens, all the rest lamented the poor conditions of theirs and the same story was repeated by one after another. The conversation went on for hours with a sharing of ideas and information that might help someone in their situation.

It was heartwarming to experience the camaraderie of the people in the room and I left with a sense of pride to be a member of this association and in better spirits than when I had arrived.

The reason I felt better was I had heard for weeks from my golfers how much better the greens on all of the golf courses around us were. Well, it seems that all of the other superintendents were hearing the same things from their members and that their golf courses were the worst in the area. It seems that the truth of the matter lies somewhere between the two extremes.

From a member’s perspective, the notion that “the grass is always greener on the other side of the fence” was a tool they could use to flail away at their superintendent because conditions were not what they “used to be” for this time of year. ➤

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**‘ They  
make hasty  
judgments  
as to why  
the  
program  
isn’t  
working  
like it  
should. ’**

I have thought of this situation in light of how I relate to my children. I find myself having higher expectations of my children and requiring more of them than I do of my nephews.

I have a greater sense of pride and set higher standards for their activity and school work. I think members of our clubs view us in a similar light.

They have intense pride in their local clubs and, like me with my children, they have high expectations of the golf course. When these standards aren't reached, they have a difficult time understanding why, and at times they make hasty

judgments as to why the program isn't working like it should.

And this leads us to where we are today. With the exception of the "Storm of the Century," the weather has been getting a little better each day. Who knows — with the right weather conditions and given enough time to get the golf courses back to the conditions desired, some of the superintendents who are "on the bubble" may be able to keep their jobs and their lives in place. Let's hope so.

Until next time, may God bless and keep you safe.

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## GCSAA elects new officers, board at annual Conference in Anaheim

Randy Nichols, CGCS, Cherokee Town & Country Club, Dunwoody, Ga., was elected president of the Golf Course Superintendents Association of America (GCSAA) during the association's recent annual meeting in Anaheim, Calif.

Nichols succeeds William R. Roberts, CGCS, Lochmoor Club, Grosse Pointe Woods, Mich., who as immediate past president will continue to serve on the board for a year.

Joseph G. Baidy, CGCS, Acacia Country Club, Lyndhurst, Ohio, was elected vice president.

Re-elected as a director and appointed secretary/treasurer was Gary T. Grigg, CGCS, Naples National Golf Club, Naples, Fla.

Elected as directors were David W. Fearis, CGCS, Blue Hills Country Club, Kansas City, Mo., and George E. Renault III, CGCS, Burning Tree Club, Bethesda, Md.

Appointed to the board was R. Scott Woodhead, CGCS, Valley View Golf Club, Bozeman, Mont.

Woodhead will serve the remaining year on Baidy's term as director. Baidy's director position was vacated when he was elected vice president.

Paul S. McGinnis, CGCS, Union Hills Country Club, Sun City, Ariz., and Bruce R. Williams, CGCS, Bob O'Link Golf Club, Highland Park, Ill., have one year remaining on their terms and will continue serving as directors.

GCSAA officers serve one-year terms, and directors are elected to two-year terms.

16,000 golf course superintendents, turfgrass professionals, educators and suppliers to the golf course industry attended the International Golf Course Conference and Show.

The event offered participants a wide variety of continuing education programs and the latest in golf course management products and services.

A record 631 exhibitors showcased their products and services during the three-day trade show



Randy Nichols, CGCS, was elected president of the GCSAA.

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at the Anaheim Convention Center. The tradeshow covered nearly 184,000 square feet, also a record for GCSAA.

More than 1,300 registrants from 43 countries attended the week's events. Several of the continuing education seminars and sessions were tailored for the international participants.

Another record was set as 2,996 persons attended a record 55 seminars covering a wide range of subjects relating to golf course management, prior to the conference's formal opening session. Johnny Bench, Major League Baseball Hall of Fame catcher, delivered the keynote address at the opening session.

U.S. Rep. James A. "Jimmy" Hayes (D-La.) and Sen. Howard M. Metzenbaum (D-Ohio) addressed a crowd of approximately 500 at the Environmental General Session. The legislators discussed the role of golf courses and their management as they relate to the environment.



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BRADENTON  
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16  
HOLE IN ONE

# History and tradition at Bradenton Country Club

By Joel Jackson, CGCS

Photography by Dan Zelazek



Number 16

## Jim Svabek and the Bradenton Country Club

**J**im Svabek and the Bradenton Country Club: A special blend of a man, a club, and a community that care about one another. Jim Svabek is an anomaly in this business. It is rare to find a superintendent with the kind of tenure that Jim has earned at the Bradenton Country Club. It is a 25-year-long association that has been forged by Jim's hard work, enthusiasm, professionalism, and patience.

**A**  
*25-year  
tradition*

"It has been and continues to be a rewarding challenge to maintain this venerable golf course over the years," he says. "The challenge lies in educating the members about the improvements in turf management and convincing them that these improvements will not change the style and character of the course.

"Sometimes it is a very hard sell to convince them that we only want to improve the health of the turf and make some of our operations more efficient. They are very protective of the history and traditions of the course, and I admire and respect that viewpoint. The reward comes from seeing the members derive more enjoyment from

playing the course when we have solved a problem or made improvements."

The history and traditions of the Bradenton C.C. began some 57 years ago when the club was built. Legend has it that it was a Donald Ross design, but subsequent changes to the course over the years have removed official recognition by the Donald Ross Society.

In the early days of golf in Bradenton, there were four major courses in the area: Bradenton C.C. and Sara Bay which were private; Desoto Lakes, which was the home of the PGA of America before moving to West Palm Beach; and the public Bobby Jones course. In those early days and even until 1967 when Jim came on board, the Bradenton C.C. was on the outskirts of town. Now the club is considered to be part of the inner city as growth has marched south and west to the beaches.

The old-style layout is evident with its parallel holes and short distances from the green to the next tee. Bunkering is conservative and most of the greens still permit the old "bump and run" style of shotmaking. ➔



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Number 5 Green

## *You have to pay attention when you play here*

In 1965, Dr. Archie Meekins, who was a standout amateur golfer and club leader, gained approval to rebuild the front nine greens. His resulting design provided a series of steeply pitched greens that tilt from back to front. In 1966 golf architect Mark Mahannah was hired to rebuild the back nine greens. These had a more modern, plateaued, elevated look and were more moderate in their elevation changes.

Jim commented, "You have to pay attention when you play here! On the front nine you can have some pretty severe uphill, downhill, and sidehill putts, and then you have a different challenge on the back nine. Another problem with the front nine greens is that all the rainfall runoff is directed to the front of the green. The back nine greens design did provide for alternate surface water runoff routes."

That design difference aside, Jim has one regret about the rebuilding effort. "When they rebuilt

the greens, all they did was strip off the old sod, reshape, add some sand, and rototill it in. It didn't take long for the organic material to come up and form a 1-1/2-inch thatch layer which I discovered in 1967 when I arrived. Managing these thick, thatchy surfaces is one of my greatest challenges. When we get into extremely wet or extremely hot and dry conditions, we can lose parts of the greens pretty quickly. In wet weather, the thatch holds the moisture too long and we often develop pythium root rot, which is my number-one enemy on the greens. We treat with Koban and Subdue. Since we aren't solving the root zone problem which promotes the disease, it is a constant battle."

After a long period of negotiations, Jim purchased an aerifier in 1978. "Aerification of the greens is a blessing and a curse. We are pulling out some of the thatch and adding soil and that really helps, but the spongy greens have tire marks for a



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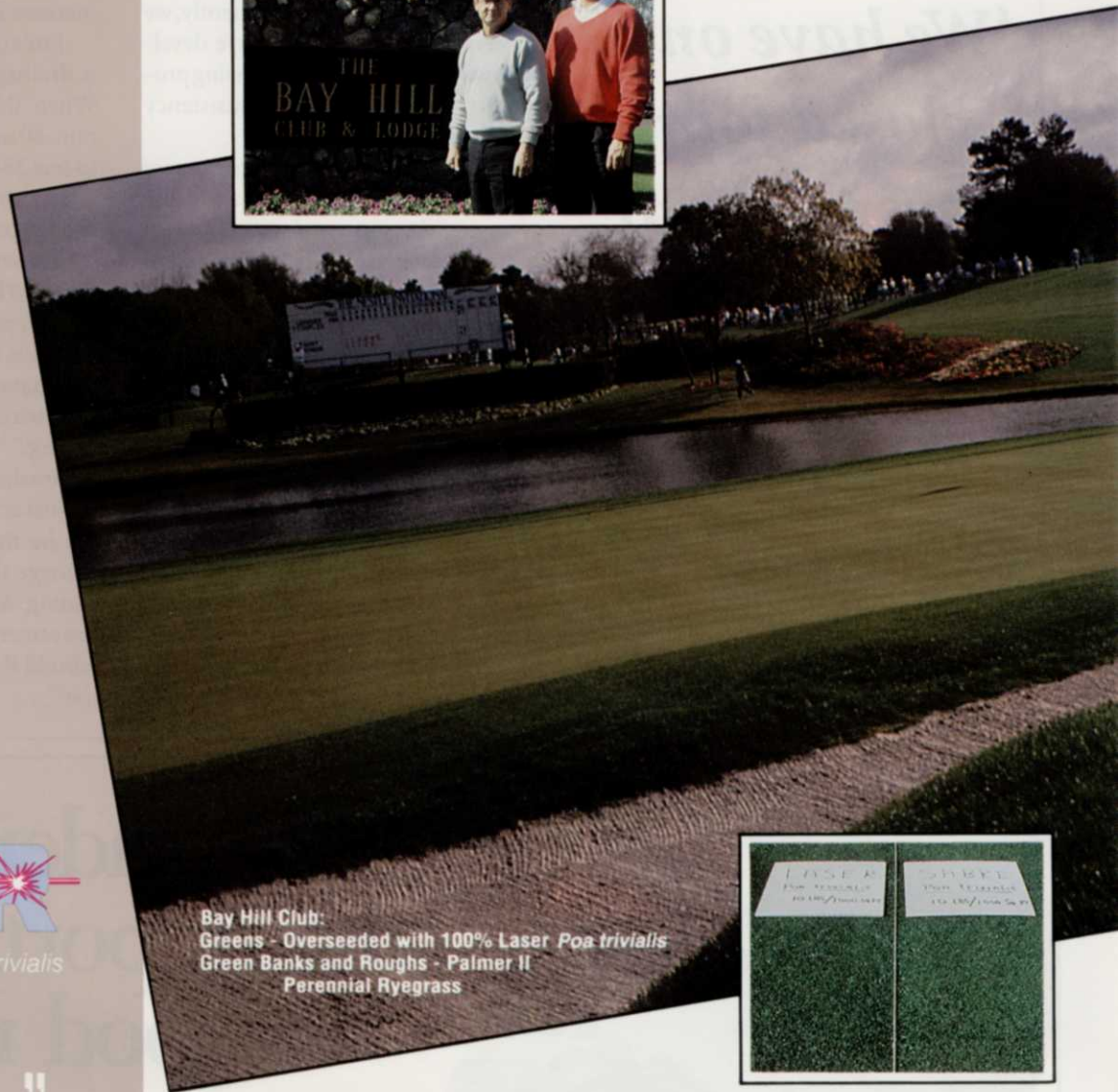
Dwight Kummer, GC Supt.  
Bay Hill Club, Orlando, FL



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Apply 100% Laser *Poa trivialis* at the rate of 10-13 lbs/ 1000 sq. ft. mid-fall. For heavy traffic courses, like Bay Hill, that receive 250+ rounds per day, you may want to supplement the original overseeding with an additional 2 lbs/1000 sq. ft. on a weekly basis late December through January.

If you want darker color, excellent heat and traffic tolerance, smoother spring transition and proven, tournament-quality performance use Laser for your overseeding program. It worked at Bay Hill, it will work for you.

Note: Laser *Poa trivialis* can also be blended with turf-type perennial ryes, such as Palmer II or Prelude II for Southern overseeding programs.

*'We have only closed four days this year even with the rainy winter we're experiencing.'*

month afterwards. Even the new greens rollers can't be used effectively without leaving obvious marks. Consequently, we only aerify once a year. We have developed a winter-long, light topdressing program to try to promote some consistency and reduce the thatch."

*[Author's Note: While I did see some of the thin runoff areas Jim referred to, I also saw some of the greenest, densest Tifdwarf I have ever seen on unseeded winter greens in Florida! He applies 1.0 pound of Nitrogen (quick release) every two weeks during the winter and 1.0-1.5 pounds of Nitrogen (SCU or IBDU) in the summer, weather permitting].*

"Maybe Dr. Meekins wasn't the best architect in the world, but I admire his foresight when he negotiated a 40-year contract with Manatee County to supply us with a million gallons of effluent water a day. We paid for the pipe and the county provided the labor to install the 5-mile-long connection. The county does a great job of tertiary treatment of the effluent.

We have no odor in our holding pond and we only experience an occasional increase in the algae population."

Jim's other big management problem is drainage. The terrain is basically flat. When the course receives a torrential rain, 80 of the 127 acres must be directed to one 36-inch drain swale. There is only a maximum of 6 inches of elevation change over the affected area.

Jim says, "It does move, but boy is it slow!" While members might be discouraged to play after heavy rains, generally no one is turned away who wants to play. "We have only closed four days this year even with the rainy winter we're experiencing."

Jim doesn't dwell on these difficulties. He just acknowledges them as part of the job he must contend with in order to manage the course. "We are constantly adding ADS pipe drains to make improvements. Maybe one day we'll even rebuild those greens with good drainage too!"



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Jim's affection for the club extends beyond managing the course and working with his crew. "Did you notice the sign on the road when you crossed the city limits," he asked? "It says, 'Welcome to Bradenton, The Friendly City!' I grew up in St. Petersburg and it was a friendly place too, but it seemed to lose some of that when it began to grow. All I know is that when we came here, doctors and businesses opened up their doors to me and my family and that feeling has never changed. The church steeple in the background on the second hole symbolizes for me the kind of hometown community the club is in and how we care about one another."

That caring extends to the members who volunteer their time to serve on such projects as: Adopt-a-hole, where members sign up to police trash and debris on their favorite holes and report any problems they see. The Distance-Yardage crew goes out every Monday to check the sprinklers and replace any missing yardage decals.

Then there is also the Fire Ant Patrol.

"We had a very unfortunate situation last year when a visitor from New York was playing the county course. He happened to be allergic to stings, and unknowingly got into an ant bed. He died from the shock. Members and local authorities requested that each course develop a plan or program to combat fire ants and the Fire Ant Patrol is a reflection of our members' concern to help control this potential problem. I supply the fire ant bait and they apply it while playing their rounds."

The members also pitched in for a few days back when a tornado touched down on the course on a Wednesday evening and uprooted 139 trees. Jim recalled, "I can sympathize with the courses in South Florida after Hurricane Andrew. After cutting a trail to the shop and getting organized, it took two and a half days to restore the golf course. I had to hire extra crews to cut and remove the trees. We rented extra chain saws and a chipper, and hired a company called Resource Recovery to grind up the trees into mulch. It was about a year's worth when they were through. We did sustain some turf



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Golf Course Photography by Dan Zelazek

## Bradenton Country Club



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**‘Then I  
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education  
of a  
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damage from the heavy equipment, but it was necessary.

“I also have to take my hat off to the power company. When they finally got here to check out our problem it was almost 6 p.m. They worked through the night and we had power restored to the shop by 2 a.m. We were opened for business on noon Saturday.

The pride and commitment that the members have displayed over the years is only surpassed by the devotion and loyalty of the members of Jim’s staff. “I have a second-generation employee here whose father retired from the crew. Our most junior crew member has been here eight years and our most senior, one of three that were here when I came, just received his 30-year pin last year. One other crew member and myself received our 25-year pins. I am glad that the club takes the time to recognize our service. It really reflects the respect we have for each other. The club also just initiated an Employee Golf Day. I knew the crew took pride in their work and this was a great way for the club to show its appreciation for their service. They really had a great time.”

Jim also appreciates those in the turf industry who have helped him over the years. “One of the greatest things about this business is the people

you meet and work with. I had the distinct pleasure to work for Reuben Hines, Jr. at the Sunset C.C. in St. Pete. He helped me get started when I was 18 years old and needed a full time job to support my mother and sister when my father died. Two years later, Reuben made me his assistant.

