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ABOUT OUR COVER

The Moorings Club is located on the Treasure Coast at Vero Beach. Mike Perham is the golf course manager.

DANIEL ZELAZEK
Cover Photography

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President's Message



I would like to take this opportunity to thank, and commend, the Board of Directors of the FGCSA, for the job they've done this past year.

Marie Roberts, our executive secretary, Dan and Irene Jones, "The Florida Green," Mike Bailey, "The Green Sheet," and last but not least, Mark Jarrel, our own "professional" writer for Florida Golfweek. All deserve and have our deepest gratitude for their outstanding dedication and jobs well done!

Each and every member of our Association can hold his or her head high and be proud. Through your efforts and foresight, an endowment fund has been established in the name of the Florida Golf Course Superintendents Association. This endowment fund is but a small part of the Florida Turfgrass Research Foundation, however it is the first.

By establishing this endowment fund, we leave a legacy for those who follow. Research is the key to the future. We have established the fact that we feel it is important by funding the endowment fund with fifty thousand dollars. This money has been raised by superintendents like yourself, and by the various chapters like your own.

Just because the fund is established, does not mean we can sit back and relax. The costs for research will continue to climb so we must keep adding to the fund in order to get the research we need so badly. Everyone will benefit from the work being done now, and the work that will be done, as the funds become available. There are many clubs who can help with this endowment fund, and the simple fact is that two dollars will buy twice as much as one!

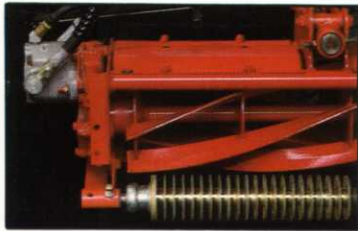
For those of you going to the GCSAA Convention in Houston, don't be surprised by the stature that superintendents from Florida are held in. Each year we gain more respect, and it's due in no small part to the efforts of each and every one of our members.

Thank you for a job well done.

Reed Lee Febvre

We, the People of DeBRA...

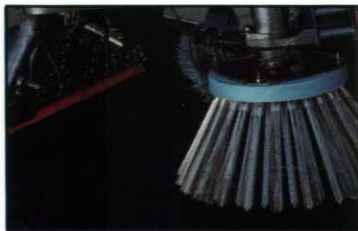
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Letters to the Editor

Dear Sir:

I just noticed a very interesting article on pages #49 & #50 of The Florida Green, Fall 1986 edition entitled "Value of Golf Turf to Florida" by T.E. Freeman, C.H. Peacock and B.J. Austin.

Would you please send me information on how I can order a reprint copy of this article.

I would also like information on how I can obtain a subscription to the magazine.

Sincerely,
ROBERT D. POITZ
Golf Course Consultants, Ltd.
Tampa, Florida

Dear Dan,

Sorry I missed you at Beach Club. The same storm that hit Dick hit us also, with less force though, "thank goodness," but it did delay us several days.

Thanks for help on Theresa's article.

Much love and God bless all of you.

CLINT

P.S. *Florida Green* did something I thought it could never do, "getting better still." Look out U.S. News & World Report, here come Dan & Irene Jones.

Dear Dan:

I just received the summer issue of the "Florida Green" and my compliments on your continued excellence of this publication.

I wanted to give you a special thanks for your industry news article on the introduction of the Jacobsen diesel powered Greens King and Turf Groomer attachment, also the publicity of the Jacobsen College Student Seminar. Both articles in my opinion, are pertinent to your readership and exemplifies the progress of the turf equipment segment of our industry.

Very truly yours,
DAVID L. DeBRA
President
DeBra Turf & Industrial Equip. Co.

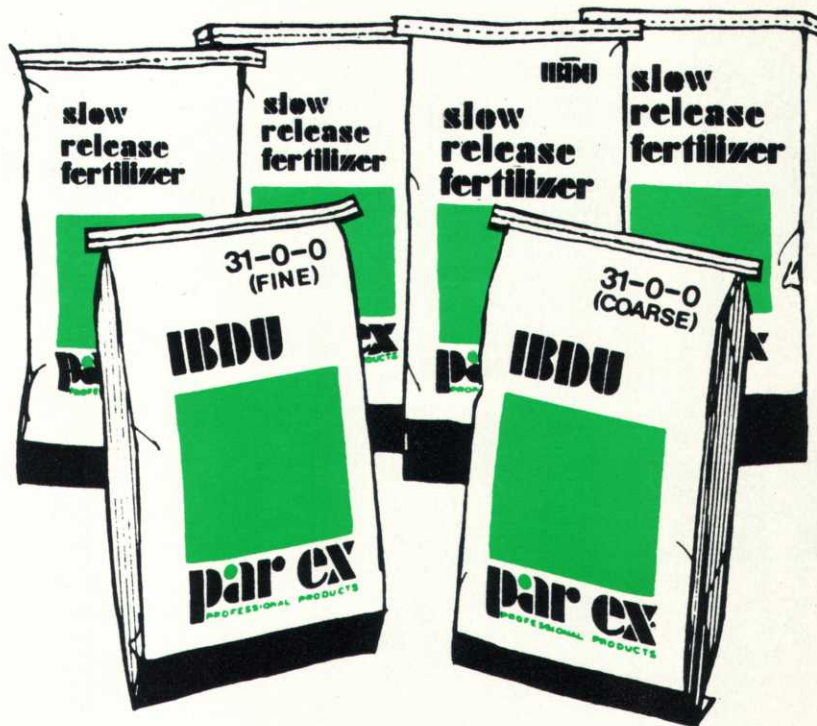
Dear Dan:

Denne appreciates your comments and encourages you to reprint his column from Sports Turf magazine.

It's hard to believe Florida Green is 14 years old. You've done an admirable job. How many times has Dick Morey offered you a job?

Respectfully,
BRUCE SHANK
Vice President, Sports Turf

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Should Superintendents Play Golf?

By Mark Jarrell

The simple and obvious answer is "yes." I'll bet that every article in this issue agrees with that. It just makes sense that the person charged with the care of a golf course would be better able to make decisions concerning its preparation and maintenance if he can look at it from the perspective of one who plays the game.

If you don't play the game, the members of your club may think of you and your program with the same condescending disdain that Frank Gifford and O.J. Simpson have for Howard Cosell. It seems that in any sport, however erroneously, an expert player is often considered an authority in all aspects of that sport. How many times does your Golf Pro get asked questions concerning course maintenance when the guy doesn't know an armadillo? The astute Superintendent with a solid golf game can use this to his advantage to strengthen his position.

Unfortunately, many Superintendents fail to put this in its proper perspective. There is a balance to be struck that many either cannot or will not recognize, or just choose to ignore. The price for doing so could be your job.

Although you may consider playing golf an inalienable right or a guaranteed non-negotiable benefit, for your own best interests, you should think of it as a facet of your public relations effort. A careful evaluation of your particular situation and a little common sense will set you on the right course. Your tendencies may be to play too little or too much; what you need to do is test the waters to determine what frequency of play will enhance your position as Golf Course Superintendent at your club.

Many Superintendents originally chose this profession because of a love for the game and the opportunity it presents to play. There is nothing wrong with this. In many cases, and it could be a majority of the cases, you will find that it really doesn't matter to the powers that be

how often you play. What matters is how well you do your job. The point is that you just shouldn't take it for granted, even if you do feel that you're doing an outstanding job.

Be sensitive to changes in your club's officers and key management personnel, such as the Head Pro and Club Manager. New personalities may view your playing schedule (or lack of it) in a totally different light than their predecessors. Be especially careful about entering competitions at your own club where there is a possibility that you may win a prize or trophy ahead of a dues-paying member. As petty as it might seem, there is often resentment from some members simply because you are enjoying privileges that they are paying for. The same applies to the playing privileges at other clubs through your involvement with the local or state Superintendent association — members of your club, co-workers, and, yes, even your own staff, often resent your golf outings during regular working hours (no matter that you still put in 50 hours a week to their 40). If there are problems on the course while you are "off playing golf," your concern and dedication become suspect. They are also jealous of the fact that you are invited to play, without charge, at very exclusive clubs that won't let them in the front door no matter what they're willing to pay. Sometimes discretion is the better part of valor.

One final observation before concluding. Over the years I've often heard it said that the best Superintendents are the better golfers. In every case these statements were made by a good Superintendent who played pretty good golf. While I agree that some of our very finest Superintendents are excellent golfers, for every one I can name, there is an equally accomplished Superintendent that hardly knows how to hold a club. Our profession is so diverse that no one can claim mastery of all the areas of expertise their job demands. Looking at it in that regard, just where does the ability to break 80 fit in?

Some of our touring snobs would do well to keep that in mind when and if they do a critical self-evaluation of their abilities as a Golf Course Superintendent. ■

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Central Florida Crowfoots



To Tee Or Not To Tee — That Is The Question!

By Joel D. Jackson

To tee it up or not to tee it up, that is the question —
Whether 'tis nobler in the mind to suffer the
Slings and arrows of insects and irate golfers,
Or to take up your clubs despite a sea of troubles
And by playing golf end them. To play, to enjoy
The game; and by enjoy we say we end
The heartache, and the thousand natural shocks
That golf course maintenance is heir to daily;

'tis a consummation

Devoutly to be wished. To par, to birdie —
to eagle, perchance to ace, ay there's the rub,
For in those scores of golf what dreams may come.
When we have shuffled off this duffer's coil,
Must give us pause; there's the respect
That makes calamity of so high a handicap.
For who would bear the whips and scorns of
double and triple bogeys.
The sandbagger's wrong, the honest player's contumely...
... To grunt and sweat at golf after a busy day
But that the dread of something after work
The irrigation leak, the unmowed rough
From whose bourn no traveller returns; puzzles the will
And makes us rather bear the ills we have
Than fly to others that we know not of?
Thus conscience does make golfers of us all,
and the native hue of resolution
Is sicklied over with the pale cast of true course conditions
And projects from the greens committee
With this regard their priorities turn awry
And lose the name of action. Soft you now
The fair putting surfaces — 9.5 on the stimpmeter,
Be all my putts remembered.

Like Hamlet, my golf game is also a tragedy. One of my own making, to be sure, but a result of my priorities. The answer to the question "Should a superintendent play golf?" The answer is YES. To the question "Must a superintendent play golf?" The answer is I DON'T KNOW. I think it is rare to find a person who can keep a golf course in top condition, and respond to problems with the playing conditions if he doesn't experience them first hand. Such individuals do exist and they are successful, however, they are rare.

By playing his golf course the superintendent is offered a much more detailed look at the true playing conditions than can be assimilated on a "ride thru" filled with the many distractions that make up our hectic days. The priorities that we set for our maintenance staff may be based on sound agronomic principles, but they may not fully consider the needs of the golfers who play the course. We need to keep the golfers' priorities in mind or we may be answering some unpleasant questions from our employers. By playing more we can appreciate the needs of the "consumers" or members.

Another primary benefit from playing more golf is that the superintendent can strengthen his ability to communicate to his members and employers, by talking the same language and comparing results on the course. The golfing superintendent is brought closer to the international family of golfers, and he can better appreciate the accomplishments of professional and amateur alike if he has shared the "rub of the green." I have been fortunate to visit Augusta and behold the near perfection of that emerald jewel in golf's crown, and I played Pebble Beach in 1982 right after the U.S. Open and found the spot where Tom Watson made his "Miracle Chip" on the 17th hole. These things wouldn't mean as much if I didn't play golf.

The superintendent who plays golf, regardless of skill level, has an additional tool in his management arsenal to help him keep his course in better "playing" condition and enhance his professional image. We should all try to improve our skill level to maximize the enjoyment of the game when we play, and to become more discerning about the actual conditions of our courses.

As the role of the golf course superintendent changes and he is asked to do more for his club because of his talents, versatility, and professionalism, he risks losing some of the intimate contact with the course that made him successful in the first place. By playing the course, he can maintain that contact hopefully with the understanding and support of his club.

Good golfing to you all! ■

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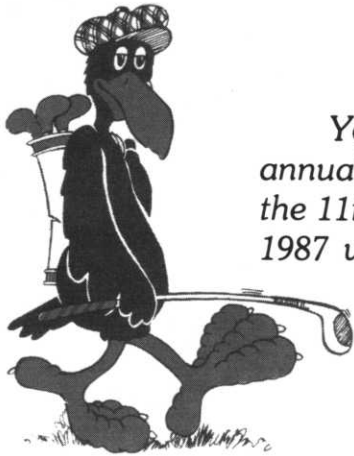
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Your continued support of The Crowfoot Open has helped this annual event become bigger and better each year. Your participation in the 11th Crowfoot Open held at The Grand Cypress Club August 10, 1987 was very much appreciated. The Central Florida Chapter of The Florida Golf Course Superintendents Ass'n. and The Crowfoot Committee extend their gratitude.

Larry Kamphaus

Larry Kamphaus, C.G.C.S.
Chairman, Crowfoot Open

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The Gator Growls



PLAYING THE GAME IS PART OF THE JOB

By Norman E. Carmouche

Are there any great chefs who don't eat? How many great artists do you know of who are blind? Would a deaf person make a great musician?

How then can a superintendent be great if he doesn't play golf?

Of course there are exceptions to every rule; look at Beethoven. He managed to compose while deaf. Likewise, there are a few excellent superintendents who don't play golf. The point here is that the exceptions are few.

I started playing golf the summer after I graduated from high school. It was just something to do. Within a week I was hooked.

I am a golf course superintendent because of my participation in the game of golf. In fact, most of my success in life can be attributed to the game.

For me, golf mirrors life. There are never-ending peaks and valleys, only you control your destiny, and you can't blame success or failure on anyone but yourself.

Many years ago when I was searching for a college major every profession in the world came up. Doctor, lawyer, architect, teacher, business, even golf pro. I floundered around for eight years in pre-med, architecture, and finally finished as a teacher.