“Then I got the education of a lifetime. His father, Reuben Sr., operated some turf nurseries up in Maryland. He also was a consultant for the Congressional and Georgetown Prep golf courses. He would spend the winters consulting in Florida, and he would take me around our course and show me the whys and hows of turf management.

“Beyond that early valuable experience, I credit the some of the original turfgrass pioneers in Florida with expanding my knowledge. People like G.C. Horn, Gene Nutter, Harry Myers, and Col. Frank Ward that spoke at our West Coast GCSA meetings and helped all of us become better superintendents. I continue to owe a debt of gratitude to the superintendent associations. Involvement with these groups has kept me on the leading edge of our business. It has continued to train and educate me. I really salute Jim Miller of our Suncoast Chapter for bringing in some quality speakers. He has done an outstanding job.”

# Communications is the key to success!

"I have to tell you two stories about Colonel Ward. First, he was a member here and even served as the superintendent for a short while. His work in turf and the founding of the FTGA are legendary. I was fortunate enough to be able to escort him to Fort Lauderdale to receive the Wreath of Grass award from the FTGA. He was getting on in years at that time, and I had to really sell his wife on the idea. Beyond seeing that he ate his meals and making sure he got to bed, I never saw him. He was so excited to see and talk to old friends he was always on the go. Well, the award was a surprise and it pleased me to be able to help bring this joy and pleasure to someone who had given so much to our industry."

"The other side of Colonel Ward was the golfer and club member. He could be a tough nut sometimes, but his advice and information certainly made up for any criticisms. But the clincher came when we finally got approval to close on Mondays to do maintenance. Here was a man who supported and promoted superintendents his whole life. When we closed on Mondays, he wrote a letter to the board of directors requesting one seventh of his dues back. When I questioned him about his position and reminded him how valuable that day was for us, he merely replied, 'But, I can't play that day!'"

Jim received a lot of advice in his career and he was asked what he would share with others. "Communications is the key to success!"

"You have to be able to talk to your crew, the pro, the members, the greens committee, the club manager. And, you must remain flexible to handle each day's surprises!"

And what does the future hold for our industry?

"Our industry will continue to grow, but with the increasing environmental concerns and restrictions, we will have to become even more creative and ingenious to maintain quality turf conditions.

Jim was asked about his accomplishments to date and future goals at BCC. "I feel we have made the course interesting and challenging yet still fun to play. We

have incorporated some new and modern methods without changing the old style and character of the original design. My goal is to someday rebuild the greens and continue to improve our course."

Twenty-two years ago Jim interviewed for another job. He was rejected because he had only been a superintendent for three years and they were looking for someone with a little more experience.

Jim never looked again. "When I think about how friendly the town is, how supportive the members are, and how much there remains to be done here, there was no reason to look elsewhere. My house and a club membership are provided, my daughter was married here. It's a hometown atmosphere that is rare in today's business world and I appreciate that aspect of this position very much." ➔



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# Bradenton Country Club

**Location:** 4646 9th Ave. West, Bradenton, Florida

**Ownership:** Member owned.

**Management:** General Manager, James Brand; Golf Professional, Jim Dargis; Club President, Dan Callahan; Greens Committee Chairman, Lonnie Pullen.

**Playing Policies:** Private. Occasional outside group invited to play on Mondays.

**Design & Construction:** Built 57 years ago. Originally listed as a Donald Ross course, but modifications over the years have removed it from the list of active Ross courses. Front nine greens were rebuilt in 1965 under the direction of member, Dr. Archie Meekins. Back nine greens rebuilt in 1966 by architect Mark Mahannah. Yardage: 6,590 yards, par 72.



Number 15 green.

Greens average 5,000 square feet in Tifdwarf bermudagrass. Tees and fairways are Ormond bermudagrass (72.5 acres). Since Ormond is no longer available, Tifway 419 has been introduced by necessity in some repaired or renovated areas. No overseeding has been done on the golf course in its history by member choice.

**Irrigation system:** Manual system converted to Toro Varitime II with 367 Toro heads: 320 Toro 670s. A few Toro 690s on the range, and

Toro 640 part circle heads around some greens near the property line. Water source: Tertiary treated effluent since 1975.

**Maintenance Staff:** 8 fulltime members. No assistant superintendent. Foreman, Larry Smith.

**Turf:** 127 acres under maintenance.

**Turf equipment:** 4 Toro Greens-



Photo by Philip Pettus

## Jim Svabek

**Education:** St. Petersburg Community College for basic botany and zoology courses; 32 years of turfgrass maintenance experience. Many of Jim's early years in the business were under the personal guidance of agronomist Reuben Hines, Sr.; superintendent Reuben Hines, Jr.; and FTGA founder Col. Frank Ward.

**Professional Affiliations:** GCSAA; FTGA; Past president and vice-president of the West Coast GCSA, co-founder and current newsletter editor (7 years) of the Suncoast GCSA. Recipient of 1992 FGCSA Presidents Award for over 20 years of service to the profession.

**Previous employment:** 7 years at Sunset C.C., St. Petersburg, Fla. 5 years as the assistant superintendent; 25 years as the superintendent of the Bradenton C.C..

**Family:** Wife, Carol; sons, Steven and Michael; daughter, Karen.

**Hobbies and interests:** Golf, fishing, coaching football, playing the guitar, and writing the Suncoast GCSA newsletter.

masters(greens and tees); 1 Toro 7-gang Parkmaster(fairways); 1 450-D Reelmaster(slopes and fair rough); 2 Toro Groundsmasters (deep rough); 2 spray rigs (100 and 500 gallon); 2 Cushman utility vehicles; 2 front-end loader tractors; 2 utility tractors; 1 Vermeer chipper; 1 pickup truck; 1 dump truck.

**Trees:** Over 7,000 planted since 1972. Oaks, pines, cypress, Chinese tallow, eucalyptus, rosewood, willow, palms.

**Lakes and ponds:** 9 covering about 8 acres.



Golf Course Photography by Dan Zelazek

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# Nitrogen Source Study on the Otto Schmeisser-FGCSA Research Green

By **Monica L. Elliott**  
and **Marcus Prevatte**  
University of Florida  
IFAS  
Fort Lauderdale  
Research and  
Education Center

**D**uring the summer of 1990, the FGCSA in cooperation with the University of Florida built a 20,000-square-foot golf course putting green at the Fort Lauderdale Research and Education Center. The purpose was to develop a field laboratory to be used by turf researchers for their projects and to conduct independent field testing of products that the superintendents wished to evaluate on bermudagrass maintained as a putting green.

The first project, initiated in May 1991 for the FGCSA, was an evaluation of nitrogen sources, primarily slow-release nitrogen sources.

A summary of green construction and the first six months of the nitrogen source study (May through October 1991) was published in the January/February 1992 issue of *The Florida Green*. In this article, we will summarize results obtained from November 1991 through October 1992.

## Study Area and General Maintenance

The section used for this study was the area built with the geotextile material Terrabond substituted for the coarse-sand "choke" layer. The root zone mix was 80% sand and 20% Canadian peat moss as has been all material used for topdressing. The area was planted with Tifdwarf hybrid bermudagrass and has never been overseeded. It is maintained at 3/16 inch height of cut using a walk-behind greens mower with groomer attachments. The area is verticut and topdressed approximately once per month, with depth of verticutting dependent on thatch layer thickness.

Phosphorus is applied as triple super phosphate (0-46-0) twice each year (spring and fall) at 1.5 pounds phosphorus per 1,000 square feet.

The only pesticide used over the entire area during the study period was the natural insecticide

**Table 1. Nitrogen analysis of products evaluated in nitrogen source study on the FGCSA Research Green at Fort Lauderdale R.E.C.**

| Company                        | Formulation | Percentage (%) |                  |                     |                             |               |                          | Source of Slow-Release Nitrogen      |
|--------------------------------|-------------|----------------|------------------|---------------------|-----------------------------|---------------|--------------------------|--------------------------------------|
|                                |             | Total Nitrogen | Nitrate Nitrogen | Ammoniacal Nitrogen | Water Soluble Org. Nitrogen | Urea Nitrogen | Water Insoluble Nitrogen |                                      |
| O.M.Scott <sup>ab</sup>        | 40-0-0      | 40.2           | 0                | 0                   | 10.9                        | 12.1          | 17.2                     | Methylene Ureas <sup>c</sup>         |
| Vigoro <sup>a</sup>            | 25-0-12     | 25.0           | 3.5d             | 1.8                 | 0                           | 2.0           | 17.7                     | IBDU <sup>c</sup> , SCU <sup>c</sup> |
| Vigoro <sup>a</sup>            | 25-0-14     | 25.0           | 4.3d             | 0                   | 0                           | 10.2          | 10.5                     | IBDU, SCU                            |
| Vigoro <sup>ab</sup>           | 30-0-0      | 30.0           | 0                | 0                   | 0                           | 15.5          | 14.5                     | IBDU, SCU                            |
| Vigoro <sup>b</sup>            | 31-0-0      | 31.0           | 0                | 0                   | 0                           | 9.5           | 21.5                     | IBDU                                 |
| Vigoro <sup>b</sup>            | 21-0-0      | 21.0           | 0                | 21.0                | 0                           | 0             | 0                        | none, ammonium sulfate               |
| LESCO <sup>b</sup>             | 46-0-0      | 46.0           | 0                | 0                   | 0                           | 46.0          | 0                        | none, urea only                      |
| LESCO <sup>b</sup>             | 29-0-0      | 29.0           | 0                | 0                   | 21.75                       | 7.25          | 0                        | SCU                                  |
| Nor-Am <sup>ab</sup>           | 40-0-0      | 40.0           | 0                | 0                   | 20.5                        | 5.0           | 14.5                     | Methylene Ureas                      |
| Nor-Am <sup>ab</sup>           | 38-0-0      | 38.0           | 0                | 0                   | 7.0                         | 4.0           | 27.0                     | Methylene Ureas                      |
| Howard <sup>a</sup>            | 40-0-0      | 40.0           | 0                | 0                   | 28.0                        | 0             | 12.0                     | Methylene Ureas                      |
| Nitram <sup>b</sup>            | 34-0-0      | 34.0           | 17.0             | 17.0                | 0                           | 0             | 0                        | none, ammonium sulfate               |
| Cleary <sup>ab</sup>           | 18-0-0      | 18.0           | 0                | 0                   | 7.2                         | 6.3           | 4.5                      | Methylene Ureas, liquid              |
| Traylor/Arcadian <sup>ab</sup> | 18-0-0      | 18.0           | 0                | 0                   | 9.0                         | 9.0           | 0                        | Triazone, liquid                     |
| Greensmiths <sup>a</sup>       | 28-0-0      | 28.0           | 0                | 0                   | 0                           | 28.0          | 0                        | None <sup>e</sup> , liquid           |

<sup>a</sup>Used in the study from November 1991 through April 1992.

<sup>b</sup>Used in the study from May 1992 through October 1992.

<sup>c</sup>Methylene Ureas are urea-formaldehyde reaction products; IBDU<sup>TM</sup> is isobutylidene diurea; SCU is sulfur coated urea.

<sup>d</sup>Also contains potassium nitrate as nitrogen source.

<sup>e</sup>Dicarbamide dihydrogensulfate (Combination product of urea and sulfuric acid.)



*Bacillus thuringiensis* endotoxin (Di-Pel, Abbott Laboratories) for control of sod webworms on Dec. 5, 1991 and Sept. 22, 1992. Spot treatments were made for sedge control (Basagran, BASF Corp.) on Jan. 24, Feb. 4 and April 2, 1992; fire ants (Amdro, American Cyanamid Co.) on May 8 and Sept. 3, 1992; and mole crickets (Dursban Bait, Roussel Bio Corp.) on March 7, March 24, July 10, July 25 and Aug. 12, 1992.

**Experimental Plan  
November 1991 through April 1992**

Each plot was 8 feet by 10 feet (80 square feet) with four replicate plots per nitrogen source treatment. The experimental design was a randomized complete block. The 11 treatments are listed in Table 1. Nitrogen was applied at the rate of 2 pounds per 1000 square feet per month for November through April (win-

ter rate). Nitrogen had been applied at the rate of 1 pound per 1000 square feet per month for May through October (summer rate) for a total of 18 pounds per 1000 square feet each year. This is the average nitrogen rate used in southeastern Florida (see July/August 1992 issue of *The Florida Green*). The 2 pounds monthly nitrogen rate was applied as a 1-pound amount every 2 weeks.

For each application date, the dry formulations were applied first by hand, and immediately irrigated with 0.12 to 0.14 inches of water. Liquid formulations were applied next using a watering can, in the equivalent of 10 gallons water per 1000 square feet.

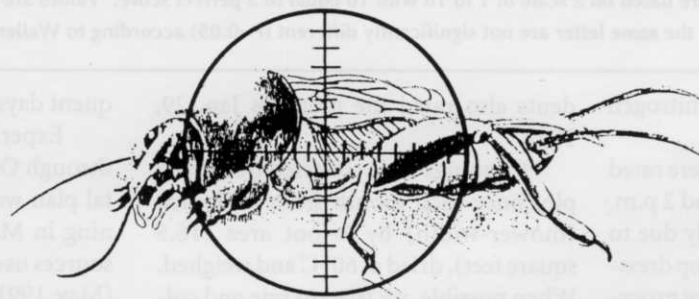
Potassium (K) was applied as potassium magnesium sulfate (Sulpomag; 0-0-22) every time the nitrogen was applied, at the same rate as the nitro-

gen to achieve a 1:1 ratio of N:K. Since two Vigoro materials had potassium nitrate as one of their nitrogen sources, the potassium applied to these plots was reduced accordingly to achieve the 1:1 ratio of N:K.

Soil pH was determined for each treatment prior to each nitrogen application. Soil samples (1-inch diameter by 4 inches deep) were obtained from all four replicate plots of the same nitrogen treatment and then pooled together. Soil pH for each pooled sample was determined by mixing soil and deionized water (1:1; v:v), shaking for 30 minutes and measuring pH of the filtrate.

Quality scores were determined based on grass color and density using a scale of 1 to 10 with 10 being a perfect score. On each date, two people rated the plots. Those scores were then averaged together for statistical analysis. The plots

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**Table 2. Quality scores resulting from nitrogen fertilizers evaluated on the FGCSA Research Green from November 1991 through April 1992 at the winter fertility rate of 2 pounds nitrogen per 1000 square feet per month.\***

| Company              | Formula | Nov. 21 | Dec. 5 | Dec. 18 | Dec. 31 | Jan. 15 | Jan. 29 | Feb. 12 | Feb. 26 | Mar. 11 | Mar. 24 | Apr. 1 | Apr. 8 | Apr. 22 |
|----------------------|---------|---------|--------|---------|---------|---------|---------|---------|---------|---------|---------|--------|--------|---------|
| O.M.Scott            | 40-0-0  | 6.5 a   | 7.2 a  | 6.4 ab  | 6.3 ab  | 6.7 ab  | 7.0 ab  | 6.9 bc  | 7.5 a   | 7.5 a   | 7.3 a   | 7.3 a  | 7.3 a  | 7.8 a   |
| Vigoro               | 25-0-12 | 6.5 a   | 7.3 a  | 6.5 a   | 6.5 a   | 6.8 ab  | 7.0 ab  | 7.0 ab  | 7.5 a   | 7.5 a   | 7.3 a   | 7.3 a  | 7.3 a  | 7.8 a   |
| Vigoro               | 25-0-14 | 6.5 a   | 7.3 a  | 6.5 a   | 6.5 a   | 6.7 ab  | 6.9 b   | 6.9 bc  | 7.5 a   | 7.5 a   | 7.3 a   | 7.2 a  | 7.3 a  | 7.8 a   |
| Vigoro               | 30-0-0  | 6.5 a   | 7.3 a  | 6.5 a   | 6.5 a   | 6.8 ab  | 7.2 a   | 7.2 a   | 7.5 a   | 7.5 a   | 7.3 a   | 7.3 a  | 7.0 a  | 7.5 a   |
| LESCO                | 29-0-0  | 6.5 a   | 7.1 a  | 6.5 a   | 6.4 ab  | 6.6 b   | 6.9 b   | 7.1 ab  | 7.5 a   | 7.5 a   | 7.3 a   | 7.3 a  | 7.1 a  | 7.7 a   |
| Nor-Am               | 40-0-0  | 6.5 a   | 7.1 a  | 6.4 ab  | 6.3 ab  | 6.8 ab  | 6.9 b   | 7.1 ab  | 7.5 a   | 7.5 a   | 7.3 a   | 7.0 a  | 7.0 a  | 7.5 a   |
| Nor-Am               | 38-0-0  | 6.4 a   | 7.3 a  | 6.4 ab  | 6.1 ab  | 6.6 b   | 6.6 c   | 6.7 cd  | 7.5 a   | 7.5 a   | 6.3 b   | 7.3 a  | 7.3 a  | 7.8 a   |
| Howard               | 40-0-0  | 6.5 a   | 7.1 a  | 6.5 a   | 6.4 ab  | 6.8 ab  | 6.9 b   | 7.1 ab  | 7.5 a   | 7.5 a   | 7.3 a   | 7.0 a  | 7.1 a  | 7.6 a   |
| Cleary               | 18-0-0  | 6.3 a   | 7.0 a  | 6.3 b   | 6.0 b   | 6.7 ab  | 6.8 bc  | 7.1 ab  | 7.5 a   | 7.5 a   | 7.3 a   | 7.3 a  | 7.3 a  | 7.8 a   |
| Traylor/<br>Arcadian | 18-0-0  | 6.5 a   | 7.3 a  | 6.5 a   | 6.5 a   | 6.8 ab  | 6.9 b   | 7.0 ab  | 7.5 a   | 7.5 a   | 7.3 a   | 7.3 a  | 7.3 a  | 7.8 a   |
| Greensmiths          | 28-0-0  | 5.3 b   | 5.8 b  | 5.0 c   | 5.0 c   | 5.8 c   | 6.2 d   | 6.5 d   | 7.5 a   | 7.5 a   | 7.3 a   | 7.0 a  | 7.0 a  | 7.4 a   |
| LSD                  | —       | 0.3     | 0.2    | 0.2     | 0.4     | 0.2     | 0.2     | 0.3     | 0       | 0       | 0.3     | 0.4    | 0.4    | 0.4     |

\*Quality scores (color and density) are based on a scale of 1 to 10 with 10 equal to a perfect score. Values are means of four replicate plots. Means within a column followed by the same letter are not significantly different (P=0.05) according to Waller-Duncan k-ratio t-test.

were rated one week after each nitrogen application.

Whenever possible, plots were rated on sunny days between noon and 2 p.m. Some scores are missing, usually due to cultural practices (for example, top dressing) that interfered with the rating procedure. Four local golf course superinten-

dents also rated the plots on Jan. 29, 1992.

Clippings were collected from each plot once each month from a 22-inch (mower-width) by 9-foot area (16.5 square feet), dried at 60°C and weighed. When possible, we tried to rate and collect clippings on the same day or subse-

quent days.

Experimental Plan for May 1992 through October 1992. The experimental plan was altered in two ways beginning in May 1992. First, four nitrogen sources used in the first year of the study (May 1991 - April 1992) were deleted. Eliminated from the experiment were

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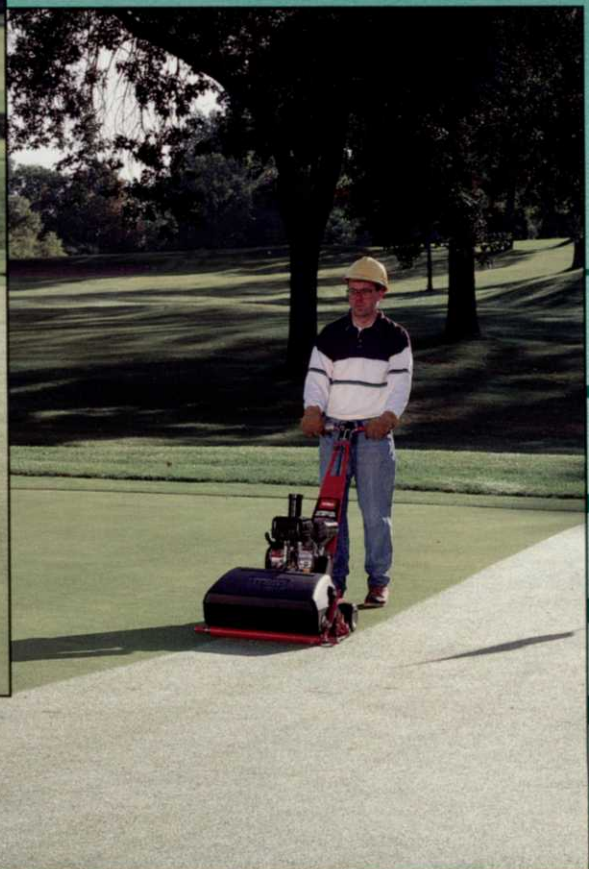
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## Free Floating Cutting Unit Surmounts Undulations

The *Greensmaster 500* cutting unit works independent of its power source and carrier frame allowing

full flotation and uniformity of cut. Even as the weight of clippings increases, the cutting unit continues to deliver a smooth, even appearance. The 500 is particularly advantageous for cutting stepped or heavy undulated greens. No matter what direction you approach the green, ground contours are followed for a consistent, smooth cut.

## Natural to Operate

Toro Walk Greensmasters are prominently known for operator and mower compatibility features. Logically placed, finger tip controls are effortlessly reached. To engage the traction drive you naturally push forward, unlike other mowers.

The ergonomically designed loop handle of the Greensmaster 1000 readily accommodates different height operators with optimized comfort ranges. The large handle grips permit natural hand, arm and



body positioning and maximizes your steering leverage. It also discourages over control making it less likely for operators to press down on the handle and influence the quality of cut.

The 500 offers the ease of a twist grip throttle and its handle is adjustable to operator height, as well.

## Smooth, Straight Line Traction

Greensmaster traction drums are smooth surfaced. There's no need for tread because there's sufficient



clearance between the ground and bedknife to avoid dragging. The smooth surface with split differential makes it easy to turn, diminishes scuffing and empowers straight line tracking.

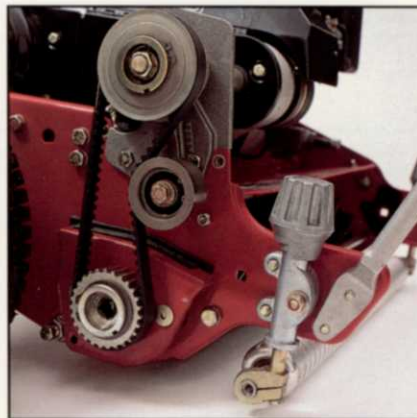
## Aerodynamic Grass Basket Design

The grass baskets precisely control the flow of air and grass to ensure the clippings stay in the basket evenly distributed. With Toro's Walk Greensmasters your turf stays cleaner, healthier, and free of debris.



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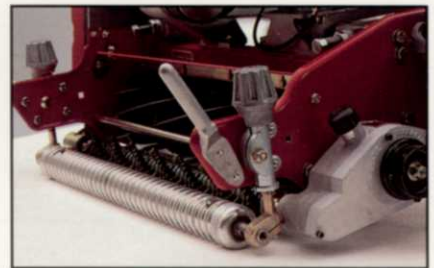


associated service requirements are minimized to ensure long life. And, day-to-day adjustments are quick and easy with Toro's precision bedknife to reel adjustments.

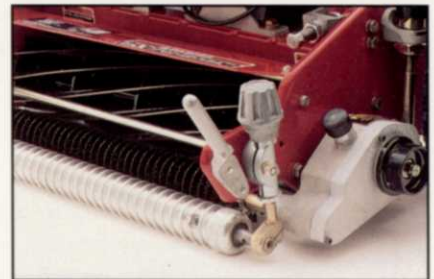
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# Walk Greensmaster® Specifications\*

| GREENSMASTER 1000, MODEL 04051      |   |                                   |  |
|-------------------------------------|---|-----------------------------------|--|
| <b>ENGINE</b>                       | Kawasaki, 4 cycle, 3.7 hp (2.7 kW), air cooled OHV engine. Displacement: 7.57 cu. in. (124 cc). Cast iron cylinder sleeve. Governed to a maximum speed of 3600 rpm, (output shaft speed is 1800 rpm). Electronic ignition. Maximum noise suppression muffler. 83 dB(A) at operator's ear. | <b>TRANSPORT TIRES/ KICKSTAND</b> | Two quick detachable pneumatic tires; 3.00/3.25 x 6, 3.25" (8.25 cm) tread width. 15 psi (1.03 bars) tire pressure. Kickstand and wheels are standard. |
| <b>FUEL CAPACITY</b>                | 2.64 quarts (2.5 liters); regular grade unleaded gasoline.  | <b>REEL CONSTRUCTION</b>          | 5" (12.7 cm) diameter, 11 carbon steel blades welded to 5 stamped steel spiders.   |
| <b>TRACTION AND IMPLEMENT DRIVE</b> | Engine to countershaft drive: two "A" section V-belts. Timing belts from countershaft to differential, drive drum and reel.   | <b>WIDTH OF CUT</b>               | 21" (53.3 cm).   |
| <b>GROUND SPEED</b>                 | Mowing speed: 1.3 mph (2.1 km/h) to 3.5 mph (5.6 km/h). Transport speed (maximum): 5.3 mph (8.5 km/h).  | <b>HEIGHT OF CUT</b>              | Height of cut range: 5/16" to 1/2" (1.9 mm to 12.7 mm)   |
| <b>DIFFERENTIAL</b>                 | Peerless Series 100.  | <b>CLIP FREQUENCY</b>             | 16" (4 mm); optional .25" (6.3 mm).  |
| <b>CLUTCHES</b>                     | Traction: belt idler. Reel: jaw type.   | <b>BEDKNIFE/ BEDBAR</b>           | Dual screw adjustment to reel. Bedknife is high carbon through-hardened steel. Tournament bedknife standard.   |
| <b>BRAKE</b>                        | Service/parking — band type.  | <b>GRASS BASKET</b>               | Patented design: molded polyethylene, baffled and vented for high efficiency collection.   |
| <b>TRACTION DRUM</b>                | Dual cast aluminum, 7.5" (19 cm) diameter.  | <b>FRONT ROLLER</b>               | Aluminum Wiehle roller; 2" (5 cm) diameter.  |
| <b>CONTROLS</b>                     | Engine mounted; recoil starter, choke. Handle mounted: on/off switch, throttle lever, traction engage lever, service/park brake lever. Frame mounted: reel drive engage lever. Safety devices: neutral interlock system.  | <b>DRY WEIGHT</b>                 | 208 lbs. (94.3 kg) with aluminum Wiehle roller, kickstand and grass basket; without transport tires and groomer.                                       |
| <b>HANDLE</b>                       | Loop style; 1" (2.5 cm) diameter with easy operator height adjustment.  | <b>WARRANTY</b>                   | One year limited warranty. Refer to the Operator's Manual for further details.   |
|                                     |   | <b>CERTIFICATION</b>              | Certified to meet ANSI specifications, B71.4-1984 and applicable Federal and State OSHA regulations based thereon.                                     |

| GREENSMASTER 1000 ACCESSORIES |                        |          |                           |          |                                |          |                                    |
|-------------------------------|------------------------|----------|---------------------------|----------|--------------------------------|----------|------------------------------------|
| Part No.                      | Description            | Part No. | Description               | Part No. | Description                    | Part No. | Description                        |
| 04125                         | Grooming Reel          | 65-8340  | Wiehle Roller Scraper     | 33-1000  | Scraper Brush Assembly         | 63-8560  | 3/32" (2.4 mm) Tournament Bedknife |
| 52-3170                       | Full Roller            | 65-8560  | Auxiliary Roller Ext. Kit | 11-0070  | Scraper Comb Assembly          | 65-8250  | 5/16" (1.9 mm) Micro-cut Bedknife  |
| 52-3590                       | Swaged Roller          | 65-8360  | Full Roller Scraper       | 63-8470  | 1/8" (3.2 mm) Low Cut Bedknife | 65-8330  | Groomer — Rotating Brush           |
| 65-9000                       | .25" (6.3 mm) Clip Kit |          |                           |          |                                |          |                                    |

| GREENSMASTER 500, MODEL 04129                              |  |                                     |   |
|--|--|-------------------------------------|---|
| <b>ENGINE</b>  | Kawasaki, 4 cycle, 3.7 (2.7 kW), air cooled OHV engine. Displacement: 7.57 cu. in. (124 cc). Governed to a maximum speed of 3600 rpm. Cast iron cylinder sleeve. Electronic ignition. Maximum noise suppression muffler. 83 dB(A) at operator's ear. | <b>WIDTH OF CUT</b>                 | 21" (53 cm).  |
| <b>FUEL CAPACITY</b>                                       | 2.64 quarts (2.5 liters); regular grade unleaded gasoline.   | <b>HEIGHT OF CUT</b>                | Height of cut range: 1/8" to 11/16" (3.2 mm to 17.5 mm).  |
| <b>TRACTION DRIVE</b>                                      | Transaxle with multiple friction disc clutch driven by V-belt to input countershaft. Spur gear differential transmits power to 2 traction drums.   | <b>CLIP FREQUENCY</b>               | 0.197" (5.0 mm)   |
| <b>GROUND SPEED</b>  | 3.6 mph (5.8 km/h) at 2800 rpm — forward.<br>4.6 mph (7.4 km/h) at 3600 rpm — forward.   | <b>REEL AND FRAME CONSTRUCTION</b>  | Cast aluminum and zinc side plates, aluminum extrusion back plate. Reel unit independent of traction unit and catcher. 3 1/2" (8.9 cm) diameter, 9 blade, heat-treated welded steel reel. Shaft 3/4" (19 mm) diameter with adjustable tapered bearings. |
| <b>TIRES/WHEELS</b>  | 6" (15 cm) diameter solid rubber on 16 gauge steel rims. Two drums running on ball bearings.   | <b>BEDKNIFE TO BEDBAR</b>           | Single edge spring steel knife screwed to extruded aluminum one piece bedbar and backplate.   |
| <b>HANDLE</b>  | One piece 3/4" (19 mm) diameter. 16 gauge welded steel tubing.   | <b>BEDKNIFE AND REEL ADJUSTMENT</b> | Rigidly mounted bedknife. Reel adjusts down to the bedknife through two threaded bolts with locknuts.   |
| <b>CONTROLS</b>  | Hand operated throttle. Single control lever for combination traction/reel drive clutch. Separate reel clutch at gearbox; hand choke on engine. Safety devices: neutral interlock system.  | <b>CUTTING UNIT SUSPENSION</b>      | Full floating cutting unit, isolated from traction unit and grass basket. Low pull points, balanced cutting unit.   |
| <b>IMPLEMENT DRIVE</b>                                     | V-belt to friction disc clutch through transaxle to a universal drive shaft.   | <b>GRASS BASKET</b>                 | One piece basket with larger lip at the opening and an air flow control vent on the top to provide larger capacity.   |
| <b>21" WALK GREENSMASTER 500 CUTTING UNIT, MODEL 04215</b> |  | <b>ROLLERS</b>                      | Standard cast iron Wiehle roller with greaseable bearings provides greater penetration. Rear full 2" (5.1 cm) diameter.   |
| <b>TYPE OF CUTTER</b>                                      | Single fully floating cutting unit; 21" (53 cm) reel.  | <b>DRY WEIGHT</b>                   | 186 lbs. (84 kg) with grass basket and cutting unit.  |
|  |  | <b>WARRANTY</b>                     | One year limited warranty. Refer to the Operator's Manual for further details.  |

| GREENSMASTER 500 ACCESSORIES |                           |           |             |          |                                    |          |  |
|------------------------------|---------------------------|-----------|-------------|----------|------------------------------------|----------|--|
| Model No.                    | Description               | Model No. | Description | Part No. | Description                        | Part No. | Description                              |
| 04215                        | Cutting Unit (w/o roller) | 47299     | Skid Kit    | 82560    | Urethane Comb Kit                  | 88-9000  | 1/8" (3.1 mm) Tournament Bedknife (std.) |
| 47309                        | Full Roller Kit           | 22949     | Brush Kit   | 88-8900  | Cast Iron Wiehle Roller (standard) | 88-8990  | 5/32" (3.9 mm) Low Cut Bedknife          |