I landed a job at my old high school and immediately started a golf team, becoming the first golf coach. My team won their district the first year and was state runner-up the second year. I guess a little bit of my enthusiasm for the game rubbed off.

As a teacher I got to play almost every day and that was great; but teaching wasn't rewarding enough for me and I began looking for something else. I actually considered becoming a teaching pro when a counselor showed me a brochure from Lake City Community College.

Seventeen years later I am a very happy, successful golf course superintendent and never once have I looked back and second-guessed my decision to go to Lake City.

When the question is asked whether or not a superintendent should play golf, I have only one answer.

**IF A SUPERINTENDENT
WANTS SUCCESS
IN THIS BUSINESS,
HE MUST PLAY GOLF!**

If a superintendent wants success in this business he must play golf. Certainly there are a few successful superintendents who never play. There are a few successful basketball and football coaches who never played their respective games. But they are few.

How can a golf course superintendent get his course ready for championship play if he doesn't know what it takes to make a course play at its best? How can a superintendent begin to talk intelligently to a greens committee about course playing conditions without playing the game?

Playing golf with members helps to promote a good working environment for the superintendent. I don't suggest a superintendent get involved in a money game with his members, but he should on occasion play with his greens chairman and other club officials.

The Everglades Chapter has started a new annual tournament in which the superintendent plays in a foursome with his greens chairman, club president or owner, and either the club manager or another club officer. After a day out on the course with these people you really learn to appreciate one another.

Playing golf is, or should be, a part of the superintendent's job. Without the game there would be no job and superintendents owe it to themselves to promote the game.

You may not have to play to be a golf course superintendent, but you do have to play to be a great golf course superintendent. ■

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Freeze Protection For The Landscape

Inevitably, at least once or twice each winter we in south Florida are threatened by freezing temperatures. The winter of 1985-86 was relatively mild with a very limited amount of freeze damage occurring in mid-January. The winter of 1984-85 will not soon be forgotten because of the devastating nature of the freezing temperatures. Unfortunately, up to now the winter of 1986-87 has shown similarities to 1984-85. Temperatures have remained above normal throughout the fall and early winter causing plants which would normally be dormant to continue active growth. As you might expect an actively growing plant is more susceptible to freeze damage than a plant which is dormant. There is really not much we can do to induce dormancy, particularly with subtropical plants. Therefore, we need to consider what can be done to protect these plants from freezing temperatures.

WHAT TO DO BEFORE THE FREEZE.

Probably more can be done in the weeks and months before the freeze than can be done the day of the freeze. Here are some factors you might consider when attempting to have your landscapes as cold hardy as possible.

- 1) Proper site selection. Plant cold sensitive plants in more protected locations where frost is less likely. Use hardy plants in low areas and windy open locations.
- 2) Avoid excessive late season pruning. Heavy pruning may cause a new flush of growth which will be more cold sensitive.
- 3) Properly fertilize in the fall. Use an even analysis fertilizer for fall fertilization. Avoid the use of excessively high levels of nitrogen which will encourage late season flushes, however, provide adequate nutrition. A healthy well fertilized plant is more likely to survive than one which is poorly nourished.

WHAT TO DO THE DAY OF THE FREEZE.

- 1) Covering plants. An effective method of protecting hedges and low to medium size shrubs is by covering the plant completely to ground level before the

freeze. The preferred materials are fabric or newspaper, plastic should only be used as a matter of last resort. It is important to tent the cover and avoid touching as much of the foliage as possible. Any foliage in contact with the cover will be frozen. Coverings should be removed as soon as possible the day after the freeze in order to avoid heat and moisture build-up which could be damaging.

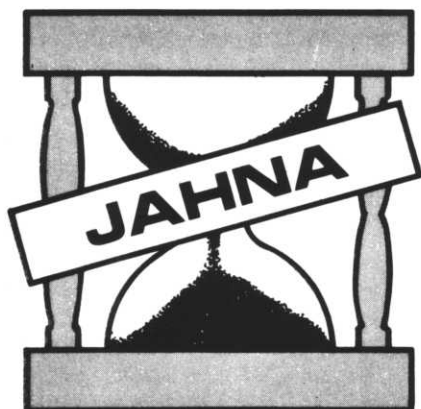
- 2) Watering plants. Two types of watering need to be considered in freeze protection. It is advisable to thoroughly moisten the soil around landscape plants a day or two prior to the freeze. A moist soil will hold more heat and warm surrounding plants more than dry soil.

Watering during freezing temperatures is a rather risky method of freeze protection and should be well understood before being undertaken. Once a sprinkler system is turned on in an area during a freeze, it must remain on until the temperature is above freezing and all ice is melted from plants. Adequate water must be applied during this period and any wind will probably yield this method of protection useless. It is important to consider the consequences of watering before turning on the sprinklers.

WHAT TO DO AFTER THE FREEZE.

- 1) Watering plants. It is important that moisture is maintained in plants after freezing temperatures. Dessication of foliage may occur if plants become too dry.
- 2) Pruning damaged plants. Wait as long as possible to prune freeze damaged plants. If possible, allow the plant to flush before pruning then prune out any dead wood. When it is necessary to prune shortly after the freeze, scrape the bark to determine whether a stem is dead or alive. If the stem is dead, the cambium which is normally green will be turning brown and water soaked. Trim no more than is necessary.

Maybe if we are lucky, you won't be covering plants or pruning dead limbs this winter. But, if so, it's better to know what to do if it's needed. ■



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Scientists Pause To Ponder Pestilence of Pests

By Darcy Meeker

GAINESVILLE — Hundreds of scientists from all over the world gathered in Gainesville July 21-24 to talk about what sickens insects, oysters, crabs, coral, barnacles and other spineless creatures.

They talked about the effects of pesticide residues on estuary life, about microbes that could protect food crops, insect cells which could culture vaccines for human diseases, barnacle-like creatures that clog water pipes in power plants, and diseases of culinary crustacea like shrimp and lobsters, especially when attempts are made to farm them.

It was the annual meeting of the Society for Invertebrate Pathology, hosted by the University of Florida's Institute of Food and Agricultural Sciences (IFAS) at the J. Wayne Reitz Union.

"Using microbes to control insects has everybody excited right now," says Drion Boucias, one of half a dozen IFAS researchers studying insect diseases. "Home gardeners and commercial growers alike are using *Bacillus thuringiensis*, and industry researchers are developing and patenting new strains all the time."

The microbe, used to control gypsy moths and spruce bud worms in the Northeast and pests that transmit a

blinding disease in the Third World, were the subject of 14 papers given during the four days of meetings. Another variety of the bacterium shows promise for controlling mosquitoes.

Most insect diseases are very host-specific, so they control pests without harming "non-target" organisms — such as humans, dogs, birds and useful predator insects.

In addition to bacteria, fungi and viruses can also be used as biocontrols.

"It's wonderful to think that science will be able to design bacteria and fungi and viruses to control weeds, harmful insects and other pests," says Dr. K.R. Tefertiller, the UF vice president who directs IFAS.

"It means we can fight pests Nature's way, by balance — the goal being not so much to kill pests as to prevent economically significant damage. That means less dependence on chemical pesticides and less stress on the environment."

Boucias sees economic opportunities in insect pathogens.

"Some can be produced via industrial scale fermentation techniques, and major chemical firms are turning in that direction," Boucias said.

However, for the many insect pathogens that only afflict a small number of pests, Boucias envisions a "cottage" industry: agriculturists in developing nations or small businesses in the United States propagating the microbial biocontrols. ■



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TAKE IT FOR A TEST DRIVE

Suppose your car is running poorly. It's been some time since the last tune up, so you take it into the shop for service. As you drive home, you find it still idles rough. To your dismay, you find the mechanic failed to take it for a test drive. He installed new plugs, a rotor cap, and everything else required for a textbook tune up but unless he took it for a test drive, the mechanic can not be certain everything is just right. Perhaps the timing is just a degree or two off causing that rough idle. Something relatively minor was overlooked, which appears to the customer as an unsatisfactory service.

This same analogy could be used within the golf course superintendent's profession. A golfer plays the course. Everything appears textbook perfect. The cups have just been set, the greens and tees mowed, and even the coolers are freshly filled with ice and water. However, maybe

there is something wrong — something that only a test drive would notice. Presumably, it would be something rather specific and technical, much like the case where only the mechanic tuning your car would understand and be able to correct. Your problem is, the golfer realizes it's not quite right, but they do not totally understand why.

A good example might be that the golfer complains of missing putts. Just as the ball heads right toward the cup, it veers off to the side! Perhaps the employee changing cups incorrectly pulled the cup cutter up too fast thereby slightly heaving the soil around the new cup. The employee was totally unaware of such a mistake and even the golfer can not see the ever so slight hump around the pin.

The problem could have been overcome if the employee had performed the complete job function. By stepping firmly on the cup setter tool which automatically depresses the cup to a pre-determined depth along with leveling the turfgrass at the rim of the new cup, this would virtually eliminate the heaving and perhaps the golfer's putt would truly roll into the center of the cup, producing customer satisfaction.

Sometimes a mistake with the tune up can be psychological. Perhaps it could be the golfer's inability to play the game where every tee shot is a drastic fade off to the right and only a lesson from the pro and a few buckets of range balls might cure. Yet, you are often to blame. Are those tee markers lined up correctly on the tee? Many times I have heard complaints such as, "the tee markers are set crooked and that caused me to aim towards the lake." The fact is, it's only human for the golfer to ignore his own inability. Perhaps the tee was designed oval in shape, therefore an optical illusion of aiming towards the center of the fairway lies solely upon the angle of the tee markers. As a supervisor, you might drive past that problem tee several times a day. How often do you have time to stand on every tee, every day? Probably not very often! It was beginning to seem every golfer's out of bounds banana ball was being blamed on our crew setting crooked tee markers. To help combat this complaint, the employee now places a tee square towards the center of the landing area target to confirm proper alignment. I must admit, it's amazing how an improper alignment of just one foot for either tee marker can misalign the golfer to the rough. Here again a test drive can reveal a legitimate problem. To help resolve this problem, it's even better if the employee is allowed to

(continued on page 23)

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(continued from page 22)

play the course periodically to better appreciate the intensity of the problem.

If that complaint seemed peculiar, how about this one. Once I heard a lady complain, "the water in the coolers taste like diesel fuel." I am not exactly sure what diesel fuel tastes like, so I immediately proceeded to the seventh tee to get a drink of diesel. To my dismay, one quick sip concluded a plastic, rubbery aftertaste. An employee had inadvertently filled the water coolers from a newly installed garden hose. This water cooler was located on a part of the golf course where, as a supervisor, I seldom frequented. As a golfer, the water cooler was located at a far corner of the course after a long par five. I have now learned to test drive each water cooler every morning. Even if I'm not thirsty, I at least taste samples for a diesel aftertaste. Since then, we wash the jugs every Friday morning, and even spray and clean the push button spigot with a toothbrush once a week so those two year old water coolers appear fresh and new.

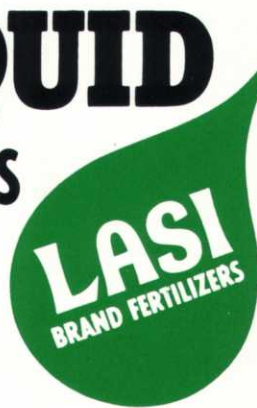
These three examples are common complaints within our industry. Sure, we know how to resolve such issues — take it for a test drive. Who else is better qualified to critique the golf course than the golf course superintendent? Yes, the golf pro can best understand playing the game and how to play the course. The men's or lady's club champion can best analyze the course from a member's point of view. But who knows the golf course best from an agronomic point of view? Because of this, it is best for the golf course superintendent to periodically take it for a test drive.

The next question is, how often should the golf course superintendent play golf? The answer will vary between clubs. Hopefully your club does not frown upon having the superintendent play on a regular basis. A superintendent will view the course from a player's point of view. Something will be noticed. It might be minor, yet on the other hand it could be major. The point is, it will be time well spent. A resort or municipal operation might consider the superintendent's tee time as a loss of revenue. A private club might consider the tee time an inconvenience to the members. But, while playing the course is a privilege, it is also a duty — a duty the superintendent should perform. And it doesn't stop with the superintendent. The maintenance staff, if allowed to play on designated days, can also benefit the club. To appreciate pin placements, the raking of bunkers, the mowing of greens, tees, fairways and rough, along with fresh drinking water, it is best approached from the playing point of view.

I am probably as particular as anyone about their car. I park way out in the corner of the parking lot to prevent door dings and I would not let just anyone drive it around town. However when it goes in for service, I prefer the mechanic to take it for a thorough test drive around town. Test the brakes and the air. Take it out on the highway, but don't abuse the test.

This would also apply when taking the golf course for a test drive. Play the golf course as thoroughly and as often as necessary to determine its optimal condition, but don't race the engine past the red line. ■

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GROWING CONDITIONS

On Florida's East Coast Tough On Plants

By Edith Hollander

GAINESVILLE — Stronger winds and saltier water mean fewer plants grow along Florida's Atlantic coast than along the Gulf coast.

"You can grow a lot of plants on the west coast that you can't grow on the east coast," says Sylvester Rose, an ornamental horticulturist with the Institute of Food and Agricultural Sciences (IFAS). "The salt water and strong winds are not as bad along the west coast, so the plants are less vulnerable," he said.

"You drive along the eastern coast and you find it's almost like a desert. You see the same plant over and over," Rose said. "I was interested in getting a variety of plants that could grow here."

Rose began testing plants in 1967. He uses Patrick Air Force Base and other coastal areas to test plants, trees and flowers native to Florida as well as some from around the country. Over 250 plants have been tested so far in this continuing effort to increase the number of

plants available for beachfront planting. Using different locations, Rose tries to determine the amount of exposure each plant can stand.

Salt water, salt spray and the high winds damage trees and plants, causing the leaves to look burned and the plants to defoliate if they are not salt tolerant, Rose said. Plants are observed for two years before he makes any recommendations.

Some of the plants and trees that can live along the east coast beaches are: Spanish bayonet (a yucca plant), Indian Hawthorne, Morea (an iris), the sea grape and the native palmetto.

Rose is presently testing perennials and annuals. "Certain ones, like the rose family, are quite salt tolerant," Rose said. "The cabbage family is also salt tolerant and cold hardy." So far, the blanket flower, dusty Miller, lisianthus, stock, flowering kale, calendula and strobilanthes have done well along the beach. ■

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Suncoast Sails

By Jim Svabek, Superintendent
Bradenton Country Club

To Play Or Not To Play . . . Should Not Even Be A Question

I remember when I first stepped on a golf course. I was looking for a summer job. I had never even seen a golf course before and did not understand the game. Well, to my Father's joy, I got the job and I've been on a golf course ever since.

For awhile, the game never intrigued me at all, but the more I became involved in the maintenance of the course, the more I began to wonder why we did certain things; why did we verti-cut those beautiful greens and turn them brown on purpose and why did we cover them with dirt, so the members could complain after we had them looking so good, and so on and so on. As an employee, though, I still did not want to give up my free time to play on the course where I spent most of my day working.

After a couple of years, I had to make a decision on what I wanted to do as a career, should I stay on the golf course or look for something else. My boss, also, had an idea and at that point he asked me to be his assistant. That's when I decided to stay.

Eventually, I started to play golf. I don't really remember

why. I do remember that every time I hit the ball down the middle, it would end up in the right rough in the trees. After a few lessons from the Pro, I would hit the ball down the middle and it would end up in the left rough. I feel that my golf game has been the same for the last 20 years.

In those years, not many superintendents played golf, but what a revelation it was for me to see why we had to do all of that work to keep the course in such good condition. I don't think anyone could appreciate all that hard work without ever playing the game. There is a certain pleasure in looking out over a golf course that is in great condition and well manicured . . . but there is something missing, if you can not play it. I believe that you can not fully appreciate a course unless you play it. It is like growing the "perfect" apple and then not being able to eat it. You can not enjoy the fruit of your labor.

The obvious reason to play is, of course, to see your course the same way those who pay to play it see it. I know I see areas that I would not normally see in my daily tour of the course. It is much easier to tell the condition of my course by playing it. I experience, first hand, what everyone else sees.

I do not think that a superintendent today can be complete in his work, unless he plays the game. It is vital that he sees his course the way those who are looking for enjoyment see it. It is not how you play the game that counts, it is that you play it that's important. ■



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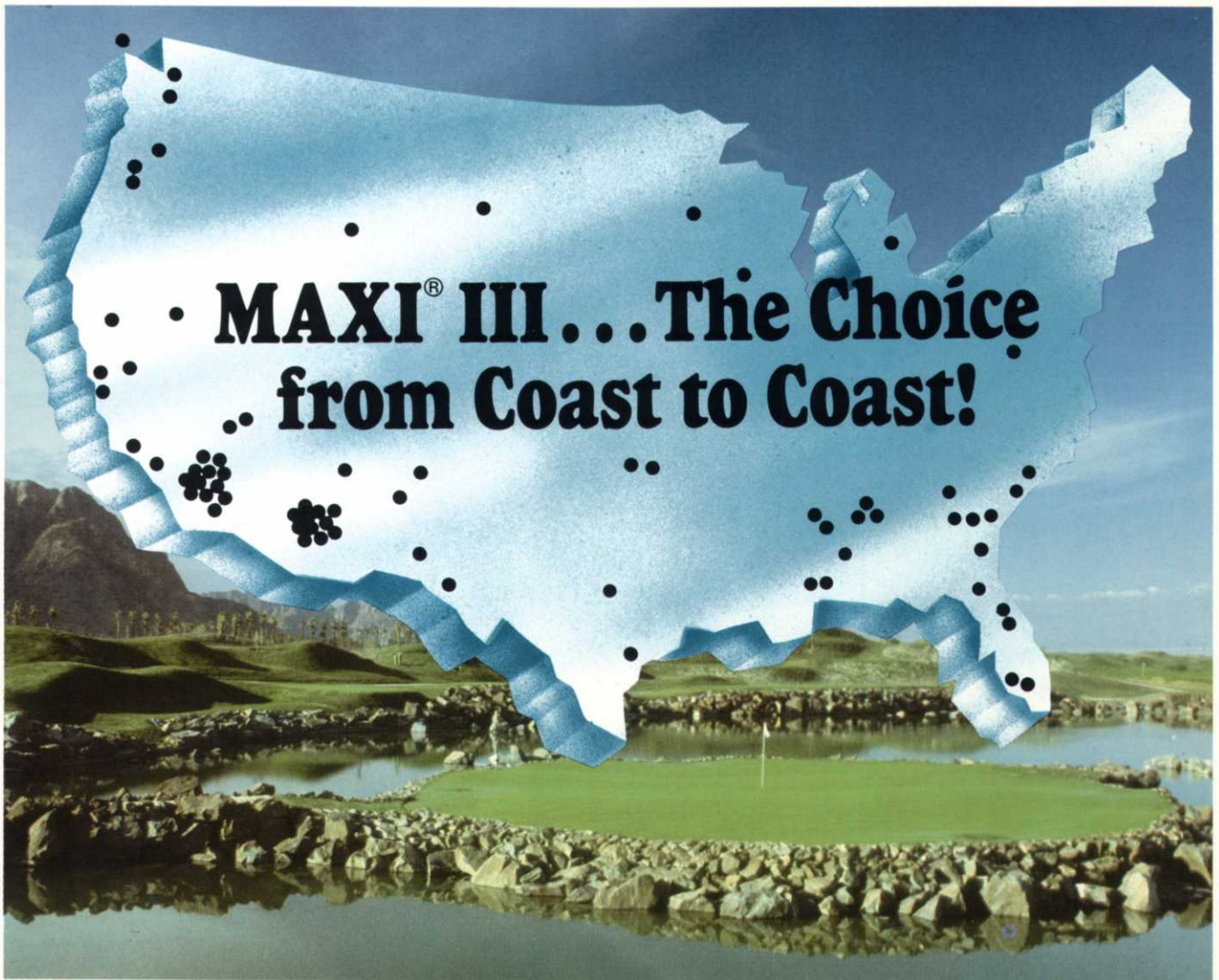
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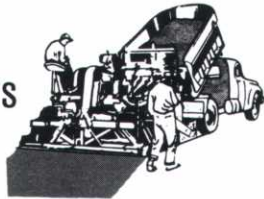
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COMMON WEED IS A NATURAL HERBICIDE:

Could Control Weeds In In Citrus Groves, IFAS Scientist Says

By Julie Graddy

LAKE ALFRED — Lantana, a common weed found in Florida citrus groves, contains phenol-like compounds that kill other weeds, says the scientist at the Institute of Food and Agricultural Sciences (IFAS) who recently was the first to report its natural herbicide characteristics.

The discovery may offer a "Cheaper, and more ecologically sound approach to future weed control in groves," says Dr. Megh Singh, a weed scientist at the IFAS Citrus Research and Education Center in Lake Alfred. Lantana is one of several weeds that Singh is researching for its natural weed-killing abilities.

The yearly cost of weed control on hundreds of thousands of Florida acres is significant, Singh says. A grower will typically spend about \$100 a year per acre on weed control, he adds.

"Using allelochemicals from lantana and other plants could save as much as 40 percent over synthetic herbicide products," Singh says. Further research needs to be done, he adds.

Since the weed-killing compounds in lantana are easily biodegradable, they offer a more "ecologically sound" approach to weed control in groves, says Singh. Natural compounds, such as those in lantana, are also in high demand from agricultural chemists who seek them as a base for commercially produced herbicides, he adds.

Singh began researching lantana's chemical properties three years ago after noticing that ground close to lantana was nearly clean of other types of weeds.

"We surmised that lantana, through its natural growing habits, was releasing some type of compound that limits the germination and growth of other weeds," Singh says. He found that the weed-killing compounds naturally present in lantana are phenols, which are similar to synthetic-based chemicals in some herbicides.

The weed-killing compounds are released even if lantana is simply disked in. They are only potent for 4 to 6 weeks, while synthetic chemicals last up to 4-6 months, Singh says. ■

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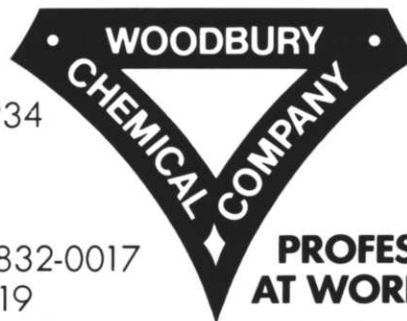
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Lesco Releases New Irrigation Catalog

A new irrigation Products Catalog is now available from LESCO, Inc., Rocky River, Ohio.

The catalog features many new and improved items for golf course, horticulture and residential use. Included in the 40-page book is information on impact, rotary pop-up and residential sprinklers; electric, manual and quick coupling valves; controllers; backflow prevention devices; drainage equipment; pumps; pipe, wire and hose and accessories.

A new MC Plus Series Automatic Controller featured in the LESCO Irrigation Catalog is available with 8, 12, 18 or 24-station capacity. The solid-state, fully programmable microcomputer can run four independent programs concurrently.

To protect controller units, LESCO offers new and improved heavy gauge steel control-guard enclosures with locking doors to prevent vandalism and fluorescent lighting for easy nighttime programming.

Also featured in the LESCO Irrigation Catalog are improved impact drive rotary pop-up sprinklers, a new series of pop-up sprinklers for residential applications, new electric valves and drainage equipment supplies.

To receive a copy of the catalog, write: Irrigation Catalog, LESCO, Inc., P.O. Box 16915, Rocky River, Ohio 44116. ■

SELLING

By: Russell J. Bateman

Every day, we are required to sell an idea, project or ourself. Dale Carnegie's book, Five Great Rules of Selling, is excellent reference material. His method is easily grasped, but must be practiced.

The following simplified examples describe the five rules: 1) ATTENTION: "Gentlemen, we have played on an inferior #4 green for the past 20 years." 2) INTEREST: "This fall, we examined the soil profile and discovered a layer of slag 14" below the soil surface." 3) CONVICTION: "The slag was tested by the University of Maryland and was determined to be extremely acid and also contained enough salt to be detrimental to bentgrass roots." 4) DESIRE: "The fourth green has always been a eyesore to the club. We all want good greens to putt on; shouldn't we solve the problem and make the course one to be proud of?" 5) CLOSE: "This is what we must do to accomplish that goal. Let me explain..."

Try to talk in terms of real interest to your members on items such as safety, better playing conditions, faster play, less expensive in the long run, etc. Talk of ideas rather than the project itself. Use charts, slides and drawings to get your message across clearly and concisely. List all solutions with the pros and cons while guiding the reasoning process to your conclusion. Remain neutral about the issue and make certain that the cause, not the symptom, is addressed. DO NOT make exaggerated claims of great improvements resulting from the project. Remember the story of the veterinarian who acted as though every animal brought to him had a very good chance of dying; then if the animal lived, the vet was a hero, and if the animal died, he had predicted that.

CREDIT: Mid-Atlantic GCSA Newsletter

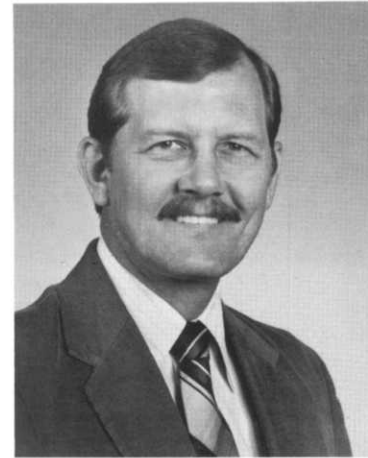
Jacobsen Names New Field Service Specialist

RACINE, WI — Fred Gieschen has been promoted to the position of Field Service Specialist for Jacobsen Division of Textron Inc., according to John Oldenburg, Manager, Customer Relations.

In this new position, Gieschen will act as a service liaison between the company, its Turf Distributors and Commercial Products Dealers, and customers.

"Strong aftermarket service support is essential," said Oldenburg. "Our full time field service professionals provide faster and stronger solutions to field problems."

For the past two years, Gieschen served as Warranty Analyst for Jacobsen. Prior to that, he was International Field Service Representative for J.I. Case Company. ■



THE "CORONARY AND ULCER CLUB" LISTS THE FOLLOWING RULES FOR MEMBERSHIP

- 1) Your job comes first. Forget everything else.
- 2) Saturdays, Sundays and holidays are fine times to be working in the office. There'll be nobody else there to bother you.
- 3) Always have your briefcase with you when not at your desk. This provides an opportunity to review all the troubles and worries of the day.
- 4) Never say "no" to a request. Always say "yes".
- 5) Accept all invitations to meetings, banquets, committees, etc.
- 6) All forms of recreation are a waste of time.
- 7) Never delegate responsibility to others; carry the entire load yourself.
- 8) If your work calls for traveling, work all day and travel at night to keep that appointment you made for eight the next morning.
- 9) No matter how many jobs you already are doing, remember you can always take on one more.

Reprinted from BITS AND PIECES

PAR EX® PROFESSIONAL FERTILIZER PRODUCTS AWARDS TOP DISTRIBUTOR

The Par Ex® professional fertilizers sales team celebrated their record sales year by awarding their top distributors individually for their outstanding sales achievement at their "Cow Poke Cookout Annual Awards Dinner." The event was attended by over 400 customers and distributor guests on January 30, 1987 during the Golf Course Superintendents Association of America Convention.