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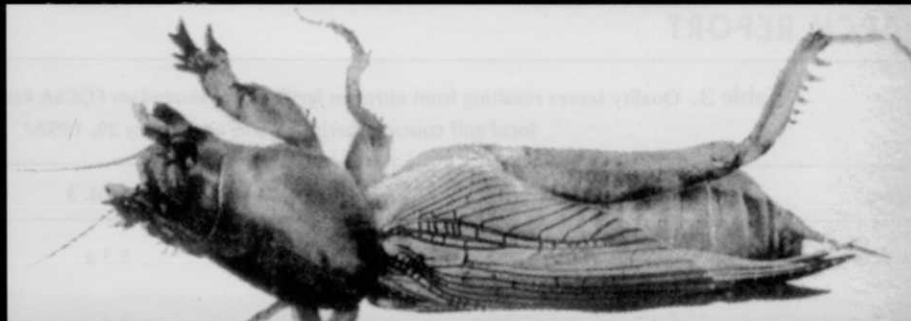
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**Table 3. Quality scores resulting from nitrogen fertilizers evaluated on FGCSA Research Green as rated by local golf course superintendents on January 29, 1992.\***

| Company          | Formulation | Supt. 1 | Supt. 2  | Supt. 3 | Supt. 4 | FLREC  |
|------------------|-------------|---------|----------|---------|---------|--------|
| O. M. Scott      | 40-0-0      | 6.8 ab  | 6.0 abc  | 5.3 a   | 6.0 a   | 7.0 ab |
| Vigoro           | 25-0-12     | 7.0 a   | 6.3 ab   | 5.3 a   | 6.8 a   | 7.0 ab |
| Vigoro           | 25-0-14     | 6.8 ab  | 5.5 bcd  | 5.3 a   | 6.5 a   | 6.9 b  |
| Vigoro           | 30-0-0      | 7.3 a   | 6.5 a    | 5.8 a   | 6.8 a   | 7.2 a  |
| LESCO            | 29-0-0      | 6.5 ab  | 6.0 abc  | 5.3 a   | 6.3 a   | 6.9 b  |
| Nor-Am           | 40-0-0      | 7.3 a   | 6.3 ab   | 6.3 a   | 6.5 a   | 6.9 b  |
| Nor-Am           | 38-0-0      | 6.0 ab  | 5.0 d    | 5.8 a   | 6.0 a   | 6.6 c  |
| Howard           | 40-0-0      | 6.3 ab  | 6.0 abc  | 6.0 a   | 6.3 a   | 6.9 b  |
| Cleary           | 18-0-0      | 6.8 ab  | 5.3 cd   | 5.8 a   | 6.0 a   | 6.8 bc |
| Traylor/Arcadian | 18-0-0      | 6.5 ab  | 5.8 abcd | 5.3 a   | 6.0 a   | 6.9 b  |
| Greensmith       | 28-0-0      | 5.3 b   | 5.0 d    | 5.0 a   | 5.8 a   | 6.2 d  |
| LSD              | —           | 1.7     | 0.9      | 1.6     | 1.3     | 0.2    |

\*Quality scores (color and density) are based on a scale of 1 to 10 with 10 equal to a perfect score. Values are means of four replicate plots. Means within a column followed by the same letter are not significantly different ( $P=0.05$ ) according to Waller-Duncan k-ratio t-test.

Vigoro's 25-0-12 and 25-0-14 (so we could apply a uniform potassium application), Howard 40-0-0 (since it is technically the same as Nor-Am 40-0-0), and Greensmiths 28-0-0 (due to "burning" problems at the winter rate). All other treatments remained in the same locations as in the previous year. Added to the experiment were IBDU, uncoated urea, ammonium sulfate and ammonium nitrate (Table 1, Page 30). These fertilizers were added to the study to determine their effect on the root rot disease Bermudagrass Decline which had been observed the previous summer on the Tifdwarf area. The fast-release fertilizers were also added for general comparison with the standard slow-release fertilizers.

The second plan alteration concerned nitrogen application rates. Each replicate 80-square-foot plot (8 feet by 10 feet) of each nitrogen treatment was divided into three equal sub-plots (8 feet by 3.3 feet), with each sub-plot receiving a

### ***Nitrogen Source Study on the Otto Schmeisser- FGCSA Research Green***

different rate of the nitrogen treatment. The three nitrogen rates were 1 pound, 0.75 pound and 0.5 pound per 1000 square feet per month for May through October (summer rate) and will be 2 pounds, 1.5 pounds and 1 pound per 1000 square feet per month for November through April (winter rate). Thus, one rate was the same as the previous year and the other two rates represented a 25% and 50% decrease in nitrogen.

However, the potassium (K), applied as sulpomag (0-0-22), was applied at the same rate as the previous year across all plots - 1 pound K (summer rate) and 2 pounds K (winter rate) per 1000 square feet per month. Thus, the N:K ratio was changed from 1:1 to 1.5:2 and 1:2 for the lower nitrogen rates. Fertilizers were applied every two weeks as described previously.

Soil pH and clipping weights were determined only for the highest rate (1 pound) of nitrogen. Soil pH was determined as before using pooled samples. The area sampled for clipping weights was reduced to a 22-inch (mower-width) by 7-foot area (12.8 square feet). Clipping weights were not determined for May or June, to allow for establishment of the new nitrogen sources. Quality scores were obtained for all plots using the previously described system. These scores were not obtained in May for the reason indicated above. ➔

**Table 4. Quality scores resulting from nitrogen fertilizers evaluated on the FGCSA Research Green from May 1992 through October 1992 at the summer fertility rate of 1 pound nitrogen per 1000 square feet per month.\***

| Company              | Formulation | June 2 | June 17 | July 14 | July 27 | Aug. 11 | Aug. 28 | Sept. 11 | Oct. 12 | Oct. 22 |
|----------------------|-------------|--------|---------|---------|---------|---------|---------|----------|---------|---------|
| O. M. Scott          | 40-0-0      | 6.6 a  | 5.8 b   | 5.8 cd  | 6.8 ab  | 6.5 ab  | 7.5 a   | 7.0 a    | 6.6 ab  | 6.3 ab  |
| Vigoro               | 30-0-0      | 6.8 a  | 5.8 b   | 5.4 d   | 6.6 cd  | 6.0 b   | 7.5 a   | 7.0 a    | 7.1 a   | 6.4 a   |
| Vigoro               | 31-0-0      | 6.6 a  | 5.7 b   | 5.6 cd  | 6.8 ab  | 6.0 b   | 7.5 a   | 7.0 a    | 7.1 a   | 6.7 a   |
| Vigoro               | 21-0-0      | 6.8 a  | 5.6 bc  | 5.9 bc  | 6.8 ab  | 6.8 a   | 7.5 a   | 7.0 a    | 6.9 a   | 6.4 a   |
| LESCO                | 46-0-0      | 6.8 a  | 5.9 ab  | 5.7 cd  | 6.8 ab  | 6.0 b   | 7.5 a   | 7.0 a    | 6.9 a   | 6.2 ab  |
| LESCO                | 29-0-0      | 6.6 a  | 5.7 b   | 5.7 cd  | 6.7 ab  | 6.3 ab  | 7.5 a   | 7.0 a    | 6.8 a   | 6.3 ab  |
| Nor-Am               | 40-0-0      | 6.7 a  | 5.9 ab  | 5.9 bc  | 6.7 ab  | 6.0 b   | 7.5 a   | 7.0 a    | 6.9 a   | 6.6 a   |
| Nor-Am               | 38-0-0      | 6.6 a  | 6.4 a   | 6.4 a   | 6.8 a   | 6.8 a   | 7.5 a   | 7.0 a    | 7.0 a   | 6.3 ab  |
| Nitram               | 34-0-0      | 6.8 a  | 5.1 c   | 5.6 cd  | 6.5 c   | 6.8 a   | 7.5 a   | 7.0 a    | 6.2 b   | 5.7 b   |
| Cleary               | 18-0-0      | 6.6 a  | 5.8 b   | 6.3 ab  | 6.8 a   | 6.0 a   | 7.5 a   | 7.0 a    | 6.9 a   | 6.5 a   |
| Traylor<br>/Arcadian | 18-0-0      | 6.6 a  | 5.9 ab  | 5.8 cd  | 6.8 ab  | 6.5 ab  | 7.5 a   | 7.0 a    | 7.0 a   | 6.7 a   |
| LSD                  | —           | 0.2    | 0.5     | 0.4     | 0.2     | 0.6     | 0       | 0        | 0.4     | 0.6     |

\*Quality scores (color and density) are based on a scale of 1 to 10 with 10 equal to a perfect score. Values are means of four replicate plots. Means within a column followed by the same letter are not significantly different (P=0.05) according to Waller-Duncan k-ratio t-test.



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**Table 5. Clipping weights (grams) resulting from nitrogen fertilizers evaluated on FGCSA Research Green at the winter fertility rate (November 1991 through April 1992) and summer fertility rate (May 1992 through October 1992).\***

| Company             | Ratio   | Nov. 19 | Dec. 17 | Jan. 29   | Feb. 26   | Apr. 1  | Apr. 22 | July 29   | Aug. 27  | Sept. 23  | Oct. 28  |
|---------------------|---------|---------|---------|-----------|-----------|---------|---------|-----------|----------|-----------|----------|
| O. M. Scott         | 40-0-0  | 5.201 a | 1.785 a | 5.456 abc | 10.944 ab | 4.548 a | 8.542 a | 8.082 bcd | 6.433 a  | 8.651 abc | 2.052 ab |
| Vigoro              | 25-0-12 | 5.852 a | 1.900 a | 4.560 c   | 10.283 ab | 5.223 a | 9.670 a | —**       | —        | —         | —        |
| Vigoro              | 25-0-14 | 4.652 a | 2.104 a | 4.554 c   | 10.171 ab | 4.508 a | 9.076 a | —         | —        | —         | —        |
| Vigoro              | 30-0-0  | 5.480 a | 2.198 a | 4.875 bc  | 10.122 ab | 4.895 a | 9.299 a | 6.975 cde | 6.326 ab | 7.205 bcd | 2.620 ab |
| Vigoro              | 31-0-0  | —       | —       | —         | —         | —       | —       | 6.604 de  | 6.789 a  | 7.007 cd  | 2.868 a  |
| Vigoro              | 21-0-0  | —       | —       | —         | —         | —       | —       | 9.462 a   | 6.955 a  | 9.572 a   | 2.410 ab |
| LESCO               | 46-0-0  | —       | —       | —         | —         | —       | —       | 6.786 de  | 6.778 a  | 9.399 a   | 1.893 ab |
| LESCO               | 29-0-0  | 4.337 a | 2.229 a | 4.507 c   | 10.304 ab | 4.482 a | 8.504 a | 7.298 cde | 6.657 a  | 9.914 a   | 2.787 ab |
| Nor-Am              | 40-0-0  | 4.644 a | 2.028 a | 5.183 abc | 9.416 b   | 3.931 a | 7.756 a | 7.276 cde | 6.292 ab | 8.838 ab  | 2.056 ab |
| Nor-Am              | 38-0-0  | 4.136 a | 1.859 a | 5.095 abc | 9.500 b   | 4.267 a | 8.548 a | 8.682 ab  | 6.081 ab | 7.450 bcd | 1.653 ab |
| Howard              | 40-0-0  | 5.605 a | 1.942 a | 6.985 a   | 10.240 ab | 4.655 a | 8.331 a | —         | —        | —         | —        |
| Nitram              | 34-0-0  | —       | —       | —         | —         | —       | —       | 6.535 e   | 6.191 ab | 9.862 a   | 1.833 ab |
| Cleary              | 18-0-0  | 5.089 a | 1.803 a | 5.090 abc | 9.998 ab  | 4.589 a | 9.906 a | 8.296 abc | 6.264 ab | 7.555 bcd | 1.620 b  |
| Traylor<br>/Acadian | 18-0-0  | 6.174 a | 2.282 a | 6.495 abc | 12.253 a  | 5.209 a | 9.994 a | 7.022 cde | 5.106 b  | 6.790 d   | 1.642 ab |
| Greensmiths         | 28-0-0  | 4.448 a | 2.140 a | 5.208 abc | 10.226 ab | 3.692 a | 7.070 a | —         | —        | —         | —        |
| LSD                 | —       | 2.480   | 0.732   | 1.912     | 2.482     | 1.787   | 3.025   | 1.354     | 1.289    | 1.815     | 1.228    |

\*Values are means of four replicate plots. Means within a column followed by the same letter are not significantly different ( $P=0.05$ ) according to Waller-Duncan k-ratio t-test. \*\*Not tested during this 6-month study period.

## Results and Discussion

When comparing quality and quantity scores for each date, please note that values in the column for that date that are followed by the same letter are not statistically different from each other.

You will note that at the end of each column, there is a value called LSD which means "Least Significant Difference". The LSD value is a value that the treatment must exceed to be considered significantly different.

In the footnote for these tables, it is indicated that " $P=0.05$ ". This indicates we are 95% confident that means exceeding the LSD value (for each column) are

in fact different and that the observed variation is not due to random chance.

The best explanation of statistical analysis and reasons for replications, test design, etc. can be found in December 1990 issue of *Golf Course Management* in an article entitled "Developing a Test Program on the Golf Course" by Dr. Nick Christians.

Table 2 (Page 32) lists the quality scores for nitrogen sources evaluated from November 1991 through April 1992 at the 2-pound winter rate. The primary difference was the poor quality expressed by plots treated with Greensmith's N-phURIC product (18-0-0/liquid) which

is a combination of urea and sulfuric acid. The grass was "burned" by this product when applied as described earlier. It was necessary to increase the amount of water used to apply this product from 10 gallons to 33 gallons per 1000 square feet to eliminate the "burning" effect. By the end of February, this problem had been solved.

After this time, there were no significant differences among treatments, except on March 24 when the quality of the Nor-Am methylene urea product (38-0-0) was obviously less than the other products.

Since four local golf course superin-

tendents were at the FLREC on a quality-rating date (Jan. 29, 1992), they were asked to also rate the plots using our 1-10 scale. Table 3 (Page 34) is a summary of their results as compared to the rating by the FLREC staff. This simply illustrates that each superintendent has different quality standards and/or perceptions of quality.

The only thing we all agreed on was the poor quality of the Greensmith prod-

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## *Nitrogen Source Study on the Otto Schmeisser- FGCSA Research Green*

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uct due to the "burning" effect described earlier.

Table 4 (Page 35) lists the quality scores for the highest nitrogen rate (1 pound summer rate) for the nitrogen sources evaluated from May 1992 through October 1992.

Seven of the eleven products were the same as used in the November 1991 through April 1992. This would also be the second year that these seven products have been evaluated at the summer fertility rate. The results can be compared to those reported in the January/February 1992 issue of The Florida Green.

From June through September, the product with the most consistent quality ratings was the Nor-Am methylene urea product (38-0-0). There were no observed differences between any nitrogen source treatment on Aug. 28 and Sept. 11. No above-ground symptoms of Bermudagrass Decline were ever observed on the Tifdwarf area, so no evaluation could be made concerning the effect of nitrogen sources on this disease. However, the roots did exhibit initial symptoms of a root decline beginning in October, indicating the plants would be highly susceptible to any stress imposed on the area. It

was at this time that we began to observe distinct necrotic (brown) patches (2-inch diameter) associated with specific plots in the nitrogen source study. They were not observed on any other portion of the research green and were not due to a specific plant pathogen or insect. Since the patches stopped and started at plot boundaries, we believe we were observ-

ing a fertilizer burn, albeit a strange one.

The ammonium nitrate (34-0-0) plots were affected the most (3 out of 4 replicate main plots), but other random plots (1 or 2 replications) of both slow-release and fast-release nitrogen sources had these patches also.

In general, as the rate of nitrogen decreased for a particular nitrogen

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**Table 6.** Soil pH values associated with nitrogen fertilizer treatments evaluated on FGCSA Research Green at the winter fertility rate (November 1991 through April 1992) and summer fertility rate (May 1992 through October 1992).\*

| Company              | Formulation | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. |
|----------------------|-------------|------|------|------|------|------|------|-----|------|------|------|-------|------|
| O. M. Scott          | 40-0-0      | 6.6  | 6.9  | 6.3  | 6.4  | 6.3  | 6.9  | 7.2 | 6.5  | 6.2  | 6.6  | 6.9   | 6.7  |
| Vigoro               | 25-0-12     | 6.8  | 6.7  | 6.4  | 6.4  | 6.4  | 6.7  | —** | —    | —    | —    | —     | —    |
| Vigoro               | 25-0-14     | 6.7  | 6.6  | 6.5  | 6.6  | 6.3  | 6.6  | —   | —    | —    | —    | —     | —    |
| Vigoro               | 30-0-0      | 6.5  | 6.5  | 6.3  | 6.5  | 6.2  | 6.6  | 6.8 | 7.1  | 6.0  | 6.8  | 6.8   | 6.8  |
| Vigoro               | 31-0-0      | —    | —    | —    | —    | —    | —    | 7.0 | 6.4  | 6.0  | 6.8  | 6.9   | 6.6  |
| Vigoro               | 21-0-0      | —    | —    | —    | —    | —    | —    | 7.2 | 7.1  | 6.0  | 6.5  | 6.8   | 6.1  |
| LESCO                | 46-0-0      | —    | —    | —    | —    | —    | —    | 7.0 | 6.7  | 6.0  | 6.7  | 6.9   | 6.4  |
| LESCO                | 29-0-0      | 6.2  | 6.3  | 5.6  | 5.6  | 5.8  | 5.9  | 6.2 | 6.6  | 6.0  | 6.1  | 6.5   | 6.3  |
| Nor-Am               | 40-0-0      | 6.5  | 6.5  | 6.4  | 6.5  | 6.4  | 6.7  | 7.0 | 7.1  | 6.0  | 6.6  | 6.8   | 6.6  |
| Nor-Am               | 38-0-0      | 6.6  | 6.6  | 6.4  | 6.7  | 6.5  | 6.9  | 6.9 | 7.0  | 6.0  | 6.7  | 7.0   | 6.7  |
| Howard               | 40-0-0      | 6.7  | 6.7  | 6.5  | 6.6  | 6.4  | 7.0  | —   | —    | —    | —    | —     | —    |
| Nitram               | 34-0-0      | —    | —    | —    | —    | —    | —    | 6.8 | 7.0  | 6.2  | 6.5  | 6.7   | 6.4  |
| Cleary               | 18-0-0      | 6.9  | 6.5  | 6.4  | 6.6  | 6.3  | 7.1  | 7.0 | 7.0  | 5.9  | 6.5  | 6.8   | 6.6  |
| Traylor<br>/Arcadian | 18-0-0      | 6.7  | 6.4  | 6.3  | 6.6  | 6.3  | 6.6  | 7.2 | 7.0  | 6.0  | 6.8  | 6.9   | 6.5  |
| Greensmiths          | 28-0-0      | 6.4  | 6.3  | 6.0  | 6.3  | 5.9  | 6.3  | —   | —    | —    | —    | —     | —    |

\*Values represent results of pooled samples from all four replicate plots of each nitrogen source treatment. Therefore, no statistical analysis were performed.

\*\*Not tested during this 6 month study period.

## Nitrogen Source Study on the Otto Schmeisser- FGCSA Research Green

source, the number of necrotic patches increased! Again, there was no particular logic to the locational occurrence of the necrotic patches, but they were present and may have been indicative of an underlying stress problem such as the initial root decline symptoms.

Table 5 (Page 38) is a summary of the clipping weights obtained for the entire year: November 1991 - April 1992 at the winter 2-pound N rate and May 1992 - October 1992 at the summer 1-pound N rate. Again, there was no obvious trends in relationship to the nitrogen sources. The low clipping weights in December

can be attributed to cool weather. The low weight in October correlates with the appearance of the necrotic patches and perhaps confirms that the grass was under a physiological stress at this time.

Table 6 (above) is a summary of soil pH values obtained for the entire year. Although soil pH was determined twice each month, only one value per month is provided since the results were very similar. It should be noted that the water used for irrigation has moderate to high calcium carbonate levels and the pH averages 7.5-8.0. The greatest difference in pH values occurred between June and

July. This may be due to the fact that we had 11.5 inches of rain from June 22 to June 29.

In general, sulfur-coated urea (LESCO 29-0-0) had the lowest soil pH values. However, it would be expected that, over time, the ammonium sulfate (21-0-0) would also result in lower soil pH values. This trend appeared to be developing by October. This is not surprising since elemental sulfur and the ammonium ion are both acid-forming materials. Note that it is the ammonium ion and not the sulfate ion in ammonium sulfate that is acid forming.

Table 7 (Page 40) summarizes the quality scores for the nitrogen sources evaluated at three different nitrogen rates from May through October 1992. Again, the most noticeable differences in quality between nitrogen sources and rates were in October when the necrotic patches were dominant. Quality scores obtained would suggest that there may be few dif-

ferences between nitrogen sources (fast-release and slow-release) or nitrogen rates when the potassium application rate is kept constant.

Remember that the potassium (K) rate was 1 pound per 1000 square feet per month across all nitrogen rates resulting in different N:K ratios for each nitrogen rate treatment. The results could be quite different if the potassium rate was reduced to achieve a N:K ratio of 1:1 for all treatments. Also, these results must be viewed as preliminary since they are only from one six-month study period. The experiment must be continued for a valid assessment to be made.

It is important to remember that each golf course is different in terms of amount of play (winter vs. summer) and expected quality and speed on putting greens. The research green does not receive any play and so is not stressed in this manner.

As can be observed in Table 3, the individual superintendent's quality expectations differ also. The other factor that often determines quality is the course's budget. The bottom line is that each superintendent must be a good consumer to obtain the best product for the needs of their particular course. Each golf course situation is unique, and you must decide what is most appropriate for your situation.

We would like to thank the following companies who have donated material and equipment for maintenance of the research green: DeBra Turf, Golf Agronomics, Hector Turf, Liqua-Tech, NuCrane Equipment Co., and Vigoro Industries. In addition, we would like to thank the equipment dealers and turfgrass suppliers who support the SFGCSA Turfgrass Exposition each year as funds raised from that event are also used to support research at the FLREC.

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**Table 7. Quality scores resulting from nitrogen fertilizers evaluated on the FGCSA Research Green from May 1992 through October 1992 at three rates of nitrogen - 1 pound (A), 0.75 pound (B) and 0.5 pound (C) per 1000 square feet per month.\***

| Company              | Formulation | N Level | June 2  | June 17 | July 14 | July 27 | Aug. 11 | Aug. 28 | Sept. 11 | Oct. 12 | Oct. 22 |
|----------------------|-------------|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|
| O. M. Scott          | 40-0-0      | A       | 6.6 ab  | 5.8 b   | 5.8 cd  | 6.8 ab  | 6.5 ab  | 7.5 a   | 7.0 a    | 6.6 a-f | 6.3 a-e |
|                      |             | B       | 6.6 ab  | 5.8 b   | 5.8 cd  | 6.8 ab  | 6.3 ab  | 7.5 a   | 7.0 a    | 6.4 d-h | 6.1 a-f |
|                      |             | C       | 6.6 ab  | 5.8 b   | 5.8 cd  | 6.7 abc | 6.3 ab  | 7.5 a   | 7.0 a    | 6.4 d-h | 5.9 b-g |
| Vigoro               | 30-0-0      | A       | 6.8 a   | 5.8 b   | 5.4 ef  | 6.6 bcd | 6.0 b   | 7.5 a   | 7.0 a    | 7.1 ab  | 6.4 a-d |
|                      |             | B       | 6.7 a   | 5.8 b   | 5.4 ef  | 6.6 bcd | 6.0 b   | 7.5 a   | 7.0 a    | 6.8 a-e | 6.4 a-d |
|                      |             | C       | 6.6 ab  | 5.8 b   | 5.4 ef  | 6.4 d   | 6.0 b   | 7.5 a   | 7.0 a    | 6.7 a-f | 6.2 a-e |
| Vigoro               | 31-0-0      | A       | 6.6 ab  | 5.7 b   | 5.6 def | 6.8 ab  | 6.0 b   | 7.5 a   | 7.0 a    | 7.1 ab  | 6.7 a   |
|                      |             | B       | 6.6 ab  | 5.7 b   | 5.6 def | 6.8 ab  | 6.0 b   | 7.5 a   | 7.0 a    | 7.1 ab  | 6.6 ab  |
|                      |             | C       | 6.6 ab  | 5.8 b   | 5.6 def | 6.8 ab  | 6.0 b   | 7.5 a   | 7.0 a    | 6.8 a-e | 6.3 a-e |
| Vigoro               | 21-0-0      | A       | 6.8 a   | 5.6 b   | 5.9 bc  | 6.8 ab  | 6.8 a   | 7.5 a   | 7.0 a    | 6.9 a-d | 6.4 a-d |
|                      |             | B       | 6.6 ab  | 5.6 b   | 5.9 bc  | 6.8 ab  | 6.5 ab  | 7.5 a   | 7.0 a    | 6.8 a-e | 6.3 a-e |
|                      |             | C       | 6.6 ab  | 5.6 b   | 5.8 cd  | 6.8 ab  | 6.3 ab  | 7.5 a   | 7.0 a    | 6.7 a-f | 6.0 a-g |
| LESCO                | 46-0-0      | A       | 6.8 ab  | 5.9 b   | 5.7 c-f | 6.8 ab  | 6.0 b   | 7.5 a   | 7.0 a    | 6.9 a-d | 6.2 a-e |
|                      |             | B       | 6.8 ab  | 5.9 b   | 5.7 c-f | 6.8 ab  | 6.0 b   | 7.5 a   | 7.0 a    | 6.8 a-e | 6.1 a-f |
|                      |             | C       | 6.5 abc | 5.9 b   | 5.6 def | 6.6 bcd | 6.0 b   | 7.5 a   | 7.0 a    | 6.6 a-f | 5.9 b-g |
| LESCO                | 29-0-0      | A       | 6.6 ab  | 5.7 b   | 5.7 c-f | 6.7 abc | 6.3 ab  | 7.5 a   | 7.0 a    | 6.8 a-e | 6.3 a-e |
|                      |             | B       | 6.6 ab  | 5.7 b   | 5.6 def | 6.4 d   | 6.0 b   | 7.5 a   | 7.0 a    | 6.5 c-g | 5.8 c-g |
|                      |             | C       | 6.5 abc | 5.7 b   | 5.6 def | 6.5 cd  | 6.0 b   | 7.5 a   | 7.0 a    | 6.2 fgh | 5.3 fg  |
| Nor-Am               | 40-0-0      | A       | 6.7 a   | 5.9 ab  | 5.9 bc  | 6.7 abc | 6.0 b   | 7.5 a   | 7.0 a    | 6.9 a-d | 6.6 ab  |
|                      |             | B       | 6.6 ab  | 5.9 ab  | 5.8 cd  | 6.6 bcd | 6.0 b   | 7.5 a   | 7.0 a    | 6.8 a-e | 6.4 a-d |
|                      |             | C       | 6.5 abc | 5.9 ab  | 5.8 cd  | 6.6 bcd | 6.0 b   | 7.5 a   | 7.0 a    | 6.6 a-f | 6.3 a-e |
| Nor-Am               | 38-0-0      | A       | 6.6 ab  | 6.4 a   | 6.4 a   | 6.8 ab  | 6.8 a   | 7.5 a   | 7.0 a    | 7.0 abc | 6.3 a-e |
|                      |             | B       | 6.7 a   | 6.4 a   | 6.4 a   | 6.8 ab  | 6.3 ab  | 7.5 a   | 7.0 a    | 6.9 a-d | 6.3 a-e |
|                      |             | C       | 6.6 ab  | 6.4 a   | 6.4 a   | 6.8 ab  | 6.3 ab  | 7.5 a   | 7.0 a    | 6.7 a-f | 5.9 b-g |
| Nitram               | 34-0-0      | A       | 6.8 a   | 5.1 c   | 5.6 def | 6.5 cd  | 6.8 a   | 7.5 a   | 7.0 a    | 6.2 fgh | 5.7 d-g |
|                      |             | B       | 5.9 e   | 5.1 c   | 5.6 def | 6.4 d   | 6.0 b   | 7.5 a   | 7.0 a    | 6.0 gh  | 5.5 efg |
|                      |             | C       | 6.1 cde | 5.1 c   | 5.6 def | 6.4 d   | 6.0 b   | 7.5 a   | 7.0 a    | 5.9 h   | 5.3 fg  |
| Cleary               | 18-0-0      | A       | 6.6 ab  | 5.8 b   | 6.3 ab  | 6.8 a   | 6.0 b   | 7.5 a   | 7.0 a    | 6.9 a-d | 6.5 abc |
|                      |             | B       | 6.2 b-e | 5.8 b   | 6.3 ab  | 6.8 a   | 6.3 ab  | 7.5 a   | 7.0 a    | 6.6 a-f | 6.0 a-g |
|                      |             | C       | 6.4 a-d | 5.8 b   | 6.3 ab  | 6.8 a   | 6.3 ab  | 7.5 a   | 7.0 a    | 6.7 a-f | 5.9 b-g |
| Traylor<br>/Arcadian | 18-0-0      | A       | 6.6 ab  | 5.9 ab  | 5.8 cd  | 6.8 a   | 6.5 ab  | 7.5 a   | 7.0 a    | 7.0 abc | 6.7 a   |
|                      |             | B       | 6.2 b-e | 6.0 ab  | 5.8 cd  | 6.8 a   | 6.3 ab  | 7.5 a   | 7.0 a    | 6.9 a-d | 6.6 ab  |
|                      |             | C       | 6.1 cde | 6.0 ab  | 5.6 def | 6.6 bcd | 6.0 b   | 7.5 a   | 7.0 a    | 6.8 a-e | 6.2 a-e |
| LSD                  | —           | —       | 0.4     | 0.5     | 0.4     | 0.2     | 0.6     | 0       | 0        | 0.5     | 0.8     |

\*Quality scores (color and density) are based on a scale of 1 to 10 with 10 equal to a perfect score. Values are means of four replicate plots. Means within a column followed by the same letter are not significantly different (P=0.05) according to Waller-Duncan k-ratio t-test.







# How Am I Doin', Boss?

BY PRENTISS C. KNOTTS

**T**his is a story of an employee in Golf Course Maintenance. We'll call him "Norbert."

When Norbert came aboard, he was thoroughly indoctrinated in "our way" of doing things. We took great pains to demonstrate methods and to lecture unendingly on the importance of doing things "our way." Norbert was told that he would be on probation for a period of 90 days, after which he would receive a review and, possibly, a raise.

The 90 days passed uneventfully and Norbert's official probation period ended. This happened without fanfare and went largely unnoticed by everyone (except Norbert). As the days turned to weeks and the weeks to months, Norbert began to suspect that the long-awaited review (and pay increase) was another broken promise; a situa-

slip, and eventually the quality of his work became unacceptable. The superintendent, after much urging from his assistant and the foreman, decided that something must be done about Norbert. He would be called in and talked to about his poor performance and advised of the possible alternatives concerning his continued employment.

The interview went something like this:

"Norbert, I wanted to talk to you about your performance of late. Your attendance and punctuality are not what they should be and the quality of your work has significantly declined in recent weeks. Can you shed any light on this problem for me?" asked the superintendent.

"Gosh, I thought I was doin' O.K.," responded Norbert, looking genuinely perplexed.

"Well, you're not doin' O.K.," retorted the Superintendent, "and unless you can show me some definite improvement very soon, I'm not going to be able to use you around here!"

At this point Norbert is showing visible signs of confusion and dismay. He now realizes that his job is in jeopardy and wants to understand the causes for this so he may effect a cure.

The superintendent stands and in dismissal says, "Norbert, when I hired you, you were told what you needed to do to keep your job here, so, I expect to see you get after it."

Norbert walked away wondering just what he needed to do to ensure his continued employment, but he had no idea where to start. At that point he decided to talk to the assistant superintendent.

That conversation went something like this:

"The Boss just called me in and chewed me out," said Norbert. "I really didn't understand what he was getting at. Has he said anything to you?"

"He sure has, Norbert. My tail has been a crack for weeks, thanks to you. You really need to tighten up!" said the assistant superintendent.

"But he didn't tell me what I was doin' wrong," pleaded Norbert.

"Look," said the assistant superintendent, "If we don't get goin', we're both gonna be in for it."

Again, Norbert was sent on his way with only his thoughts about the sequence of events. He

*A way to rate the work of your workers*



tion that he had become accustomed to during his all-too-frequently-changing career. He continued to report to work on time and to produce at acceptable levels even though he was becoming more and more disenchanted with his job, and in particular, that branch of management that he had to deal with daily.