A record of 24 distributors earned sales awards to become members of the Par Ex Plaque Club. The top distributor award for the largest sales volume of Par Ex fertilizers to golf courses, institutions, and recreation fields, etc. was earned by Frank and Cherie Huisenga of Fran-Cher Chemicals, Inc. of Longview, Washington.

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Insect Pests of Ornamental Plants

James A. Reinert
Assistant Professor (Entomology)
Agricultural Research Center, Fort Lauderdale

Not only must turfgrass management personnel be concerned with the insect pests of turfgrasses, but they must also be familiar with many insects and their damage on ornamental plants. In many cases, it is to manage turf problems. A beautiful, well-maintained turf can be completely masked or overlooked if the ornamental plants within the confines of turf plantings do not also receive adequate attention.

If you want to keep ornamental shrubs and trees healthy and attractive, they need to be examined frequently for insect buildup. All too often our ornamentals are "let go" until suddenly the plants appear to be dying overnight. Once they have been attacked by insects, the best we can do is to prevent further damage.

While a great many species of insects attack ornamental plants relatively few are destructive enough to warrant chemical control. Occasionally, however, populations develop to outbreak proportions and the application of pesticides become advisable. There are a few very serious pests, such as some of the borers, which are not satisfactorily controlled by present control recommendations. Some ornamentals, such as hibiscus, have a number of insect problems and these as well as other features should be considered when deciding on suitable material for ornamental plantings.

Some insect outbreaks occur at definite seasons of the year (leaf beetles and oleander caterpillars), while others are active throughout the year (aphids, scale insects, and borers). Numerous variations occur in the method of locomotion, manner of feeding, life history and reproductive habits of the pests. For these reasons the insects are discussed under several categories to aid one in planning his pest management program. For example, insects feeding between the epidermal layers of the leaf (leaf miners) require control methods different from those living on the leaf surface, and those insects which lose the ability to move about during portions of their life cycle (scales) require more thorough and repeated applications of insecticides than many of those which move about freely.

Some insect pests attack many different plants, showing little or not partiality. These are called *general feeders*. Others are more selective in choosing plants to attack. These are called *specific feeders*. For purposes of this discussion the pests will be divided into two groups based upon the way they feed.

1. *Insects with piercing-sucking mouthparts*: They have beak-like mouthparts which are used for probing the plant tissue and sucking the plant juices. They feed in basically the same way as a mosquito pierces your skin and removes your blood.

Examples are: scales, aphids, whiteflies, mealybugs, and stinkbugs.

2. *Insects with chewing mouthparts*: They bite off and swallow portions of the plant. They may eat the leaves or flowers, bore into the stem, or feed on the roots.

Examples are: Beetles, caterpillars, grasshoppers, and grubs.

SUCKING PESTS

Aphids or plant lice — are small, soft, bodied insects usually attacking young tender growth. They remove plant juices and cause new developing leaves to cup or curl. Color varies from green to reddish to black. Plants frequently found infested are meelia, citrus, hibiscus, ixora, oleander, palm, and roses.

Scales — are often overlooked on plants; usually exhibiting colors or shapes closely resembling the host plant. There are many different kinds of armored and soft scales that attack ornamental plants. Most scale insects attach themselves to the host plant shortly after hatching, and rarely ever move from their feeding site for the rest of their lives. They feed by inserting a thread-like beak into the plant tissue and removing plant juices.

Scales may be found feeding on almost all our ornamentals and are among the most difficult insect groups to control. Familiar species are the brown soft scale, tea scale, oyster shell scale, and nigra scale. Two of the most severe problems are the slenade or hibiscus scale on hibiscus and the oleander scale on oleander, bischofia and magnolia.

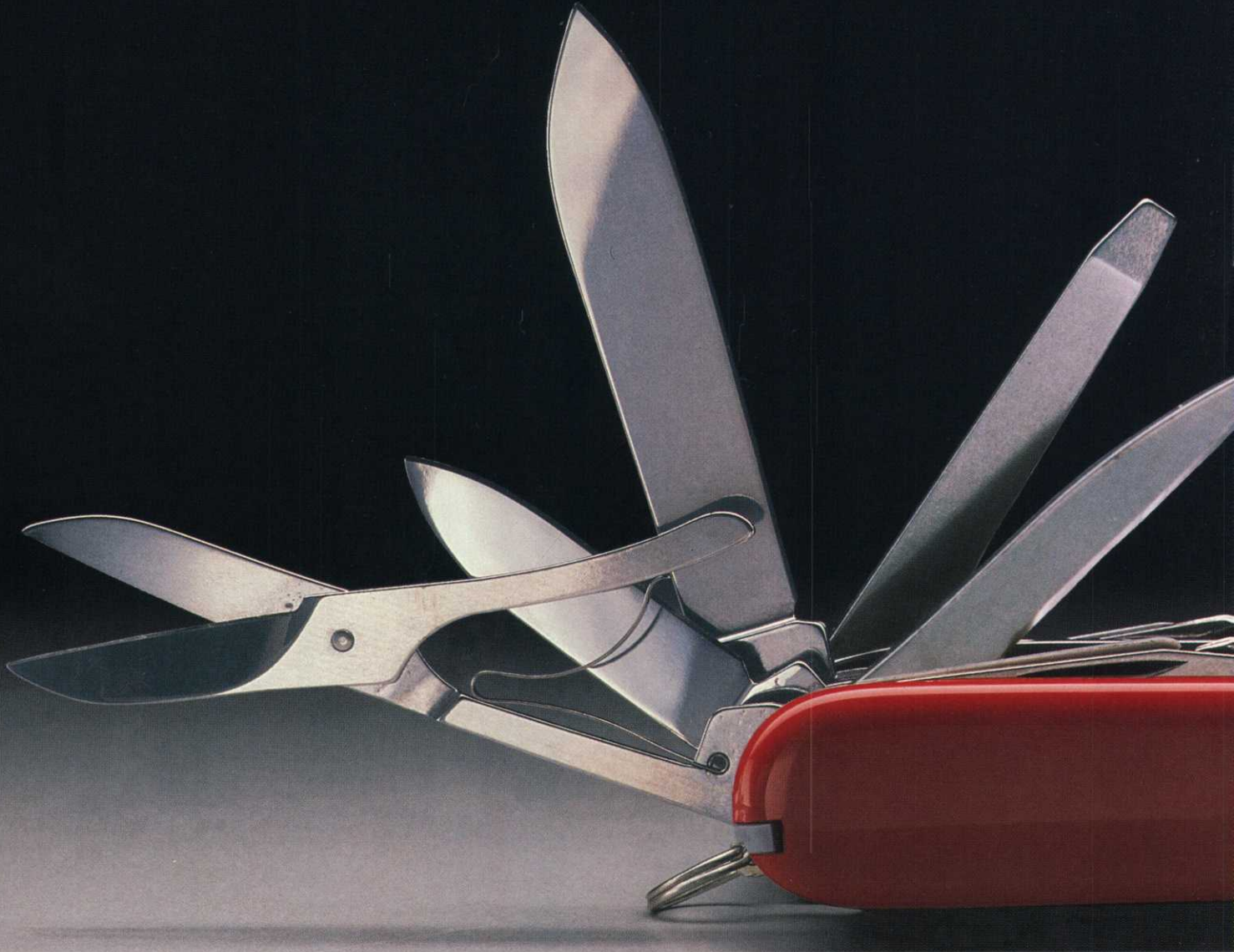
Whiteflies — are very small white insects which infest the underside of leaves. They are circular, flat, almost translucent, and very difficult to detect. They are very common on gardenia, ligustrum, viburnum and citrus.

Mealybugs — are soft bodied scale-like insects which are usually covered with a powdery or cottony, wax-like material. With a few exceptions, they are able to move about throughout their lives and are important pests of annuals and perennials, in addition to woody ornamentals. Some of the most common host plants are azalea, citrus, coleus, croton, rose, and viburnum.

Lacebugs — are small, broad and flat insects usually brown in color and the wings are clear with a fine lace-like appearance. Immature lacebugs are wingless and covered with spines. Damage appears as a whitish speckling on the top side of the leaves, which is caused by the feeding on the undersides of the leaves. The presence by shiny black spots of excrement on the underside of the leaves is a good indication of a lacebug infestation. Some of the most common hosts are azalea, pyracantha, and sycamore.

(continued on page 33)

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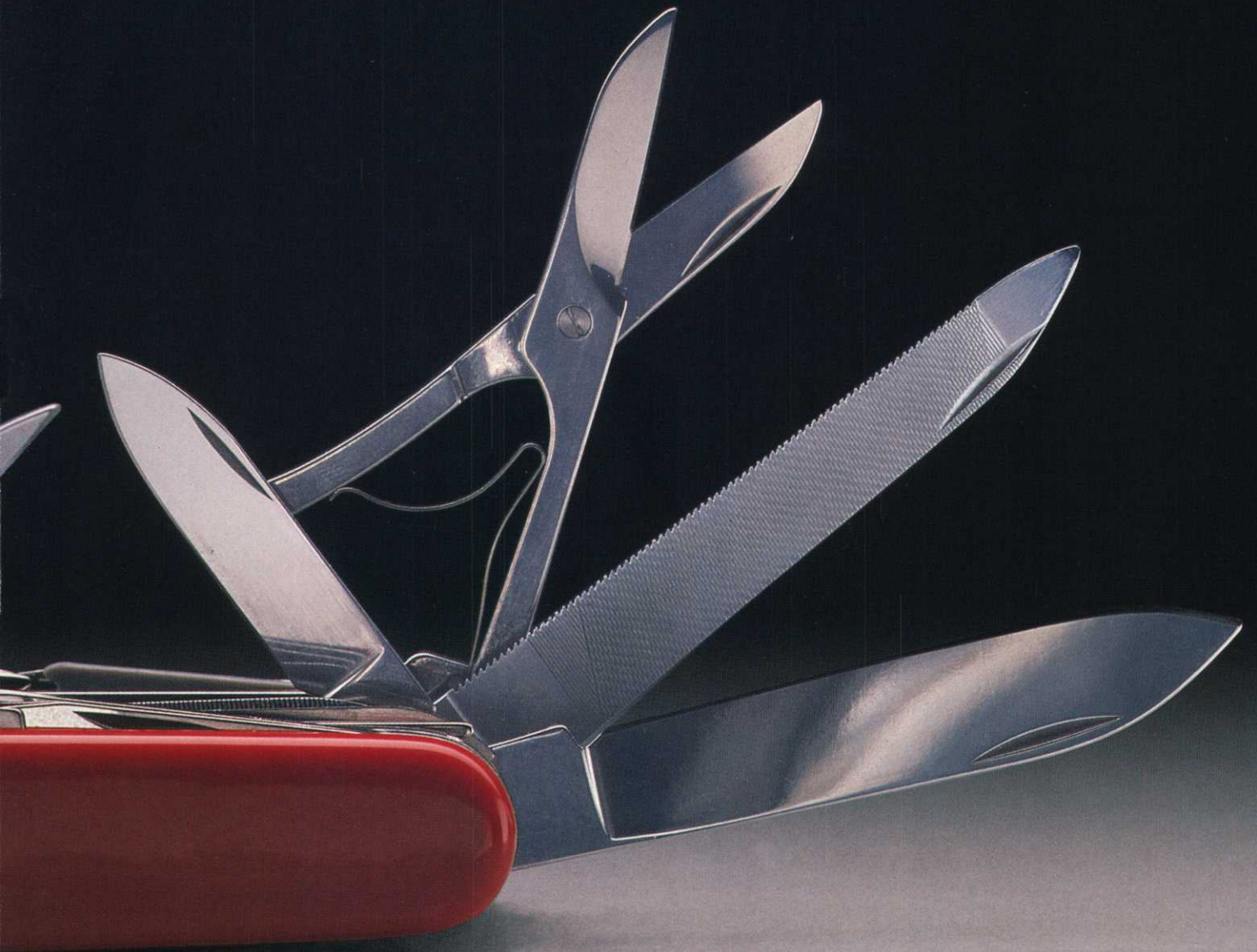
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(continued from page 32)

Thrips — are tiny slender insects which cause injury by puncturing the plant tissue and then sucking up the exuding sap. They restrict their feeding to the foliage, buds, and flowers. Infested leaves have a stripped appearance similar to that resulting from mite infestations. Usually it is not difficult to distinguish between thrips and mites as thrips leave small brownish specks of excrement wherever they feed. Frequently infested buds fail to open or the flowers are deformed. Feeding punctures on the flowers turn brown and the petals eventually become streaked and discolored. Flowers suspected of being infested should be shaken over a sheet of white paper to detect the thrips. The most important species on ornamentals are the Florida flower thrips, red-banded thrips, and greenhouse thrips. The Cuban-laurel thrips is probably the most familiar in South Florida where it curls developing leaves on Ficus.

Planthoppers — refer to a group of insects which hop about when disturbed on the plant. Included in this group are leafhoppers, thornbugs, fulgoridaes, and spittlebugs. These insects are not considered important as a group, but several are quite unusual. Immature spittlebugs are always found in a leaf axis surrounded by a mass of spittle. The fulgoridaes and thornbugs are usually associated with a waxen mass on the stems or leaves and most thornbugs are equipped with a conspicuous hump which gives the plant on which they are resting a thorny appearance.

Spider mites — are among the most common pests which attack ornamental plants in Florida. Mites are not insects but are more closely related to spiders and ticks, since they have four pairs of legs. Often their presence is not detected until they become very numerous and cause obvious plant damage. Their damage was discussed above in relation to thrips. Some mite species restrict their feeding to a single host while others are general feeders on a variety of plants. Almost all species of annual, perennial, and woody ornamental plants are subject to attack by one or more species of mites.

Eriophid mites — are extremely small and often high magnification is required to even see them; their damage is obvious, often appearing as a witches broom, stunting, or shortening of the internodes. Many new species are being discovered on ornamentals, but the eriophid mites of podocarpus, black olive, and camellia are most familiar.