After some period of time, which will vary with your own particular "Norbert," Norbert stopped reporting to work on time. His diligence began to

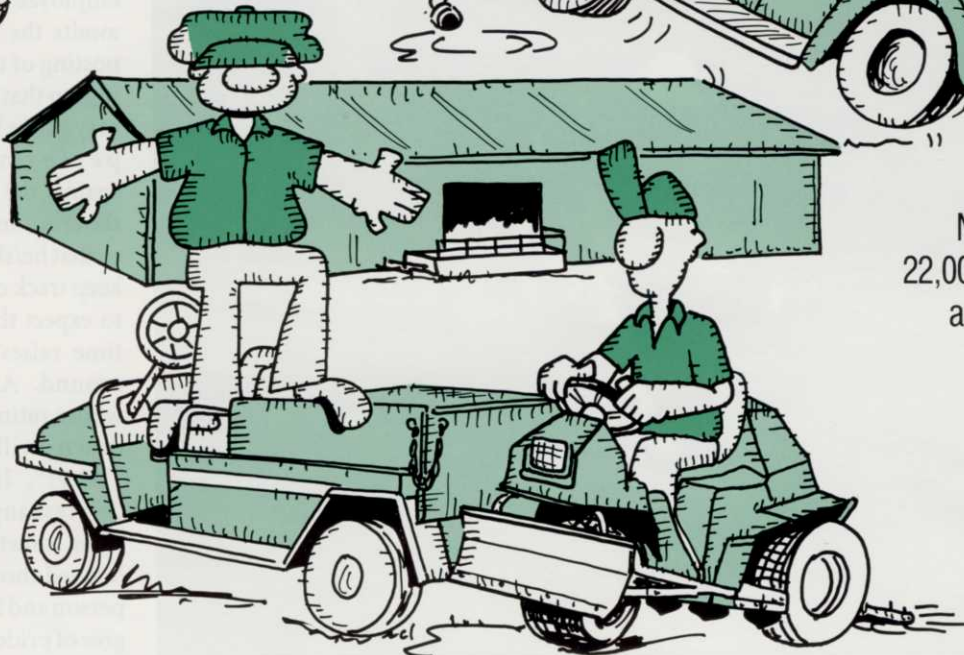
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## **'An approach that gives rapid feedback and correction with learning as the objective will create competent, trustworthy employees...'**

spent the remainder of the day in a dilemma and went home knowing it's just a matter of time until he'll be back on the street looking for a job again.

The truth of the matter is that Norbert will lose his job and will be looking for a job very soon. Unfortunately, his next place of employment may be just as predictable as the previous and for many of the same reasons.

Norbert can't understand what happened. He started out really liking the work and being outside in a beautiful environment and the other employees seemed to be good people. He had really hoped that this would be a job that he could stay with for a long time and get himself back on track with his life.

Where was the failure? Was the problem really Norbert's or was it a combination of failures and problems on both sides that resulted in Norbert's termination? What could he have done to prevent this sad turn of events?

All of these questions are valid, but complex. To understand the problems associated with this story, we need to go back to the very beginning of our training in supervision. A good place to start is kindergarten. The assignments are simple with clear-cut objectives. The feedback and corrections are instantaneous and the learning experience is a positive one. As the years pass, we receive more complex assignments, but the feedback comes quickly and the learning experience is not compromised. This continues for some of us throughout college. For the rest, it ends wherever education stops.

Changes in the way we view our roles as supervisors and managers will allow us to return to the "comfort zone" we all

enjoyed in grade school and thereafter. An approach that gives rapid feedback and correction with learning as the objective will create competent, trustworthy employees and drastically reduce the turnover that is historically associated with our industry.

Here is one approach:

This superintendent developed a system of rating each employee for each task, each and every day. Using a 10-



*This superintendent developed a system of rating each employee for each task, each and every day.*

point scale (10.0), the quality and efficiency of each employee is recorded daily on each job assignment. As the supervisor, assistant superintendent or superintendent follows the crew to check the work, a note is made referring to the quality of the work performed. This can be a comment, or a numerical notation using 10.0 as perfection. Notations made in the margin of the page would allow for a more detailed review of the deficiency.

For example, if the assistant superintendent is checking the quality of the mowing job done on greens, he may say, "too much overlap," or "lines not straight," or maybe even, "clippings not scattered enough."

The obvious result of these comments would be a deduction from the perfect score of 10.0. If this procedure is carried out on all employees and on all tasks, there will be an accumulation of scores at the end of the day, week, month, and so on. Scores can be averaged and a rating that reflects the performance of the individual employee can be derived. Posting those ratings weekly or monthly would serve the purpose of informing the employee of his/her current status with the Boss.

In practice, the employee eagerly awaits the weekly posting of the ratings so that he/she may gauge his/her performance against the rest of the crew, and also, so that he/she may keep track of what to expect the next time raises come around. Anyone whose rating goes down will ask, "Why?". If they don't ask any questions, something is learned about that person and the degree of pride taken in the performance of their jobs.

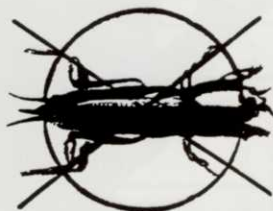
The rating system can be custom-designed to fit any type of operation. Every golf course maintenance operation has standards of quality and performance that are acceptable, even if those standards exist only in the superintendent's mind. If an employee's performance is substandard, the employee could not expect to retain his/her job. Similarly, every superintendent knows how long each job should take. This is true even if it has never been written down.

With today's new computer programs designed to help us manage our operations, the task of establishing time targets becomes much easier. Combining a value for quality and a value

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## Pageant\* insecticide

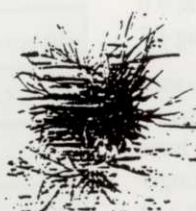
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## ‘Some will seek tasks and initiate work...

for efficiency (time), an overall performance rating can be established for each task. Using these suppositions, here is an example of how a typical employee could be rated on a typical day:

**NAME:** Norbert

**1st assignment** Mow grns-fri 9 **Rating** 9.0

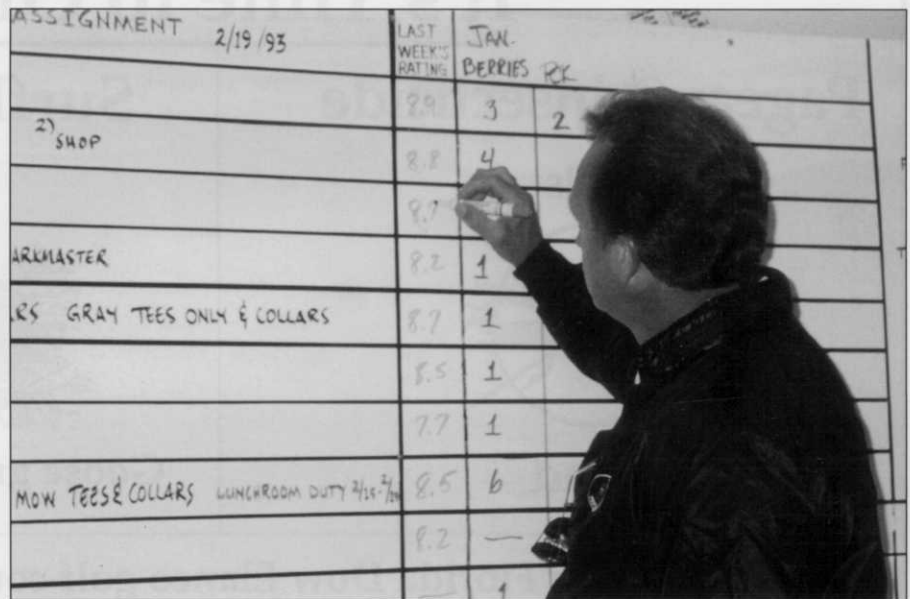
**2nd assignment** edge bunkers **Rating** 4.5

The daily log would reflect the reasons for the scores above. For example, Norbert's work on the greens may have been perfect, but he may have spent longer than normal to finish the work. Also, it may be possible that Norbert finished in record time, but the quality of his work was poor. If a minimum acceptable standard of 7.0 is established, Norbert will understand that his daily average of 6.75 isn't even marginally acceptable. He will want to know why his work didn't measure up.

**A**t this point, the supervisor will be able to point to the bunker work as his downfall. Upon further examination, Norbert will be told that he failed to maintain pace with previous man hours on the same job, or that the quality of his work was unacceptable, i.e., poor definition, excessive cutback, or sloppy cleanup. Whatever the reason, Norbert will be made aware that a problem exists and with a little explanation, he will be able to make corrections that will prevent losing points next time.

Experimentation with the rating system will allow ratings for group projects, equipment maintenance, deductions for rules violations, and bonus points for exceptional performance. This superintendent deducts .5 points off the weekly average for one tardiness. Other deductions are made (some substantially) for safety violations, appearance, etc. Bonus points are awarded for perfect attendance and punctuality, care of equipment, following safety procedures, leading in a group effort, volunteering for overtime, and many other positive factors.

The rating system can be an effective tool for team building when each employee's rating is dependent upon the performance of every other employee as well as his/her own. For example, a major tournament is scheduled for the coming week. All employees know that additional



| ASSIGNMENT                                  | 2/19/93 | LAST WEEK'S RATING | JAN. BERRIES PK |
|---|---------|--------------------|-----------------|
|   |         | 8.9                | 3 2             |
| 2) SHOP                                     |         | 8.8                | 4               |
|   |         | 8.7                |                 |
| ARMMASTER                                   |         | 8.2                | 1               |
| RS GRAY TEES ONLY & COLLARS                 |         | 8.7                | 1               |
|   |         | 8.5                | 1               |
|   |         | 7.7                | 1               |
| MOW TEES & COLLARS LUNCHROOM DUTY 2:15-2:45 |         | 8.5                | 6               |
|   |         | 8.2                | —               |
|   |         |                    | 1               |

*Posting those ratings weekly or monthly would serve the purpose of informing the employee of his/her current status with the Boss.*

effort will be required to prepare the course for the event. Some will seek tasks and initiate work, while others will wait for instructions and prodding. If an overall rating for the task of "Tournament Preparation" is given to the entire staff based on the lowest level of performance, the message is clear that not everyone contributed equally to the job. On the other hand, exceptional performance should be rewarded equally.

To make any system work, the application must be fair and consistent. If an employee feels that he/she is being singled out for criticism, the rating system will be perceived negatively. To insure equal distribution of ratings, each employee, including supervisors, mechanics, and secretaries, are listed for the purpose of posting the weekly ratings.

When evaluation time comes around, it is easy to concentrate on the individual performance and problems of the employee. Daily notes gathered by supervisors and the superintendent can be reviewed with the employee to substantiate the ratings and the overall evaluation of the employee. The employee should be encouraged to question the daily reports and remember the exact reason for any point deduction.

Norbert was a victim of his inability to evaluate his own work. He was also the

victim of a superintendent who takes much for granted in that Norbert was expected to know (without being told) exactly what the "Boss" was thinking. In the end, Norbert has little chance for longevity.

**T**he other employees somehow discovered how to survive in that environment and cared little to share that knowledge with Norbert. The superintendent and his mirror image (the assistant superintendent) were thinking about science, nature, and the unpredictables in our business. In many cases the attitude is, "He'll either get it, or he won't." In any case, Norbert, the superintendent, his supervisory staff, the club, the corporation, and the industry will share in the loss. Norbert once again is unemployed; the superintendent is shorthanded; the supervisory staff has an increased workload; the club corporation has more expense to face in the cycle of hiring/firing; and the industry has a reputation that few regular employees can expect a career opportunity.

Some may criticize such a system with comments like, "It will take too much time to inspect each employee's work and grade it... It's too much paperwork. I already have enough of that... The employees won't like having their scores posted for everyone to see."

## ...while others will wait for instructions and prodding.'

The hard truth is that if we are not following up on each and every employee each and every day, we are not doing our jobs. We must get quality work from each employee. Whether we put it on paper or not, we are rating and evaluating the work done by our crews constantly. This system takes it one step further by putting those impressions of performance on paper with a numerical value.

Norbert is like anyone else. He wants to know when he is doing well and needs to know when he is not. He feels good when he is complimented and is ashamed when he fails. Norbert, like most people, has a certain amount of pride in himself. Building on that pride may be the most powerful tool that a superintendent can have. Using self-esteem, pride and the adventure of learning as tools, the superintendent can create career-minded employees that understand their jobs and look forward to the daily challenges that face them.



Daily notes gathered by supervisors and the superintendent can be reviewed with the employee to substantiate the ratings and the overall evaluation of the employee.

There may not be a happy ending in the story of Norbert and his search for meaningful employment, but there can

be happy endings and happy days for employees if we accept the responsibility of teaching and correcting.

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# The Next Generation:

## *A computer schedules golf course maintenance*

BY STEVE MCGINNIS  
GOLF COURSE SUPERINTENDENT

About two years ago, my boss and I were discussing the ever-present problems of golf course maintenance — member complaints about things not getting done, people not showing up for work, unscheduled and unbudgeted special projects and what my boss refers to as my weekly request for more manpower.

My boss has a neighbor who was a VP with a major national computer manufacturer and he wondered aloud whether I thought the fellow might be able to help us to better schedule manpower and equipment. I wondered silently what I might be letting myself in for since I knew nothing about computers. After many more discussions, we agreed to hire the man as a consultant to do an operations study of the South course.

The objective was to determine if a computer program could help us maximize a schedule of manpower, material and equipment. What I got was more than I expected in the way of several bonuses which I will describe later.

We began. The consultant first secured aerial photos of the course and enlarged them to show more detail. Together we used the enlarged photos to define the boundaries of each hole. Then he asked me to list every job we did on each hole. In total, we listed 135 different operations! We never dreamed there were that many.

But wait, it got worse. He asked us to describe each job (which he insisted on calling a “task”) and this turned out to be the single most difficult thing we were asked to do. But it resulted in bonus number 1: From all of our input, he developed an *Operations Manual* which describes “How To” — from mowing the greens to maintaining the rest rooms. This manual is now permanently located in the work area and is used daily to train new em-

ployees and to re-train old ones. Communication between superintendent and employee is now simple and effective.

We are confident that this manual will satisfy any OSHA representative who may drop in because not only does it fully describe the duties of the employee, it also details special precautions they must take, including the wearing of hard hats and hard-toed shoes where necessary. This manual alone is worth the cost of the study.

Armed with the *Operations Manual*, the consultant went to work in earnest building a schedule.

These computer guys live in a world of their own. They can't take a month and agree that it has four weeks like normal people because they worry about odd days left over at the end of four weeks and new months starting on 13 four-week periods of operation. Now we have no odd days left over in a 52-week schedule.

He physically measured tees, greens, and bunkers on each hole. He counted irrigation heads, trees and shrubs. He timed the mowing of fairways and roughs, and the changing of cup locations. Then he reviewed his estimates with crew members to satisfy them that his averages were more than reasonable. He took the times required to do each “task,” added factors for travel time from the maintenance area to the hole, added for lunch breaks, smoke breaks, mystery breaks. Next he plugged in labor rates for each employee, added all benefits and came up with something the accountants call a “fully-loaded labor burden rate.” Lastly, he added in material requirements per hole.

He then installed a computer in my office and gave me some very basic instructions. The computer produces among other things a manpower graph which shows average and peak labor requirements for the year. In addition to daily sched-

*Steve McGinnis is a 1989 graduate of Lake City Community College, School of Golf Course Operations.*

ules, it gives me weekly and monthly schedules for advance planning.

Its biggest advantage is that it gives me the ability to easily reschedule for rain-outs, emergencies and no-shows, and to maximize the use of the labor force. The system has been in use for over a year now. It took a few weeks of practice for me to become at ease with the system. My kids know more about computers than I do — or care to, but it's no problem to print out daily schedules or adjust budgets for wage rate changes.

A few other bonuses: We have a system that the accounting department understands and doesn't argue with. Also if management or the membership wants to add a few more traps per hole, we can accurately tell them how much costs will increase. Conversely, if they ask us to cut our budget 5% or 10% we have the ability to quickly determine how best to do it and estimate the trade-offs. And nobody can dispute our figures. Communication is much easier now.



*Steve McGinnis says printing daily schedules with a computer gives organization to a maintenance crew.*

As they say in the computer industry, how did we ever live without it.

What's next? The consultant has just completed a computerized preventive maintenance program for our equipment which we are installing right now. We have high expectations for it.

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# A plant out of place

## *Would a weed known by any other name be just as unwanted?*

*Note: This article without by-line came in the mail but I don't know who wrote it. Nevertheless, it's worth reading. — Editor*

If you look up the official definition of the word “weed” in *Webster's Dictionary*, you would find it defines this term as “a plant out of place.” This is to say that the multi-flowering rose bush which occupies space in the Azalea bed is a weed. For it seems that all of the plants we have on God's green earth have some redeeming value when used in their proper context and environment. I guess it just seems that we have an abundance of weeds in our golf course environment.

From goosegrass to broadleaves each year, we in the golf business spend vast sums of time and money to make our golf courses weed free. It is likened to a spring ritual we all embark on; our mission is to create the one ecological environment nature does not allow: a generic segregated monostand of turf, one species above all others. It is at best a quest for turf perfection for the pleasure of our members who have neither the golfing skills nor disposition to fully appreciate and understand.

It is particularly difficult in a subtropical climate like our state as we have hundreds of different weed species which germinate 12 months per year. The best weed-prevention program is, of course, a healthy, dense turf. Yet when we perform our cultural practices, our strong, dense turf is opened up like a stuck pig and the invasion is on. This requires good planning as managers to focus on preventive controls and attention to those species which are most likely to germinate during this time period. Thank God for broad spectrum pre-emergent herbicides.

At my golf course, we focus most of our weed-control money and energy to these special times during the year when our most troublesome species are likely to begin their life cycles. However this is just the starting point in our weed-control program, a constant vigilance for resurfacing plants is an ongoing concern. This program is a combination of efforts and represents a true Integrated Pest Management program.

Our program consists of four main objectives:

- A. Timely pre-emerge application
- B. Post-treatment of young plants
- C. Mechanical removal of large plants with seed stalks.
- D. Fulfilling nutritional requirements of the turf

For any program to be successful, it must be performed at all levels. To perform just one of the tasks will lend the program to failure.

I have found this IPM program will work for all types of weeds found on the golf course. It appeals to me because it is a yearlong program which yields results. I have been able to reduce through the years the amount of pre-emergent material

used because of the success of the other parts of the program. Since the pre-emergent materials are the costliest of herbicides, I have been able to reduce the funds allocated for this part of my chemical budget.

This is not to say that we don't spend a good deal of money on weed control. As a general rule, post-treatment programs are not as expensive as pre-treatment. This is due not from the cost of the chemicals but because of the amount of area treated. By reducing the amount treated, you will lower the cost. Depending on the amount of weeds to be treated, it will still adversely affect your chemical budget and require a good deal of manpower to apply them, thereby impacting your payroll budget.

There is also a consideration on those types of weeds that cannot be treated with pre-emergents and are only controlled by post treatment. Most of these types of weeds must have multiple applications of herbicides in order to be effective. The most critical aspect of controlling these types of weeds is the timing of the following applications. If they are not performed according to manufacturer's recommendation you will have lost all the time and money from the previous applications.

Timing is everything.

The most labor-intensive aspect of this weed program is the mechanical removal of the weeds. I find this has several advantages when dealing with mature plants. With the instant removal of the weed, the adage “out of sight out of mind” is very true here. Not only do you immediately get rid of the weed but you don't have the recurring irritation of viewing them for two to three weeks as they turn brown and die.

Another advantage is the reduction of future populations of the weed species. Due to the fact that mature weed plants are in the reproductive stage, by removing the plant you are also removing thousands of weed seeds which, if left on the ground after spraying, would be spread to other parts of the golf course.

One of the time periods we pay particular attention to is when we aerify. By opening holes in the turf and bringing up soil which is by no means sterilized, I believe we simply make the weed situation worse by spreading this soil which is full of weed seed all over the golf course. After the fairways are aerified, we will make a pre-emerge treatment to prevent the weeds from taking hold.

We go at the lightest rate possible of the chemical we are using which we feel will give us adequate weed suppression. I must say however that I do not apply any pre-emergents on the greens at any time, only post-treatment for these areas.

All of the herbicides in the world will be of little value if you don't have and utilize a proper fertility program. The dense, thick turf is likened to a steel plate which creates an impenetrable barrier to the encroachment of weeds. This barrier can

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only be achieved by implementing a sound nutritional program. What type of program you implement does not matter, only that you develop a good program and stick with it. As one superintendent told me, "Program the work then work the program."

There are some nuisance weeds which are very troublesome and difficult to get rid of. One of these weeds is water sedge. What makes this weed so difficult are the conditions that make it so prevalent. Being in an area that receives over 60 inches of rainfall each year, we find ourselves in an ideal environment to reproduce this plant.

Another aspect to consider about this plant is the soil and drainage condition of your golf course. My soil conditions are basically peat and muck which pretty much tells you what the drainage conditions are. At times during the summer we

will not be able to mow large areas of our golf courses for weeks because of wet soils. This creates the perfect environment for the proliferation of water sedge. I have completely cleaned up fairways only to have them reinfested within three to four months. And I have tried everything on the market labeled for weed but nothing has been effective in preventing it from recurring.

I began this article about what a weed was and the pressures we face as turf managers to make our golf courses weed free. I think that 100% weed-free turf is not always obtainable. I think that the days of unlimited herbicide usage in attempting to attain this goal will soon be gone. I believe that the golfing members of our clubs must deal with reality and the conditions at their golf courses and adjust their attitudes on purity of turf.

I'm not suggesting we don't do what-

ever possible to attain superb playing conditions. I'm saying that superb playing conditions can be had with a degree of other turf species on the golf course. I believe that the only pure monostands of turf should be on the greens and there is a tolerable level which can be accepted on the rest of the golf course.

I say this because our use of chemicals is coming increasingly under criticism and scrutiny from the general public. And I firmly believe that certain weed species are perfectly acceptable on the fairways and roughs from a shotmaking perspective and has no adverse effect on the game. I feel that we have to get away from applying herbicides strictly for aesthetic purposes and to utilize them for their intended purpose, when they benefit the game of golf.

I believe there are far too few turf managers out there who utilize the IPM approach. Much greater usage of mechanical removal in the weed-control program should be in use. If we don't start taking some of these steps now, when the hammer falls on some of our mainstay herbicides we are going to be at a loss as to what to do and how we get our members to accept less pure turf.

That time will surely come and you and I will be around to see it.

From where I sit, I see golf courses being used more and more as recharge areas for the municipal water supplies. This will surely draw increased scrutiny from the environmentalists and general public on what types and amounts of chemicals we are using on these areas. Up until now we have fended off wholesale restrictions on our pesticide usage but the time will come and we need to prepare for it.

Studies by governmental regulatory bodies such as the one we are involved with now will become more common over the next 10 years. We need to continue our cooperative efforts with these agencies and show them we are taking the right and prudent steps in our application of chemicals. Trying to achieve 100% purity of turf is not one of those steps. Yet a movement of moderation and acceptance of less than perfect conditions will show our actions are going in the right direction.

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# Through the looking glass

## *A view into the new — and sometimes hostile — Regulatory Wonderland*

BY LARRY COFFMAN

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**F**or several years a regulatory volcano has been rumbling. On Jan. 13 the volcano erupted unnoticed amid the fanfare of the Presidential Inauguration, with publication of OSHA's Final Rule covering Confined Space Entry.

Like the volcanic eruptions in the Philippines last year, which scientists tell us is changing the global climate, the Regulatory Volcano will change the regulatory climate during the "Administration of Change." Through our looking glass we see many "seismic" events approaching and among the magma we see the OSHA Reform Act approaching the surface, which will criminalize noncompliance which results in death or serious injury.

It has taken so long for OSHA to finalize its Confined Spaces Regulation, we have become immunized to the expectation of its ever happening and now that it is a reality, it may be going unnoticed, while the effective date (April 5, 1993) is rapidly approaching.

Are you aware that discovery of non-compliance by the effective date of an applicable rule even some time later is a failure to comply? Here is a chance to avoid what appears to be a certain regulatory distress. Take the first steps toward compliance now.

Confined Spaces are not what our minds tell us they should be, the way this rule is written. We think of confined spaces as sewers and tanks and the like. Not so!

The new definition of a confined space is:

(a) any space on the workplace premises which is not designed for continuous employee occupancy

(b) where there is limited or restricted means of entry and exit

(c) where an employee can bodily enter and perform a work task

A Hazardous Confined Space is a confined space where there is or may be a hazardous atmosphere (actual or potential), and/or any other actual or potentially serious safety or health hazard. Lose an argument with OSHA over the word *potential* and you could be looking through bars instead of the looking glass because this is the basis of this new regulation.

Imagination plays an important role in "Regulatory Wonderland." You must try to imagine any potential which could classify a confined space as a Permit Required Confined Space subject to regulatory enforcement. Permit is the magic word. If you don't take imagination seriously, you can't imagine the problems you will be forced to deal with.

If a confined space has any actual or potential hazards associated with it, you must designate the space as a regulated space and post a sign reading: "Danger-Permit Required Confined Space. Do not enter."

Now comes the tough part. You have to "develop and implement" a written compliance program describing in specific detail how you will comply with the many requirements of this new regulation, unless you are classified as an Agricultural, Construction, or Maritime employer. Agricultural Services is not an exempt category, however.

If you have been conforming to the requirements of Florida Administrative Code Rule Chapter 38I-20, forget it. The new regulation preempted State Rules.

OSHA gives you a choice to permit your employees to enter a regulated confined space or to prohibit them from entering and resorting to outside contractors. Don't think this provides you with a way to avoid having to develop and implement a written program, however,

because construction contractors are exempt so you will be holding the bag. Any confined space entry on your premises requires that you have a written program to coordinate activities in accordance with your program. Gut wrenching, isn't it!

Time is running out. You'd better get started and list any location on your workplace premises which fits the confined space definition — then evaluate each of them for their potential for being regulated under this new rule. Document your survey and your determinations and your reason for making those determinations. If you decide that you have a confined space which is or could be classified as a regulated space, put up a sign, inform your employees to stay out (or else), and get started on your written program, and for heavens sake, don't let somebody convince you that their idea of a fill-in-the-blanks program is going to give you an E Ticket Ride in Regulatory Wonderland. They haven't looked through the looking glass and seen the "changes" to realize that the regulatory volcano is erupting.

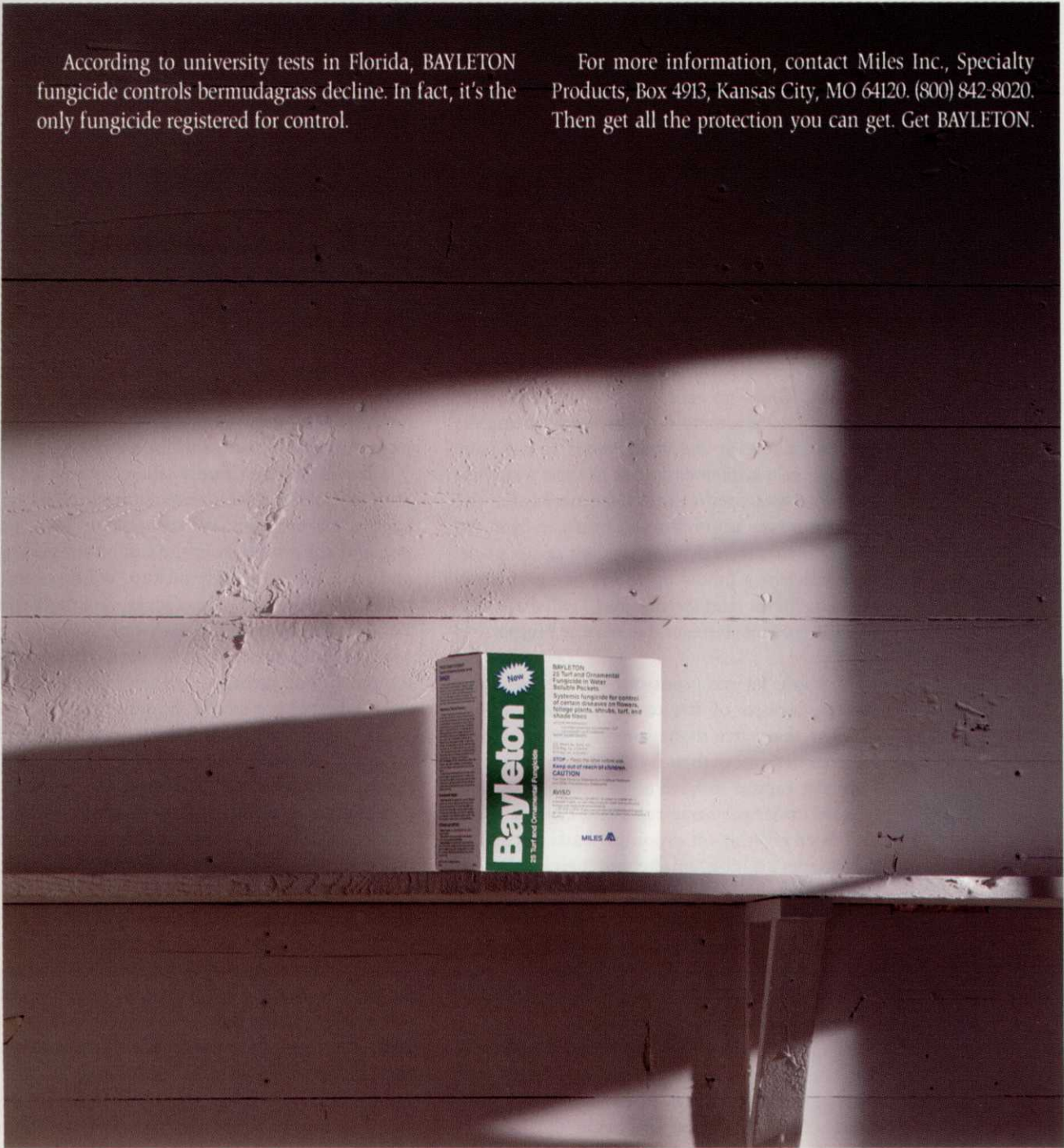
Be careful of those who give advice about something they know little about — particularly where they haven't sat across the table from OSHA in resolution conferences. This new rule and those which are about to follow is expected to bring many unemployed and unqualified so-called consultants out of the woodwork looking for a gratuity. Check with Florida Administrative Code Rule Chapter 38I-10 to assure those who may advise you are "qualified to consult." The telephone number for the Florida Division of Safety is 800-367-4378. Ask OSHA to send you a copy of the new regulation. It is 29 CFR 1910.146. Your call won't trigger an inspection.

*Larry Coffman, is president of Compliance-Masters, Inc., P. O. Box 559, Floral City, FL 34436. 904-799-1589.*



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**From the twin towers of the Department of the Environmental Revolution to the Governor's office, this has become one of the most complexing problems yet to be addressed.**

# Who's water is it — anyway?

BY  
TOM BENEFIELD  
CGCS

Some months ago I wrote for the *Florida Green* an article about how the water management districts were starting the process of forcing the waste water re-use issue through rule implementations in their water use permits. I spoke at the time on the merits of re-use water and how utilities under pressure from the water districts were developing their re-use plans. This article is a follow up to the one previously printed. For the next few minutes, I will share with you the current status of this resource impacting issue.

First off, let me point out one of the more positive aspects of the re-use problem. It has brought the water management districts closer together in terms of their rules. There is a big push from the capitol to have all of the five districts operate under the same rules and criteria. They have been meeting on a monthly basis discussing the theories and concepts behind their local rules. I believe we will see one set of rules come out of this process which will be adopted by all five districts. After reviewing the rules from all five districts, I have no doubt that the fairest and best set of rules of any of the districts is the rules from the South Florida Water Management District.

The main focus now is the problem of who is going to pay to implement the rules the water districts have written. The plans and programs the utilities have developed will begin shortly with some already in motion. As you see the next 24 months roll by, you will notice an increase in activity by these companies as they attempt to sell you not only on the idea of re-use but also on your paying for the cost of "implementing their programs."