OTHER PESTS

The presence of *sooty mold* and *ants* are good indications of the presence of several types of sucking insects. Sooty mold is a black fungus that grows in the excrement of aphids, mealybugs, many soft scales, and particularly of immature whiteflies. This fungus detracts from the beauty of ornamental plants but does not cause as much injury as most people believe. Controlling the above pests will easily prevent the problems of sooty mold.

Ants are fond of "honeydew" excreted by these sucking insects, and they may protect and move these pests around from plant to plant. They are social insects and control should be directed at their colonies.

CHEWING PESTS

Caterpillars — are the immature stage of moths and butterflies and numerous species feed on ornamentals. Because of their habits and control, they are grouped into three categories:

(1) Leaf-eating caterpillars—include worms of considerable variation. They devour foliage, leaving holes and irregular areas, or they may even strip off entire leaves. Some larvae, such as the oleander caterpillar and the azalea defoliator, restrict their feeding to the foliage of a single host plant. Other larvae, as the bagworm and tussock moth, restrict their feeding to closely related plants. Still others, such as the corn earworm, loopers, and woolybears, attack almost any type of vegetation. Other familiar species include: armyworms, honrworms, leaf rollers, and tent caterpillars.

(2) Underground caterpillars — have similar habits and are called cutworms. For the most part they are nocturnal and remain hidden in the ground near the host plant during the day. They work at about ground level, cutting off the seedling plant so that it falls over and dies. In general, cutworms are smooth, shiny caterpillars, grey or brownish in color with black markings.

(3) Nettling caterpillars — can severely defoliate several ornamental plants. These include Io moth larvae and saddle back caterpillar on hibiscus and several species of palms. The puss moth caterpillar feeds on oak and sycamore trees. These caterpillars are most important because they have poisonous hairs and should be avoided and be handled with extreme care.

Leaf miners — are small insects that feed between the upper and lower surfaces of the leaves. Their feeding causes a blotch mine or blister when the larvae excavates a broad path, a linear mine if the larvae tunnels straight ahead, and a serpentine mine if it follows a winding course. The mines provide an excellent entrance for secondary fungi.

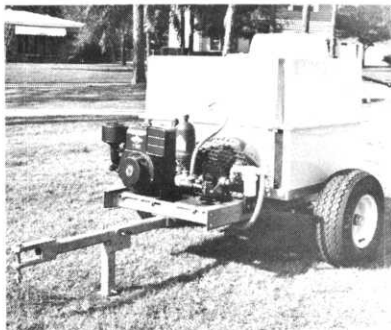
Grasshoppers, Katydid and Crickets — frequently become a problem in flower gardens. These insects occasionally consume large quantities of foliage, flowers, and sometimes other tender growth. Grasshoppers are easy to see and should be controlled before they become numerous. Katydid, which are green in color and feed at night, are not commonly found in large numbers. Mole crickets, although not serious pests of woody ornamental plants, are common invaders into flower gardens and other foliage plants adjacent to turf plantings.

Beetles and grubs — frequently cause injury in ornamental plantings. Beetles hard-shelled insects which devour various parts of plants in much the same way grasshoppers and katydids. Some feed at night and hide beneath the plants during the day, while many feed during the day. Flower beetles are difficult to control as they may fly in from adjacent areas in large numbers. The larvae (grubs) of most beetles are also destructive. They may feed on the roots or bore through the stems and branches while others may be leaf miners.



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Future of Golf Tournament

The Palm Beach Chapter GCSA held their 6th annual Future of Golf Tournament June 6th at the prestigious Quail Ridge C.C.

Nearly \$6,000 was netted to benefit turf research and junior golf. A full field of 128 players paid \$50 per man to participate, and 39 sponsors purchased tee signs at \$100 apiece to raise these much needed funds.

Winners of the 4-man scramble event shot a 13-under par 59.

They are left to right: Bill Jeffrey, Dick Gray, Dave Lottes and Pat Cooney. ■



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It's unwise to pay too much, but it's worse to pay too little. When you may too much, you lose a little money—that is all. When you pay too little, you sometimes lose everything, because the thing you bought was incapable of doing the job it was bought to do. The common law of business balance prohibits paying a little and getting a lot—it can't be done. If you deal with the lowest bidder, it is well to add something for the risk you run, and, if you do that, you will have enough to pay for something better.

JOHN RUSKIN, Author Economist
February 8, 1819 - January 20, 1900

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When it's COOL he wants it HOT,
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"Thinking I could save time, I rigged up a beam with a pulley at the top of the house, and a rope leading to the ground. I tied an empty barrel on one end of the rope, pulled it to the top of the house, and then fastened the other end of the rope to a tree. Going up to the top of the house, I filled the barrel with bricks. Then I went back down and unfastened the rope to let the barrel down. Unfortunately, the barrel of bricks was now heavier than I, and before I knew what was happening, the barrel jerked me up in the air. I hung onto the rope and halfway up, I met the barrel coming down, receiving a severe blow to the left shoulder.

"I then continued up to the top, banging my head on the beam and jamming my fingers in the pulley.

"When the barrel hit the ground, the bottom burst, spilling the bricks. As I was now heavier than the barrel, I started down at high speed. Halfway down, I met the empty barrel coming up, receiving severe lacerations to my shins. When I hit the ground, I landed on the bricks, receiving several cuts and contusions from the sharp edges of the bricks. At this point, I must have become confused, as I let go of the rope. The barrel came down, striking me on the head, and I woke up in the hospital. I respectfully request sick leave."

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DIVOTS

By Donald E. Kooyer, C.G.C.S.
Willow Lakes Golf Club



TO PLAY THE GAME

To play the game or not to play the game. We have heard this statement from the time we competed in sports and throughout our working career. It is not only our profession as professional golf course superintendents but in all aspects of the business world you have to know the entire scope of the profession you are in.

In our position as golf course superintendents we must be concerned with not only the aesthetics of our golf course facility but the playability as seen and played by our members or the public golfers. How many times have you heard from one of your members, Don, the course down the road has this or that and have you seen the difference it makes? I'm sure we all have, and if you

haven't, you will. Now, to be able to answer questions of this kind you have to get out to the other courses in your area and be able to evaluate your course situation with the one down the road. At my facility we have members and public play. I talk with our members about our routine maintenance and inform them of special cultural practices that will be done on the course. I admit that I don't get out and hit the ball as often as I should. And you can tell with the 26 handicap I have with our North Florida Superintendent's Chapter.

To compensate for myself not getting out to play as much as I would like I endeavor to place men that play golf and/or are interested in our field.

I am fortunate to have a general manager, Jim Smith, that has played in the U.S. Open and he surely knows the game of golf. What better ally could you have on your side? Lane Pace came into my office one morning (he is my golf course set up man and operator) and asked for a day off next week. Now, we just had a couple of large tournaments at our course and Lane did an excellent job of preparing our course for play. Lane said he would like to be able to play in a tournament at one of the clubs in our area that is being held by the U.S.G.A. We had prepared our course for this event the previous year and it would be an excellent way for me to extend my knowledge through one of my crew members and Lane also would be able to play the game that he so much enjoys. Well, it turned out that Mr. Pace won the U.S.G.A. Public Open first place in Florida! I'm in hog heaven now, our club has two U.S.G.A. qualifiers. What better man could I have than Lane for a course set up man? I am a golf course facility superintendent and one of my responsibilities is personnel management and I could not ask for anything better than having a professional as Mr. Smith or an amateur golfer as Lane Pace on my side. I have to thank both of them for giving me the knowledge of the game of golf as they have in the past. Now if I could just squeeze in a few golf lessons from these men!

I might not ever win a green jacket, but I will see you all at the the annual Golf Course Superintendents Golf Tournament and maybe Jim and Lane can be proud that they started their superintendent off number one tee in the right direction! ■

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The Moorings Club Golf Course

“TOUGH AND TIGHT”

By Irene Jones

According to Mike Perham, CGCS, “This short-length course of 4,338 yards is long on hazards and challenge.” Mike has been the Golf Course Superintendent at The Moorings Club Golf Course for three and a half years. It is obvious after speaking with Mike that he has found his special niche at The Moorings, located between the Atlantic Ocean and the Indian River, four miles down the road from the seaside town of Vero Beach, Florida. But let’s back up a few years and begin at the beginning. The first contact Mike had with the game of golf was through his involvement with a Junior Golf Program sponsored by Palm Beach County. Another major factor which contributed to a continuing interest in the game was the family’s membership at the original PGA Golf Course where he was able to play 3 or 4 times a week.

It is apparent that family involvement and interest in golf pointed Mike in the direction of the golf industry as a career. During the summer of his junior year in high school he took a job on The Boca West Golf Course, where he filled the position of spray man. After that summer he definitely knew one thing: he did not want to continue in this position.

Mike graduated from high school in 1975 at the same time his older brother John Perham was graduating from


the golf course operations school at Lake City Community College. Right after graduation John accepted the position of Assistant Golf Course Superintendent at The Indian Springs Country Club in Pompano Beach, Florida, and Mike went to work for his brother. It was during this time that he realized how personally challenging the role of Golf Course Manager/Superintendent could be.

Mike entered Lake City Community College also, in the fall of 1976. Upon his graduation from the Golf Course Operations at Lake City he came to work for Dan Jones, CGCS at The Turnberry Isles Golf Course in Miami, Florida. I came to know Mike during his two years as Dan’s assistant. *The Florida Green* was experiencing some real growing pains during this time and he would help us out with proof-reading and a number of other magazine related jobs during his off duty hours.

Mike married Marci in November 1978. Now their family includes a daughter, four-year-old Laura and one-year old Christopher.

After Turnberry, Mike made the move up to Golf Course Superintendent at Boca Del Mar Country Club in Boca Raton, where he remained until coming up to The Moorings
(continued on page 40)



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(continued from page 38)

ings Club as their Superintendent three and a half years ago. He began to work on becoming a fully Certified Golf Course Superintendent and qualified for that title after taking the examination in February of 1985 at the GCSAA Convention in Washington, D.C.

Mike is now able to bring all his preparation, training and experience into play at The Moorings Club. "When I came on the scene there was already a "good nucleus crew in operation," in fact one or two of the crew were around when the golf course was being built. The crew all stayed when Mike came on board. Even now, the crew turn over rate is less than 10% per year. "By moving the pay scale up in accordance with the value of the employee and by giving excellent benefits the club has rewarded people for their longevity and service."

The golf course maintenance operation and the pro shop operation enjoy an excellent working relationship. According to Mike, "Our golf professional, Rick Graves, is sympathetic to the course maintenance conditions and programs. He is a good buffer between members and the maintenance department. He helps the members understand why certain maintenance procedures are being done out on the course." Rick Graves, Head Professional, just set the 5 under par course record at The Moorings this spring. He also holds a degree in agronomy from The University of Florida.

The Moorings is a private membership club, controlled by Moorings Development Company. "They are a very good group of people to work for, the company is very supportive of the programs and projects on the golf course." An example of this was the support given last September when the members arrived back at the club to find the course not up to its usual "par condition" because of having to shut off and move the irrigation

system during the entire month of August. Management explained the situation to the satisfaction of all concerned.

Oaks, sable plams and mangroves, wind, water, and estuary type native Florida grasses describe this 18 hole 4,338 yard par 63 course. The greens are not oversized, instead of being large, they roll, curve and fall and they offer just the right ingredients for a tough test of golf. Interesting and difficult have often been used to describe this short-length course. Pete Dye is the architect. If the golfer hits the ball where Dye is inviting him, then he will have an excellent approach to the green; but if he lands it anywhere else he will find himself in trouble. "When you create hazards which allow challenge," Dye believes, "you ought to reward the player by putting him in the best position for his next shot. This is the only really valid principle in golf course design."

As "most challenging" Mike names: the one and a half acres of green surface (Tifgreen 328) which are mowed by hand all year long. The hand mowed tees, and the fact that he is starting to Triplex mow all fairways now. Careful attention is also given to the 62 small, tight, well bunkered sand traps, and the one a a half acres of "Pete Dye waste area traps."

In fact, it was at The Moorings Club that Pete Dye first tried his unique features of waste areas and grass bunkers. The Moorings offers target type golf. The tees and fairways are planted in hybrid Bermudagrass, while the rough is planted with Bahiagrass.

Mike described the front nine holes as "going right out into the Indian River." That is the nine holes that I want to play! ■



Golf Carts Called as Much a Hazard As Cars

TALLAHASSEE — Mildred Meister, pausing for a drink of water before the eighth tee at a Hollywood-area golf club, was stepping out of her E-Z-GO cart in August 1978 when a runaway cart pinned her against a rest-area building.

She wants to collect damages from the golf club, but an appellate court said she can't because a golf club is not responsible for its golf carts as long as they are in good working condition.

But Mrs. Mesiter's attorney, Mark Hicks, argued before the Florida Supreme Court Thursday that carts like the one that injured Mrs. Meister are as dangerous as automobiles.

Just as much as the driver of the vehicle, Emerald Hills Country Club should be responsible for paying for the multiple, painful fractures to her leg, Hicks argued.

If the high court accepts Hicks' argument, country clubs, airports and any other owners of similar carts would be responsible for injuries caused by the carts, even if there is no way they could have prevented them.

The "dangerous instrumentality" doctrine, a rule that dates to the era of the Model T, covers cars and several other motor vehicles, making the owners liable for their use.

The Sunshine State, with its ever-present golf courses, should include golf carts in that rule, Hicks contended. In fact, every motorized vehicle, including lawn mowers and possibly electric wheelchairs, can be dangerous instruments, he said.

"A golf cart is a car," the attorney said. "Some cars are motorized with gas engines, some have electric engines. I think we're getting hung up on the definition of a golf cart."