Every one of the utility companies will come to you with the same pitch: that you should pay for this water because you are the beneficiary. However, we all know that there is a far greater beneficiary than us, the "urban population and its environment." By re-using their waste product which they are paying to have dumped either in the ocean

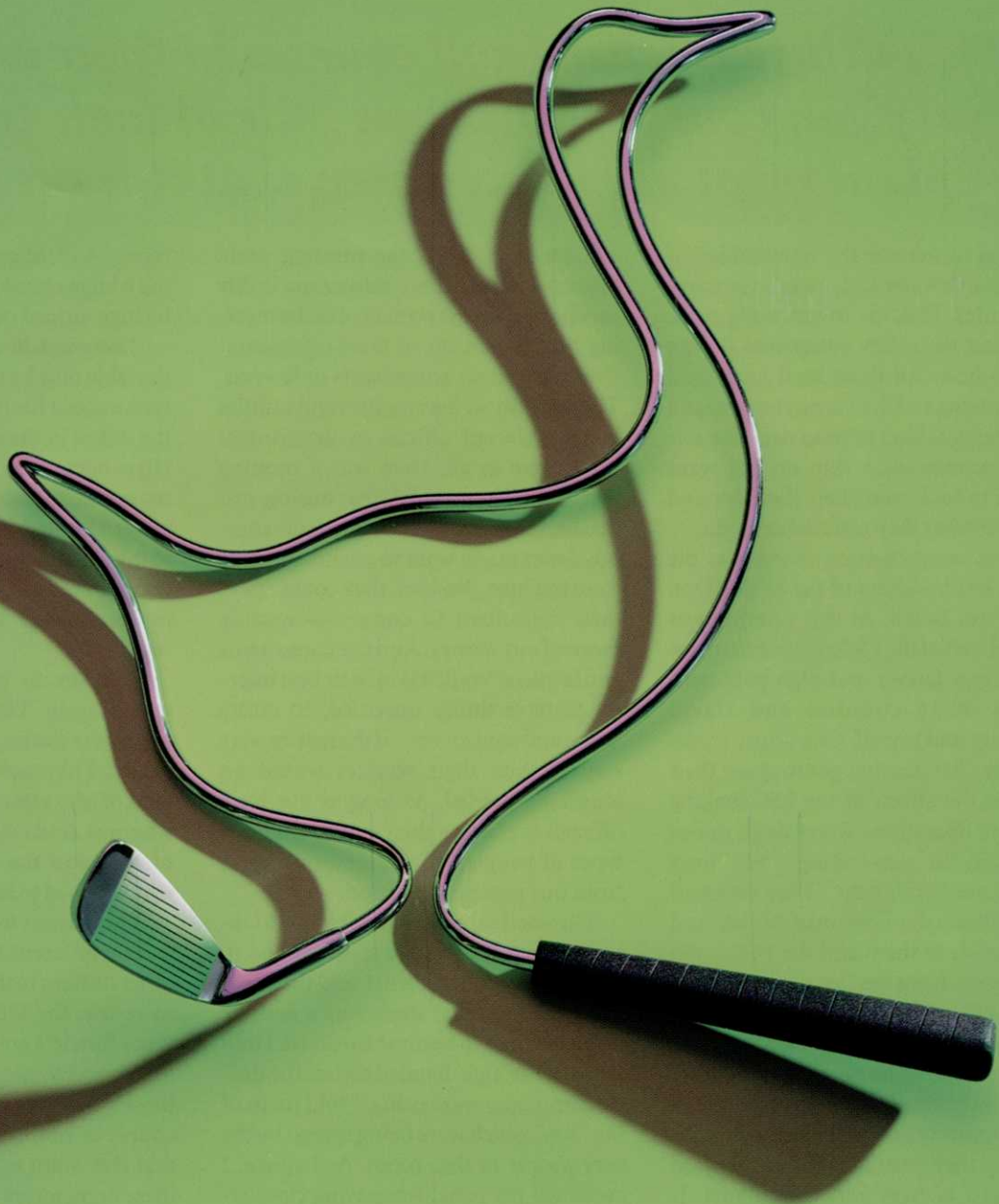
or their deep well system, we are providing them a desirable alternative benefiting both them and nature. I don't believe that anyone should have to pay to dispose of someone else's waste.

I live in Martin County where we have a creative (this is what the commissioners call it) garbage re-use program. We separate our glass, paper, and aluminum from the rest of our garbage and set it out for weekly pickup. We do not get paid to do this, quite the contrary, we pay them. Yes, imagine that we pay someone to dispose of our "recyclable waste" just like we pay them to buy the rest of our garbage. And my friend, waste is waste whether it is a solid, liquid or gas.

But yet, the utility companies, which include a lot of elected officials since all of the public utilities are operated in essence by the county or city commissioners via the various directors, feel that in the case of their wastewater the rules should be different. They like to ignore the basic facts of the issue and are working feverishly to legalize their own agendas which are full of "political ambitions" with no solid, concrete, rational or logical information to support their position. The old political feasibility game is the only tune they can play, looking at the short-term, never in terms of what is really best for the people. Sometimes the best medicine to take is the most bitter.

This issue of who is going to pay for implementing these re-use programs has drawn attention in Tallahassee. From the twin towers of the Department of the Environmental Revolution to the Governor's office, this has become one of the most complexing problems yet to be addressed. It has become so complex the different agencies in the capitol, as well as the water management districts, have asked the Public Service Commission to investigate the possibility of taking over statewide responsibility of rate-making for the cost of this "commodity."

Not only have they been asked to look at wastewater pricing (if any) but they have also been asked to determine if there is a need



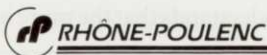
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## *This utility is telling golf courses in their area that “every golf course within one mile of their treatment plant must use wastewater, that it is the law.”*

for them to oversee the rate-making of both potable water and sewage charges of the utilities. This, my friend, is big news. News that the utility companies do not want to hear. All these local municipal governments and their crony lawyers and consultants rolling around deckside like loose cannons on a ship do not want anyone to look over their shoulder and tell them what they can and can't do.

There was a meeting recently at the district headquarters of the SFWMD in West Palm Beach. At this meeting was the legal staff of the PSC, district staff, just about every lawyer and high paid consultant in 16 counties and David Demmery and myself. One utility representative after another got to speak their piece on the affects of the PSC looking over their operations. Every single one of them said the same thing, “We don't want or need your help.” They believe it would cause a duplication of services and higher costs to them and the PSC is too far removed from the “local” situation to make a fair evaluation.

It is easy to see why they do not want a “big brother.” The very first thing PSC involvement would do is have people of the community asking their elected officials why they need these high-powered overpriced lawyers and consultants. If the PSC is going to set the rates, there would be little need for these other people.

I mean why do you need someone for court action if the PSC settles all disputes? Why do you need someone to tell what to set your rates at if the PSC does it for you? The only duplication of effort would be when the municipalities go out and hire someone to do a service which will already be provided to them free of charge. The big problem with this proposal is not the PSC but yet the “good ol' boy” network of lawyers and consultants and the inept ability of the local governmental officials both elected and appointed. The breaking up of this “pork chop” style of conducting business is at the heart of the matter.

Case in point is the meeting itself. Sixteen counties plus numerous utility companies were represented at the meeting but 80 percent of their representatives were either consultants or lawyers. The majority of the counties and utilities had no elected official or department head there at all. Here was a meeting where you would think that maybe, just maybe, the utility director or county commissioner might want to attend. But they were too busy. Besides, they could “pay” their consultant to come — wasting more of our money. And the consultants and lawyers? Well, it is in their best interest to have things unsettled, to create havoc and controversy. If the matter were settled, then their services would no longer be needed. As long as our local officials are taking their cues from these types of people, we will never progress from our present condition.

I listened carefully that afternoon taking in what each of the speakers had to say, then I took my turn. I told the panel from the PSC that there was a definite need for them to become involved. I told them of the high-handed tactics the utility companies were using. I told them of the “lies” which were being spread by the very people in that room. As I spoke, I could tell the panel was paying close attention and was writing down the issues I spoke of.

One of the things I told them was how a local utility was telling golf course owners blatant lies about the re-use issue. This utility is telling golf courses in their area that “every golf course within one mile of their treatment plant must use wastewater, that it is the law.” Well, it just so seems that there is no law of this nature. As a matter of fact, the water management staff were quite concerned at this news in that they are the only agency in the state which can create water policy and rules to implement their policy. The utility is spreading outright lies and using a tactic of fear and intimidation to get the golf courses to sign agreements on their

terms. And, of course, this utility is paying a huge chunk of taxpayers' money to its high-priced consultant.

There was one county represented at the table only by their utility director. He spoke about his re-use program which is the oldest in the state if not the country. His program also is the most efficient and reuses more wastewater than any in the eastern United States. What was the key to this seemingly perfect plan? What were they doing that the other utilities were not proposing? Why were they so successful?

The key to their success was very simple, really. They had determined long ago where the financial burden was to be placed. They took the time to look at the facts of who was creating it, who was not, who was available to offer large acreages of land and the circumstances around why they had to implement a re-use plan.

The reasons from they went to re-use was no different than the reasons all the other utilities in the state are having to go to re-use: the DER and water management districts are telling them they have to. They are not telling them to go to these programs because there is a golf course or orange grove down the street that they want to use. Not quite, simply these agencies are sick and tired of seeing this resource thrown away when it could and should be reused.

And the key to the great success of this number one re-use program in the southeast is also very simple. They don't charge one red cent for the wastewater. They pass all of the cost associated with the re-use program back to the people who created the problem in the first place. They made a practical, rational decision, not a political one. And as the county has grown, they have continued on this same track. As the utility director said “why fix it if it ain't broke.” The big fear that this official had was the PSC might attempt to make him charge for the wastewater and result in a cutback on the amount used. For he understands that the more he puts

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**'I also told the PSC about financial and moral responsibility for the ultimate disposal of this wastewater.'**

back into the ground, the more he can take out to expand his customer base.

I also told the PSC about financial and moral responsibility for the ultimate disposal of this wastewater. It truly is a clear-cut issue if you examine the facts. The only ones muddying up the waters are the "experts." It seems ironic that the individuals who market themselves as "experts" are the ones who are most afraid of the PSC oversight proposal.

This issue of PSC oversight has not been decided on yet. They will be gathering more information over the next ten months before the legal staff makes a recommendation to the PSC commissioners and the governor's office. After that, there will be a tough battle in the legislature to enact it into law. I feel that this is our best hope to get a statewide rate program which can apply to everyone. The cost-free program, such as the one in Orange County, is the one I press for every time I have the opportunity to speak

to any agency. But more needs to be done.

On the local scene, you need to inform your club president, greens chairman and members. You need to educate them on the high-handed practices of the utilities. You need to reach out to your water management districts and bring in a staffer who knows what is going on and let him speak to your members. Most of all, you should hold off on signing any contract with a utility unless there is no charge or the fee is less than five cents per thousand gallons and it is long-term with automatic renewal clauses. It is very important that members realize they are not the only ones they will affect if they sign a contract.

The utility will use it as proof that not only can we afford to pay but are most agreeable to paying. They must realize there are others not quite so fortunate as they may be when it comes to finances

and are unable to pay what they might be willing to pay.

It has been a long struggle. From August of 1990 where we received notices of 80% reductions in our water use permits to force us to wastewater to today. Today we have gotten our message to all the state agencies and even the governor's office. We have started them thinking about our side of the story. We have won over some valuable allies but have still more to convert.

We have gotten a reprieve on the 80% reduction rule. We have bought ourselves some time. Time which we should not waste. Time where our efforts in this area should be increased. Time where the educating of our members is as important as educating the PSC and DER.

Let's not waste it, if we do we will only have ourselves to blame for the untimely demise of the future of golf in our great state.

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# A failure to communicate!

**F**or trivia buffs, those fateful words in the title of this column were uttered by the sheriff in the Paul Newman movie, *Cool Hand Luke*. They might as well have been spoken by a golf course superintendent in the course of any given day, judging by recent events.

My esteemed colleagues, Mark Jarrell and Tom Benefield, have already commented thoroughly in *The Green Sheet* on the GCSAA's failure to communicate accurately on member sentiments surrounding the soundly-defeated bylaws changes. There are other after-the-fact communications coming out of headquarters that have many members concerned about how things are being run. We are hoping for better information sharing from the new Board.

But my point is the failure to communicate within our own golf operations! We have all been victims of the surprise shotgun tournament that gets sprung on us at the last minute. What in the world is going on in the clubhouse anyhow? Besides telling the pro shop staff and the food and beverage department, what other department or person might need to know about an 8 a.m., 144-man, shotgun start tournament on a Monday morning? Hmmm?

You know Mondays: they're like Wednesdays, and Fridays when the golf course maintenance staff (only for the last millennium) sets cups, mows greens, tees, collars, and fairways plus any other bunker raking and rough mowing routine. And Tuesdays and Thursdays when we park the tee and collar mowers to flymow bunkers or apply some fertilizer or work on a project. These schedules aren't set in concrete. We can accommodate any special function. It is our job! We just need to know about it!

It is also our job to prepare and present the best playing conditions possible. Since golf courses are operated on an economic calendar instead of an agronomic calendar, we need to know what days or even half-days that we can't have the golf course for normal operations. We do our best to squeeze the agronomy in between the first tee times at sunrise, twilight play, Men's Days, Ladies' Days, group functions, and any other special event where no one wants the maintenance staff to "be in the way"!

This communication problem isn't just a Central Florida phenomenon. I just read the Wisconsin GCSA newsletter, *The Grass Roots*, wherein a group of superintendents detail a list of their communication horror stories: surprise shotgun starts, "nite lite" golf outings that get drenched by

the night-time irrigation, a special group function that finds the aerifier, not a mower, preparing the greens, and so on! All examples of the inexcusable failure of the tournament coordinator, club manager, convention sales staff, golf professional, starter's office, etc. to communicate with those who need to know!

Why do these communication failures continue week after week, month after month, year after year? The superintendents in Wisconsin had several fuzzy organizational reasons, but Monroe Miller hit the nail on the head when he said, "somehow we scramble around and make things right." There it is! We jump through the hoop and perform the tricks that cover up the lack of attention to detail by others. That kind of performance would get a superintendent called on the carpet or fired if he persistently ignored communicating with the clubhouse!

Wouldn't it be interesting to hear the comments from the golfers after a very special event was played on unmowed or freshly aerified greens with no attempt to correct somebody else's mistake. Professional pride and a strong survival instinct prevents most of us from letting some of these potential disasters from unfolding. Because, in some twisted way, we feel it will be construed as being our fault if the course isn't ready. Even, if we only had last-minute notice of an event! It may be a good defensive tactic for the superintendent to call every day to find out what's on the schedule, or if the published schedule has changed. But, trust me, even that is not foolproof!

Doesn't it just seem logical, responsible, and professional that the person, who has first-hand knowledge of information that will affect how the club serves its members or guests, should be the person to insure that communications reach all those who need to know. Of course, I'm being selfish here to include the superintendent as one of those who needs to know.

Hasn't it occurred to everyone associated with golf that it is the condition of the course that makes or breaks an event and generates repeat business or memberships? With all the answering machines, fax machines, and voice mail features available there just isn't any excuse for springing a surprise on the staff anymore.

Now that I have practically accused all of the tournament sales people, golf pros, and club managers of dereliction of duty and malfeasance in office, let me say, I know you are really human just like me so, put down your sticks and stones and just pick up the cotton-picking phone!

## Green Side Up



Joel D. Jackson, CGCS



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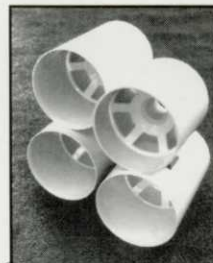
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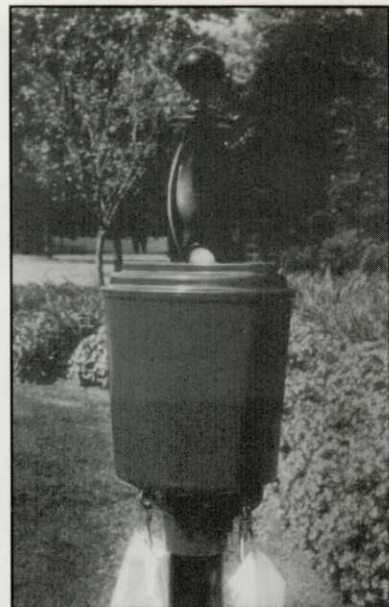
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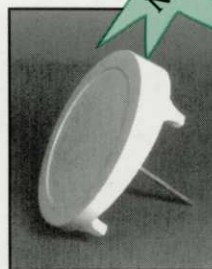
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