But Joseph Kashi, attorney representing Emerald Hills, argued that golf carts are not motor vehicles and are not dangerous instruments. They are not as dangerous as cars, nor as widely found on public thoroughfares, the attorney argued.

"Golf carts on golf courses are not used on a highway," he said. "We feel that the fact that a vehicle . . . is principally designed for use off the public highways takes away from its menacing nature."

The justices seemed fascinated by this argument that depends largely on comparing the varying safety of vehicles, from mopeds to tractors.

Justice Parker McDonald asked with a smile how much a ruling that carts are dangerous might affect cart fees.

Much of the questioning sought the shades of difference between injuries from a car and those from a cart.

The suit against the driver of the cart, who was a friend of Mrs. Meister's is pending until the golf cart issue is settled. Mrs. Meister named the country club in the same suit.

Last fall, the 4th District Court of Appeal in West Palm Beach ruled that golf carts are motor vehicles but declined to consider them dangerous instruments.

The state Supreme Court is expected to issue a decision on the status of golf carts in several months.

Credit: Fort Lauderdale News

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The Laborer Is Worthy Of His Reward

By Cheryl Jones

After working on them, driving on them, inspecting and appraising their condition, color, and overall general health, prescribing the best antidotes to keep them healthy and happy, spending more time on them than you do with your wife, who on earth would want to get back on the greens after quitting time?

An avid golfing superintendent.

Fortunate indeed is the man (or woman!) who can both work and play on the greens they call their second home away from home!

There seemingly is no negative response to the question: "Should superintendents play golf?" Common sense and a random survey provided the answer and it's a deafening YES!

Mark Henderson, superintendent of Atlantis Golf Club in West Palm Beach was kind enough to provide some insights on the subject. He has been at the 380-member private club for just over a year, has eight years experience as a superintendent, and is working towards certi-

fication. Mark is an avid golfer, and though an overdue baby has kept him a little closer to home and family at the time of this interview, he still manages to hit the links once or twice a week. Every course he has worked on in the past has allowed superintendents to play, and Mark admits he probably wouldn't take a job where the owner/board was adamantly against it.

Why should a superintendent play golf?

M.H.: "The first-hand experience of a superintendent on a course is vital. A playing superintendent can get out there and determine the playability of his greens. He can correct problems before they occur, and if a member complains, a playing superintendent will know exactly what he is talking about. Developing a feel for the greens puts him in closer touch with his course. It can often be more work than play — Your eyes are constantly roving, searching for those little things that are often overlooked in the overall day-to-day maintenance. Are the tee markers lined up correctly? Are the pin placements right? You can adjust your work plans for the next day as you go along. If the greens are slow, you may decide to go ahead and double-cut them instead of what you had originally intended to do that day. This prevents members' complaints before they have a chance to come in. It also brings you together with your members and gives you a chance to hear what they have to say about their needs and wants on the course."

**THOSE THAT PLAY THE GAME
IN ALMOST ALL CASES
MAKE THE BEST WORKERS.**

The question of why some owners or Boards of Directors do not allow their superintendents to play golf has some possible answers also. Members may not like the fact that they have to pay a pretty penny while employees pay nothing. Certain employees may, in some instances, abuse the privilege. And this could cause golf privileges to be cancelled for all employees.

Those that play the game in almost all cases make the best workers. A random survey of several Palm Beach County superintendents revealed that all thought superintendents should be allowed to play, and all were allowed to, on their respective courses. When asked if assistants and employees should be allowed to play golf, the unanimous response was YES! All courses polled said that their employees were allowed to play; assistants, for the most part, year 'round and employees with certain restrictions ranging from after work (anytime) to specific months of the year or days of the week.

(continued on page 43)

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(continued from page 42)

Happy superintendents stay longer. It seems pretty safe to assume this. If a superintendent is allowed to release the day-to-day tensions from salesmen, insects, weeds, weather, suppliers, crew, etc., it translates into a benefit for the club while costing them nothing. Those extra hours of "trained-eye time" can save them thousands of dollars by spotting problems before they erupt. Being able to play the course you work on provides that extra little motivation to keep the greens beautiful and healthy. You'll go that extra inch, yard, or mile, not only for club, but for yourself as well.

Please allow this writer to take this issue one step further. Should the golfing privilege be extended beyond the superintendent to his assistant and employees? This may raise a few conservative eyebrows and qualms among the owners and Boards of Directors of golf courses, but the potential benefits returned to the clubs are tremendous. When questioned about his views and policies, Henderson again gave the idea an emphatic yes. He has 18 employees and supports their playing, even encourages it.

M.H.: "The Board at Atlantis decided that employee golf privileges were allowed before I came here. Though I have refined the guidelines a little bit, my assistant can play all year 'round, and the other employees may play any afternoon from May thru October. One unique benefit that Atlantis provides to their employees is the use of a cart."

Does knowing the game have a positive impact on their view of their work?

M.H.: "Undoubtedly. For example, take raking sand traps. To a non-player, this isn't significant, but a golfer knows that you don't want any grooves marring the surface and hindering your game. A playing employee understands the little nuances involved which the non-playing employee doesn't instinctively recognize, even though he can be an excellent worker."

Do you think that golfing privileges for an employee is a factor in their staying at a specific course?

M.H.: "Yes, an employee who enjoys the game tends to stay longer at an obliging course, which reduces the turnover rate and helps you keep the good workers. Instead of moving on to another job, he'll stay where he can keep the golfing privilege."

Henderson and his crew (some of which are golfers!) have their hands full at Atlantis Golf Club this year, rebuilding 9 greens and installing a new computer irrigation system on all 27 holes. 18 greens are scheduled to be rebuilt next year.

Every superintendent polled revealed that they would prefer their employees to be golfers, to better understand their jobs. This privilege, from superintendents on down the line, benefits clubs in many ways.

Maybe now is the time for those clubs who do not allow their employees to play golf to re-think their "members only" policies. ■

Post Script: Between the interview and press dates, Mark, Leslie and son Jade welcomed Paris Mills Champagne Henderson into the world! She is an 8 pound, 7 ounce beauty (angel?!). Congratulations Folks!

EFFECTS OF CHEMICALS ON EARTHWORM POPULATIONS

Occasionally we get questions about the effects of chemicals on earthworms. This is a list published in a recent issue of Bug Dope, Ohio State University. Thought it might be of interest.


No effect: Diazinon, Dylox, Guthion, Oftanol, and Proxol.

Increase in Worms: Nitrogen fertilizers, Lime and Nitrate of soda.

Slightly Toxic: Malathion, Dursban, Parathion, Disyston, and Chloro-IPC.

Extremely Toxic: Sevin, Chlordane, Thimet, Temik, Furadan, Dyfonate, Benomyl, Chloropicrin, Methyl Bromide, D-D fumigant, Copper sulfate, Arsenicals, and Sulphate of ammonia.

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GRASS AND TREE ROOT RELATIONSHIPS

By CARL E. WHITCOMB

Plants growing in natural or man-made landscapes are continually competing with other plants. Despite the appearance of vertical separation by different growth forms of above ground plant parts, beneath the soil surface the root systems of these plants intertwine extensively.

It is the exception to find a home lawn, park or golf course where an expanse of turfgrass exists without woody plant competition. Nearly all turfgrass research conducted to date has been done on field plots in fully exposed areas. Likewise, most woody plant research, trees and shrubs, has been done without the presence of turf, usually under clean cultivation.

What I have attempted to do, is to study these two plant groups when they are growing together: competing. This is no easy task, as many interrelated factors are involved, such as light, water, nutrition and possibly chemical inhibitors. Shade has been listed as the primary reason grass does not do well beneath trees. There is no doubt that shade has an effect on grass performance but what about other possible factors?

EXPERIMENTAL PROCEDURE

In order to study tree-grass relationships without light becoming a limiting factor, a new, "connecting pot technique," was developed. In this system a tree was planted in one container with a portion of its root system extending out of that container and into adjacent smaller pots. The smaller pot can then be seeded, sodded, or sprigged. This approach allowed determination of the effects tree roots have on various aspects of grass growth and like-

wise, the effect of the grass on the tree root development. The trees were placed at random on a platform, with the smaller pots arranged beneath. In this way, all pots, regardless of treatment, received the same amount of shading. The results obtained are, therefore, independent of light effects.

Two tree species were used: silver maple, *Acer saccharinum* and honeylocust, *Gleditsia triacanthos*. These were chosen based on observation of their effect on grass. Silver maple is very shallow rooted, and is difficult to maintain quality turf beneath. Honeylocust is deep rooted and is one of the easiest trees to grow grass beneath. Common Kentucky bluegrass was used as the test grass.

These experiments were begun at Iowa State University in January, 1967. Upon joining the staff at the University of Florida, I continued to use the same plants to keep from adding another variable to the study. I feel the results can basically be applied to all grasses and trees over a wide range of conditions.

Experiments were conducted as follows:

- a. The grass to establish first.
- b. the root system of trees and grass to invade the soil mass at the same time.

RESULTS

When the grass was established first, and tree roots were forced to invade soil containing well developed grass roots, there was no change in the grass response as measured by clipping weights, sod weights, root weights, root to shoot and counts of stem per pot. Fertilizer and water were added as needed. From this, one would conclude that on a short term basis, even under low light conditions, the turf was able to function as though tree roots were not present, if it were established first. This is probably the case for the first one to two years following the planting of a tree in an area of established turf. However, a grass root, even though considered a perennial,
(continued on page 45)



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(continued from page 44)

does not live for an extended period of time. Rather, new roots are continually replacing older ones.

Tree roots, on the other hand, are basically much longer lived, growing in length and diameter. Over a period of years, as grass roots die, the tree roots become better and better established by replacing the grass roots in the soil volume.

To test this, an experiment was established where tree and grass roots were forced to invade a volume of soil at the same time. This would simulate conditions where grass roots had died and new grass roots and tree roots were vying for that particular soil area.

**GRASS ROOT YIELDS WERE
REDUCED BY AS MUCH
AS 59% BY
SILVER MAPLE ROOTS.**

The effect of the grass was very striking under these conditions. Grass root yields were reduced by as much as 59% by silver maple roots and 35% by honeylocust roots as compared with a control pot having no tree roots (Figure 1.) On the other hand, grass sod yields were reduced, but not so drastically. As root competition increased, the grass maintained approximately the same production of sod with a greatly reduced root system. The root to shoot ratio shifted, making the grass much less resistant to wear, drought, attacks from disease and insects and restricting the supply of nutrients. This is how the tree wins out over a period of time.

The question arises, can we fertilize the grass on the soil surface and favor it's development over that of the trees? Tree roots are more shallow than previously thought. A few anchor roots may penetrate the soil 10 feet or more, but most functional tree roots are in the upper 6 inches of soil. Many of these roots are at the soil surface and may actually be growing in the duff and litter of the grass. Because of this, surface fertilization benefits the tree as well as the grass. To get an equal response from grass where tree roots are present, results suggest a considerably larger amount of fertilizer should be applied (Figure 2). What this increase in fertilizer rate should be remains to be worked out through further experimentation. Probably at least a 30-50% increase in nitrogen should be used where tree roots are vigorously competing with the turf. This increase should include an area at least 1½ times the distance from the base of the tree to the spread of the outer most branches. For example: if the distance from the base of the tree to the outer most branches was 30 feet, then the fertilizer applied should be increased by 30 to 50% out of a distance of 45 feet from the base of the tree. This does not apply to palms.

EFFECT OF TURF ON TREES

When the grass was allowed to establish first and the tree roots were forced to invade soil containing well developed grass roots, although there was no effect on the grass, the reduction in silver maple roots produced was
(continued on page 48)

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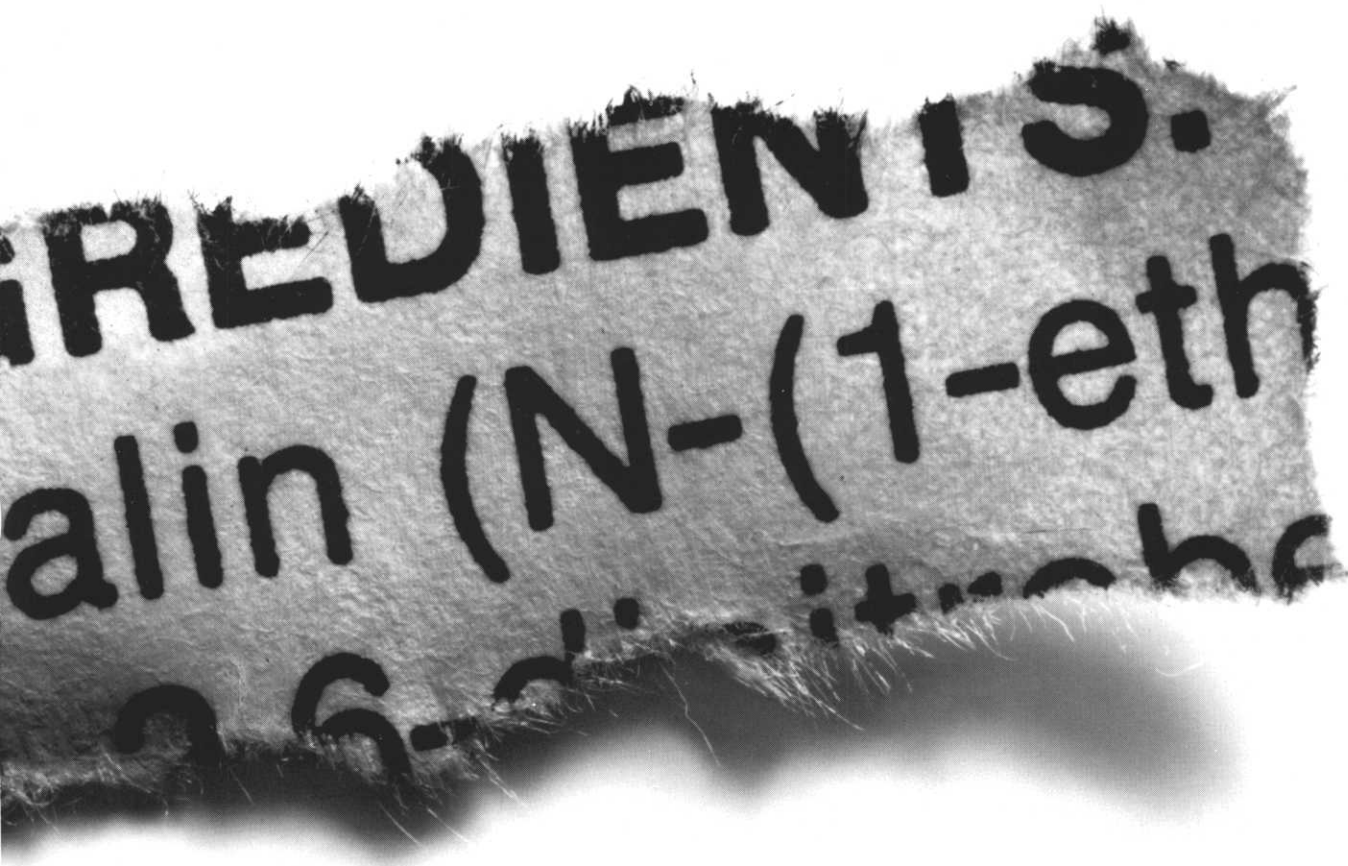
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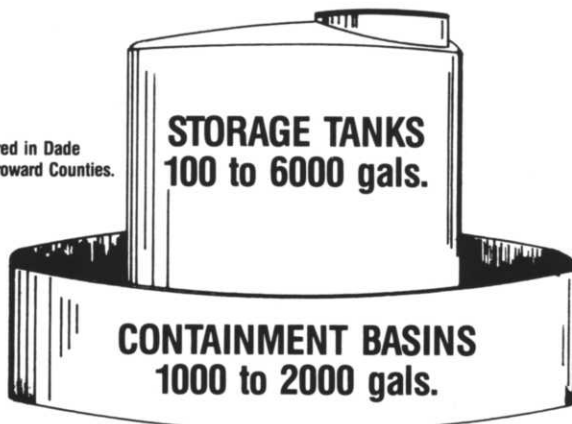
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(continued from page 45)

very striking. However, honeylocust roots remained unchanged (Figure 3). The reason for this contrast lies in the location of the tree roots. The shallow silver maple roots were attempting to grow in the zone of maximum grass roots, while the honeylocust roots remained in the bottom of the pot where grass roots were least concentrated and were thus only slightly reduced.

This effect no doubt plays an important part in the rate of establishment and subsequent growth of newly planted trees in areas of established turf. By maintaining an area void of grass and weeds, 8 to 10 feet in diameter, around newly planted trees wherever possible, their growth rate may be increased several times.

This area can be maintained by mulching, plastic and ornamental gravel, or herbicide sprays such as paraquat. Under no circumstances should the soil in this area be cultivated as many new roots would be destroyed. The first 3 growing seasons are probably the most important in aiding the tree. After that time it appears the tree can adequately compare with turf.

In the course of the experiment to measure the relationships of grass and tree roots invading a volume of soil at the same time, the effect on the tree-root development was measured. When the tree and grass roots had an equal chance to invade the soil mass, instead of the tree roots being reduced in volume by the grass, they were slightly increased (Figure 4). This further points to the conclusion that once the tree becomes established it no longer needs to be isolated from grass competition.

CONCLUSIONS

1. Established turf is not substantially affected by tree root competition for the first season following invasion.
2. Later, however, as grass roots die and are replaced by new roots the effect of competing tree roots becomes more pronounced. The tree roots slowly increase their concentration in the soil.
3. To maintain turf at a given nutritional level under conditions of root competition from trees, the amount of nitrogen applied should be increased by 30 to 50%.
4. The area influenced by an established tree extends at least 1½ times the distance from the base of the tree to the outer most branches.
5. Root development by newly planted trees is greatly influenced by the presence of established turf.
6. An area 8 to 10 feet in diameter should be maintained around all newly planted trees wherever possible.
7. Once the tree becomes established, after about 3 years, the tree roots are able to compete sufficiently well with the turf that only regular fertilization of the soil surface is needed.

¹Research Associate, Department of Ornamental Horticulture, University of Florida, Gainesville, Florida.

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IN YOUR GARDEN — POISON IVY

“Careful that’s Poison Ivy. Or is it?” An often heard phrase at this time of the year, when so many of us are out enjoying the forests, parks or even our own back yards. It is wise to know the difference between Poison Ivy and the harmless look-a-likes, advises Donna Peterson Detrick, Summer Horticulturist in Cook County.

Actually Poison Ivy is not an Ivy at all. It is a perennial plant which may vine on fences, trees or walls, may spread along the ground; or may appear as an erect shrub. The appearance of the leaves is variable as well. They may have smoothed, toothed, or lobed edges, and the leaf length may vary from 2 to 4 inches. It’s not unusual to find different appearing leaves on the same plant. But three leaflets to the compound leaf will always remain constant.

Clusters of small, greenish-white flowers appear in the spring and by the end of the summer waxy, white berries about 1/8 or 1/4 inch in diameter form. These berries have distinct lines marking the outer surface, resembling a peeled orange.

There are some plants which are easily mistaken for Poison Ivy. Virginia creeper is frequently mistaken, but it has five leaflets to its leaf and blue berries. Remember despite the size and variations of the poison ivy leaflets, there will always be three of them.

Usually, but not always, poisoning is caused by contact with some part of a bruised plant. Very small quantities of the poisonous substance called urushiol can cause severe inflammation. This non-volatile phenolic substance is found in all parts of the plant including roots and berries. The danger of poison ivy is greatest in the spring and summer when the sap is flowing but it is possible to be poisoned in fall and winter too. The toxin

is easily transferred from one object to another so that clothing, tools, and animals are capable of poisoning people. The first symptoms, itching and burning, may develop in a few hours or several days after contamination.

Often the easiest and safest method of controlling poison ivy is with herbicides. Be careful not to let the spray drift onto desirable plants or they may be killed as well. It is always best to spray any herbicide on a still day (or in the early morning) when the wind won’t carry the chemical. In places where desirable plants may be hurt by the spray, try using a long-handled brush or wick applicator.

Best results occur when the poison ivy is treated in late spring or early summer after the leaves have fully expanded. Don’t attempt to destroy poison ivy after the leaves have turned yellow.

Two similar chemicals which are particularly effective are amitrole (dry material) and amitrole-T (liquid), available under different trade names. Use two tablespoons of amitrole-T in one gallon of water, and spray all leaves thoroughly until wet. Another treatment may be required next year.

Do not try to remove the plants after treatment. They will still contain the toxins for several years. Burning the poison ivy is dangerous as well since the toxins will be released into the air and may poison people for many miles.

Though the plant may have many appearances just remember the old saying, “Leaflets three, let it be” and you should not have problems.

**James A. Fizzell, Sr. Extension Adviser
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"BEEN FARMING LONG?"

So often superintendents of smaller, lower budgeted courses must try to convince board members to upgrade fertilizers from farm grade to turf grade. The response is usually the same . . . grass is monocot like corn and farm fertilizers are good enough, even cheaper. While it is true grass and corn start out producing one seed leaf (monocotyledon) that is where the similarities end.

Technically speaking, grass belongs to the Monocotyledoneae family . . . the same family which includes onions, garlic, lilies and asparagus! Probably, if one grew a corn and turf plant side by side and allowed each to reach maturity (seed heads) the differences would be minimal with regard to growth habits.

However, that's not the real world of turf. The plant is trampled, sheared (sometimes too low), driven over, and generally abused.

A farmer grows corn for one reason—to produce a fruit. The plant is allowed to complete a life cycle from juvenile (vegetative) to reproductive (seed) stages, ending in death. A turf manager, on the other hand, strives to keep the plant juvenile, forcing the plant to constantly produce leaves and frustrating its efforts to produce a seed head (a difficult task when it comes to the black sheep of the family, *Poa annua*).

Mowing is the reason the turf plant stays juvenile. All this replacement of lost leaves takes incredible energy at the expense of root development. Corn is allowed to produce roots of 18-24". How many turf managers can boast that kind of root development?

Because of the larger leaf surface (dry matter) corn can photosynthesize and manufacture its own carbohydrates, channeling these sugars into the cob. Thinner leaves like those of grass, have it more difficult, especially when the leaf surfaces are mowed away several times a week. Fertilizing turf becomes essential to replace the carbohydrate supply lost to the mower blades.

From the very beginning the fertilizing of corn and turf is radically different. In corn fields starter fertilizers (corn poppers) are disced into the top 4" of soil. The soil is friable and can easily encourage good root development. After the plant is actively growing, the fertilizers are spread between the rows (banded) at the base of the plant. The nutrients are able to move into the soil easily and the risk of foliar burn is minimized.

Turf fertilizers are broadcast directly over the plant and the importance of selecting a low salt, low burn potential

fertilizer is essential. Below the turf, the soil has not been disced and usually is compacted from traffic. A heavy thatch layer adds to the barriers of fertilizers ever reaching the soil level.

Frequent applications of fertilizers for corn are needed all season long because of the larger leaf surface and size of the plant. Applications for turf must be timed to avoid summer stress periods. That means whatever is applied in the spring needs to sustain the plant longer even throughout the summer in some cases. However, most agricultural grade fertilizers are of a quick release nature and are readily available for a very short duration.

Nitrogen is the nutrient required in greatest quantity by turfgrass. The plant contains 3-5% nitrogen under ideal situations. Nitrogen is the necessary component in leaf production, but also provides for amino acids, protein, enzymes and chlorophyll. Chlorophyll is the substance produced and stored in the leaves which gives grass its green color.

However, high nitrogen rates produce excessive aerial shoots resulting in more frequent mowings and potential for scalping. Lush growth not only stunts the development of roots, but also suppresses lateral growth (tillering). A plant with too much nitrogen experiences depleted carbohydrate reserves, poor tolerance to heat and cold, and is less resistant to stresses.

Highly soluble fertilizers applied to turf can produce a softer leaf. This succulent leaf is very susceptible to insect and disease penetration. The stalks also do not have the rigidity needed to support a golf ball. They flop over and mat down when mowed. In addition, every mowing produces an open wound, dangerous during periods of high fungus activity. The total plant must be in a healthy state to ward off attacks.

That's another reason to choose the turf professional grades. Many have developed formulations to include the minor nutrients or trace elements (calcium, sulfur, boron, copper, manganese, zinc, molybdenum, magnesium and iron). Although the amount of these required by a plant is small, they play an important role in the plant's health.

Minors are primarily catalysts for the plant's enzyme reactions and "vital signs" such as respiration and photosynthesis. Of all the minor nutrients, it is probably iron which recedes the most. Deficient quantities of iron are evident in turf that takes on a yellow color and

continued on page 54

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responds poorly to growth.

In addition to nitrogen and the minors, potassium plays an extremely important part in a turf plant's physiology. It is involved in keeping photosynthesis (the manufacture of nutrients from sunlight) in working order. Potassium is responsible for overall hardness of a turfgrass. It thickens cell walls, making for strong support of stalks and defense against piercing insects and fungus. Thicker cell walls are also a hedge against water loss from summer stress periods and winter winds. The turf industry has realized this and many formulations now offer a higher ratio of potassium to nitrogen for just such occasions.

Corn doesn't have to live over winter and emerge in the spring green, healthy and playable. A farmer is judged on his good yield at the end of the season. If a farmer has a poor crop, he can have another chance—reseed and start over.

The turf manager is judged on a daily basis, continually throughout all seasons (How did he survive the winter? How soon can the course open? How is the turf for the Fourth of July tournament?). Poor fairways never go un-

noticed. The turf specialists can't start over. He has to use the same turf, with often no budget to overseed. He is not harvesting... he is managing.

Some voting members still insist on using the local Ag Co-Op and offer the superintendent a take it or leave it policy. In that case, the superintendent is forced to concede "some is better than none". However, employ caution with the application methods.

Because of the higher salt indexes of farm type fertilizers, insist on applications only in early spring or late fall. Be careful to choose a reputable farmer who pays strict attention to spreader or tank mix cleanliness. It has happened that residual herbicides in a tank were responsible for wiping out many fairways.

A good way to introduce members to the benefits of fertilizing with turf type formulations is to run your own experiment on a few fairways. The investment will be minimal and the members will have a chance to see the results. One good fairway is all it takes to convince the membership that the professional way is the way to go.

Fran Vallillo

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RECORDS - ARE YOURS UP TO DATE?

As golf rolls into mid-season it may be necessary for many of us to take a good look and see if we are maintaining our office files as well as our golf courses. Although we are aware of the importance of records, some items may slip by while we give our full attention to the mainstay of our business - growing grass. So, here are a few items one might want to make sure are being included in your records.

First and most important are records of fertilizer and pesticide applications. These records should include the following: **when** the material was applied, **what** the material was, **where** it was applied, **how much** was used, and finally make a short notation as to **why** the application was made at this point in time. I would like to stress the point that this information should be recorded for every fertilizer, fungicide, herbicide, or insecticide application made anywhere on the grounds of your golf course. Do not neglect to keep track of the rough, the clubhouse lawn, or an open area that is not in play.

Secondly, review your equipment maintenance records. These records might include the following items: the date any maintenance was performed, what parts were replaced or repaired, who performed the maintenance, and how long it took to complete the repair. One last item that is not as important, but may prove valuable, is making a note of who the operator was at the time of the breakdown; especially if your machinery is driven by more than one operator.

Another important area is employee work records. The superintendent should know when his employees worked, how long they were there, and ideally what jobs they performed on a daily basis.

In addition to these categories one can expand into more detailed data to be used in streamlining costs or to justify expenditures. These records would contain more specific details of work operations, such as: job performed, man hours involved, equipment used, gasoline consumption, and material costs if any.

I have touched on some very basic ideas concerning record keeping. Obviously this can be expanded upon many times over, however, the value of records as a tool in our profession should never be overlooked. Evaluation of records can aid in solving or preventing recurring problems with your turfgrass. Records can indicate the need to replace old equipment or justify purchasing time saving new machinery. Employee records are valuable in giving proper recognition and compensation to quality employees or in verifying the need to reprimand or replace one that's performing poorly. And last but not least, records are a source for answers. Answers to your problems and to those endless questions posed by your owner or members whatever the case may be.

So, invest a little time and keep your records current. You will find the benefits are as unlimited as the records you can keep.

David Behrman
Deer Creek Golf Club

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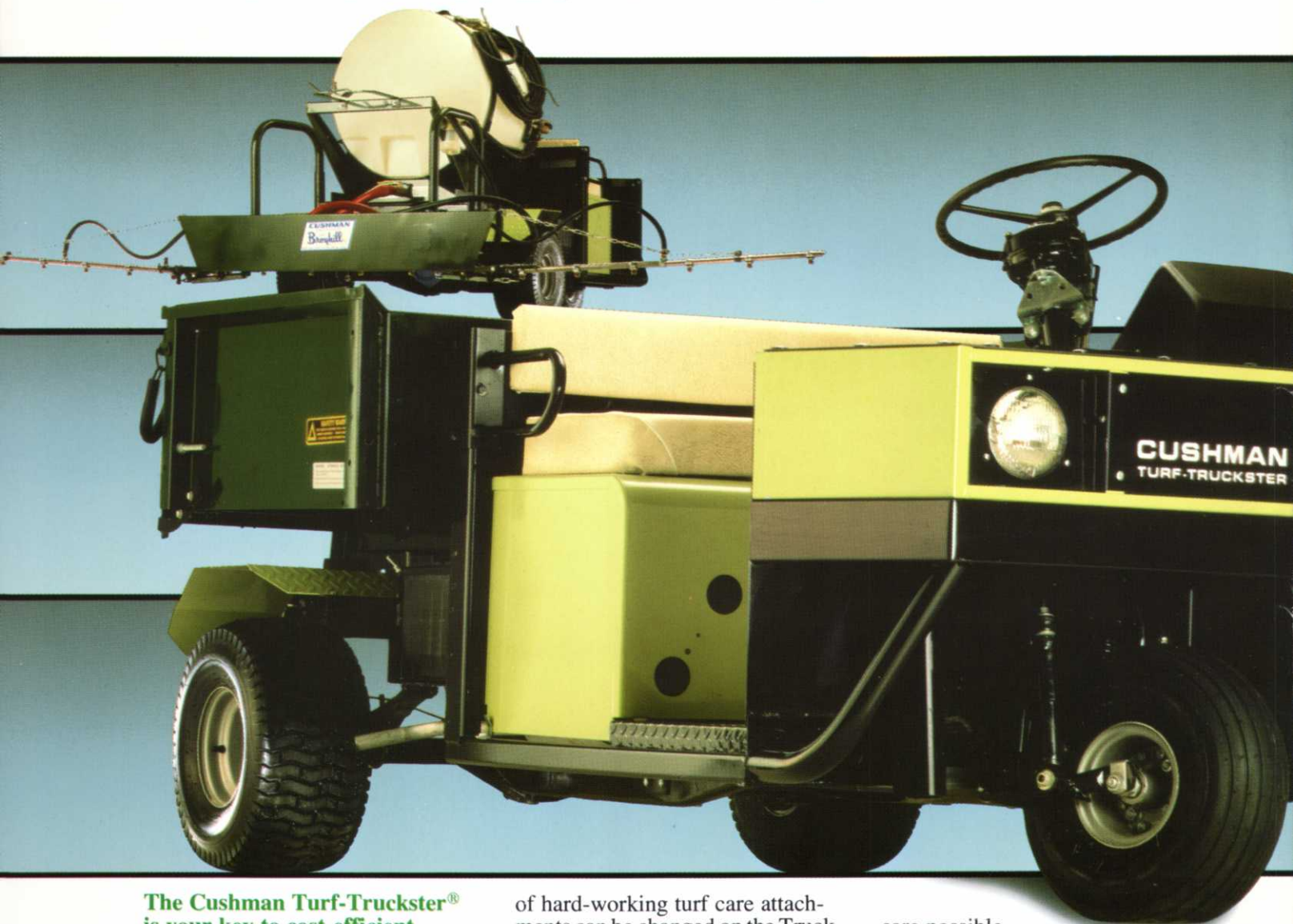
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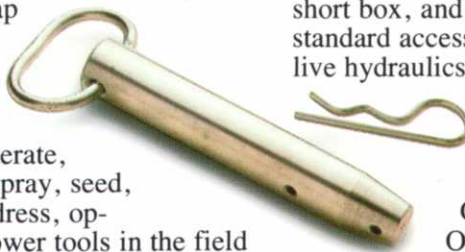
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ARE YOU ALL WET?

Bill Rhymes, Mallinckrodt, Inc., Shelby, NC

Imagine if you will, the mouth of the mighty Mississippi River as it empties into the Gulf of Mexico. While there is a main channel where most of the shipping moves, the river has broken up into many channels, all emptying into the Gulf. There is much marsh land and even completely dry land between these channels of water. Now, imagine a golf green, a garden, a flower bed or your yard, with rain or irrigation water falling on it. This water also channels down through the soil. There are wet areas, damp areas and completely dry areas.

When a soil or other growing media wets slowly or non-uniformly, it is due to the physical properties of the soil as well as the water. Hydrophobic organic components of soil and a preponderance of capillary pore space combine to restrict the rate of water movement into such soils. Water's high surface tension, due to strong cohesive forces, restricts movement into capillary pore space. The same physical forces that delay water movement into hydrophobic growing media or cause localized dry spots in turf also restrict or delay water movement out of wet spots, assuming the excess water has someplace to go.

The solution to both dry spots and wet spots is to **increase the rate of water movement** by providing a link between hydrophobic soil (or media) and hydrophilic water. Surface-active agents (surfactants) sold as soil wetting agents should do several things: 1) decrease water's surface tension; 2) facilitate water movement into dry soils; 3) remain absorbed onto the soil colloids after drying to effect rewetting; 4) facilitate drainage from areas prone to stay wet, and 5) have a wide safety margin on plant material.

Perhaps no other type product used in turf and ornamental industries causes as much confusion and misunderstanding as surfactants. Such names as detergent, dispersant, wetting or rewetting agent, penetrant, cleaner, spreading agent and emulsifier most often describe the action or result desired and are, as such, not descriptive when distinguishing between one and another. For instance, a detergent is also an effective wetting agent.

Rather than labor these names, it is sufficient for the professional turf and ornamental manager to recognize those products developed for wetting soil/artificial growth media. Have you attended any major turf or ornamental trade show recently? If so, you probably saw or were told about several wetting agents and why a particular one was "best on the market". Should you use one, and if so, which one and why? Here are some guidelines:

1. Don't buy water. Many products have very little active ingredients in them (some as low as 5%) and the rest is water. Initial cost per gallon is low, but they may not last but a few days in the soil.

2. Buy one that is all-wetting agent, i.e., 100% active ingredient. These are by far the most economical as only one or two applications are needed

per growing season.

3. Buy one that has a history of success and consistently ranks at the top in university and experiment station tests.

4. Talk to other superintendents and growers. Many are using these good products and they'll be glad to tell you why they do and their product of choice.

5. When using, soil wetting agents must be **well watered** in (using a liquid type) or uniformly mixed with the soil (using a granular type). Left on the plant surface, they can be phytotoxic.

Here are some benefits to you for using a good soil wetting agent:

1. TURF

a. Dew elimination for several days following application may aid in disease control.

b. Fewer dry spots, fewer wet spots.

c. Less hand watering to correct for dry spots, giving conservation of water and manpower.

d. Soils able to absorb moisture more rapidly during heavy precipitation.

e. Less stress on treated fairways, greens, etc. - wilting less severe.

f. Encourages stronger, healthier turf by helping water soak into and spread more evenly through the soil.

2. ORNAMENTALS

a. Prevents plant loss under dry or wet weather conditions.

b. Treated soils (or soilless mixes) wet rapidly - less runoff.

c. Wets and drains the root zone uniformly.

Lastly, we generally think of the major benefit of using a good soil wetting agent as better use of available water. This does happen. However, of equal or perhaps greater benefit is that other chemical soil additives are uniformly distributed for maximum efficiency. Remember the opening paragraph about the Mississippi River and the dry areas between the channels? Our wetting agent has done away with these dry areas in our soils. Therefore, our fertilizer, soil fungicides, soil insecticides, soil herbicides, etc., are spread out evenly, and the plant root system gets a uniform "dose" of not only water but these expensive chemicals as well.

Wetting agents don't cost you money! They make money for you. Your turf and plants have responded better to all soil additives; hence, they are healthier. You have done a better job, in less time, and have saved money and manpower in many ways. You are more secure as a professional. You find you are not "all wet", just "wet enough".

Carolinas Newsletter

A critical component in plant development, micronutrients offer a return on investment... but they must be well managed.

By Carl P. Spiva

Why micronutrients? Because they are the key to triggering most growth activity in plants. Without micronutrients as a "sparkplug," the enzyme system in plants would simply be an inert mass of protein.

DISTRIBUTION

Once soil begins to support plant life, the top foot begins to accumulate micronutrients in a slow, steady manner. The relative concentrations of these appear in Table 1. How does this occur? Accumulation is a result of a certain process:

First, plants grow and produce extensive root systems that extract both micro- and macronutrients from a depth of several feet, depending upon the kind of plant.

Second, extracted nutrients are routed to shoots and some are retained in the roots as storage.

Third, the growth cycle is completed and plant residues are returned to the soil (minus harvested portions).

Table 1
RELATIVE CONCENTRATION
IN PLANTS

Nutrient	Compared To Mo
Molybdenum	1
Copper	100
Zinc	300
Manganese	1,000
Iron	2,000
Boron	2,000
Chlorine	3,000
Sulfur	30,000
Phosphorus	60,000
Magnesium	80,000
Calcium	125,000
Potassium	250,000
Nitrogen	1,000,000
Oxygen	30,000,000
Carbon	40,000,000
Hydrogen	60,000,000

Fourth, crop residues are converted to inorganic salts from organic matter and ionization makes micronutrient cations subject to adsorption on the soil exchange complex where they are immobile. This is the reason that recently leveled fields may have micronutrient deficiencies.

This phenomenon is not restricted to just micronutrient cations. Macronutrient cations share the same fate.

Tillage layer soil sampling is often satisfactory for determining soil micronutrient levels, even for native plants existing on rainfall as their only source of moisture.

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FROM THE PUBLISHER



Is it the summer workload, or is there really disenchantment in the ranks? Recently I have had a number of calls from golf course superintendents and sports turf managers. They said their summer hours were playing havoc with their family lives. They felt unappreciated and lacking in the respect they thought they deserved. They lamented that they were underpaid and overworked.

After listening to the gripes for a while, I can see their point of view. It is one thing to own your own business and put in long hours. Hopefully it will be very profitable and you will reap the rewards. It's quite another to work for a corporation or municipality on a fixed salary.

Will the talented people leave for greener pastures? Such moves don't happen overnight; I'm concerned. Are we beginning to see an exodus of professionals from the industry? But if, in fact, disenchantment has set in, can those moves they evolve slowly into action. But if, in fact, disenchantment has set in, can those moves be far behind?

I look at a multi-million-dollar golf course or sports complex as I would view the physical plant at any large institution. It would be absurd to think that anyone would erect a 20-story building and not consider hiring a professional plant engineer to run the place. These qualified people would receive a salary commensurate with the size of the property they have to manage. They would also receive the respect their position deserves.

City managers, school administrators, presidents of golf clubs, and greens committee-men need to take a hard look at the professional turf manager. He has been entrusted with complete responsibility for millions of dollars' worth of land-scaped property. Accordingly, his superiors need to respect the vital position a superintendent holds—and come up with a compensation package on a level with those enjoyed by other physical-plant managers.

Equally as important, they can't expect him to put in 16-hour days, seven days a week, or burnout will become a major problem.

As more sports complexes and golf courses come on line, the demand for managerial skills will increase. If we lose these talented people they will be very difficult to replace. Perhaps it's because there is a shortage of top professionals that we are beginning to see more contractors being used in areas that were once the exclusive domain of the golf course superintendent and the sports turf manager. New companies are sprouting up, offering turf-management services on a contract basis.

Organizations like American Golf Corporation and Servicemaster offer programs on contract. Some sports arenas and golf courses use contractors for a complete renovation and rebuild. Others contract out the entire maintenance. In either case, we are seeing another niche being carved out. I am sure that some of those managers who left the clubs are now involved in these new enterprises.

This could be a way to go for professionals who experience burnout at one complex. The idea of being an independent businessman may appeal to them. There are pitfalls, learn how to use their labor corps most effectively and efficiently, because every wasted man-hour will cost them money.

I do feel that many of you turf professionals have most of the skills to begin with. Certainly you have the field skills; otherwise you wouldn't be in your present position. All of you develop budgets and work within those budgets, so many of the necessary business skills are already in place.

I believe our industry is changing, albeit slowly. I feel that the schooling and expertise you have developed in the field will put you in a position of strength in the months and years to come.

Now—how do we get the corporate executives and the bureaucrats to appreciate your very special talents?

A handwritten signature in black ink, which appears to read "Denne Goldstein". The signature is fluid and cursive, written in the bottom right corner of the page.

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