



The Florida Green

Fall 1988

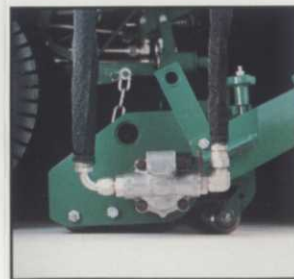


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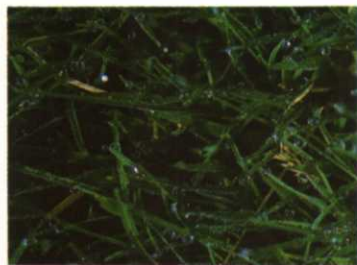
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THE FLORIDA GREEN

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PAGE 12



PAGE 20



PAGE 32



PAGE 62

- 8** PRESIDENT'S MESSAGE
- 10** THANK YOU FLORIDA GREEN
Joan Wagner
- 12** DEW IS NOT DEW
Tom Mascaro
- 20** BLACK DIAMOND RANCH
Larry Kieffer
- 32** POA ANNUA GOLF CLASSIC
George & Charlotte Jones
- 37** A STEP BACK IN TIME
- 39** 1988 POA ANNUA PICTORIAL
- 46** CLASSIFICATION OF TURFGRASS FUNGICIDES
Monica Elliott Juhnke
- 53** FUNGICIDE TIPS FROM DR. COUCH
Mark Jarrell
- 55** PEST CONTROL AND THE SUPERINTENDENT
Russ Mitchell
- 58** THE FEET THAT MOVE THE CROW
George & Charlotte Jones
- 62** A SUCCESSFUL 12th ANNUAL CROW FOOT OPEN
George & Charlotte Jones
- 68** 1988 CROW FOOT SPONSORS LIST
- 70** CROW FOOT OPEN PICTORIAL
- 73** FUNGUS PRODUCTS FOR NEMATODE CONTROL
- 83** OFF THE FAIRWAY
Bob Husky



ABOUT OUR COVER

Black Diamond Ranch, view from green No. 14, looking back over No. 15 fairway; James Lerner, Golf Course Manager.

The Florida Green

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President's Message

This issue contains interesting articles on both the Poa Annua Classic which is sponsored by our Everglades chapter and the Crowfoot Open which is sponsored by our Central Florida chapter. You should be receiving this issue during or just after the Florida Turfgrass Association Conference and Show. These events along with the GCSAA International Golf Course Conference and Show are the four times during the year when Florida golf course superintendents are able to get out together to attend seminars, discuss common and unusual problems, and share fellowship with their peers. These events also give spouses the opportunity to meet and discuss some of the eccentricities of being married to a golf course superintendent. Nearly everyone who attends these events returns home feeling better about their profession and with a new idea or two about how they can improve their golf course.

Unfortunately, many of the golf course superintendents who are not able to attend these events are the ones who could benefit most by being there. There are many excuses given for non-participation.

- Many superintendents or their employers feel they are too busy to attend.
- Some clubs are not willing to pay their superintendent's expenses to attend these events.
- Some courses are in remote areas that make it difficult for superintendents to participate in their monthly local chapter meetings.
- Some clubs are not willing to pay membership dues to the FGCSA, FTGA, and GCSAA.

I have had the opportunity to attend all of these events for the past few years and I would like to assure those superintendents who have not been able to attend and the managers, greens committee chairmen, or owners who have not encouraged their superintendent to attend that they are missing an excellent opportunity to improve themselves or their superintendents and ultimately their golf courses.

It is too late to attend any of these events this year but there is plenty of time to plan for the future. As budgets are being formed for the 1989 fiscal year be sure to include membership dues to the FGCSA, FTGA, and GCSAA; and plan to include expenses to our state events and the national. Keep in mind that if you become a new member of the GCSAA this year you can attend the conference for free.

A handwritten signature in cursive script that reads "Cecil C. Johnston".

Cecil C. Johnston

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Thank You . . . Florida Green

July 16, 1988

Dear Dan,

Thank you for the beautiful memorial to my Bill in the Spring issue of The Florida Green. Please convey my appreciation to your brother, George, on his very well done article. It was my pleasure to meet and get to know him.

Through the years, I've been proud of you and your staff, at National, when you always took top honors for the fine publication. Know I speak for many when I thank you for your time, talent and hard work.

Our family really appreciates your generosity in sending us an ample supply of magazines and the beautifully framed cover spread. It will always be cherished. Can't tell you how much it meant to Bill's parents. They called me right after receiving the copy I sent them.

Wishing all of you continued success in all of your endeavors.

Thanks again,

Love,
Joan

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“Dew Is Not Dew”

by TOM MASCARO

Dew is not dew. It is exudated liquid found along the edges of the grass blades.

THE beautiful crystal-clear droplets that you see on a turf-grass leaf in the early morning is not “Dew”. They are droplets of exudated liquid being pumped out of the grass plant. Exudate is pumped out of the grass blades through its hydathodes. The hydathodes are located along the edges of the leaves.

Exudate is easy to see with the aid of a simple magnifying glass. You will see the precise location of each exudated droplet along the edges of both sides of the leaf, and a large droplet at the tip of the leaf, if it has been cut off. This liquid is crystal clear. It looks like a fine piece of jewelry.

Each droplet hides potency in its beauty. This liquid is not harmless water of condensation that we call dew. Dew is moisture from the air that condenses on a cold surface. Dew and exudate are completely different in composition. Dew is water of condensation and exudate is

plant sap which is pumped out of the plant through the hydathodes. Dew can sometimes be found as a whiteish coating on the leaf surface. Exudate is found primarily along the edges of the leaf.

Dew is inert, because it is pure water of condensation. Exudate, on the other hand, contains all of the elements that are present in the plant sap, such as nitrogen, phosphorous, potash, calcium, magnesium and trace elements. With these salts, we can also find sugars, such as glutamine.

“Dew Is Not Dew”. When the grass is covered with millions of droplets in the early morning hours, what we have been calling “Dew” is actually exudated liquid.

The presence of salts of the elements contained in the plant sap can be demonstrated in a number of ways. With a clean glass or paper cup you can scoop up the exudate and pour it into a clean container. A clean sponge will also do.



Exudate accumulates during the night and early morning hours.



Dew is water of condensation, and forms on cold surfaces.

The concentration of solids contained in the exudate will depend upon the fertility of the soil, and how much is available to the plant.

Pour some exudate into a clean petri dish or saucer. Allow the water to evaporate. You may have to fill the dish a number of times, each time allowing the water to evaporate. When all of the water is gone, crystals of the salts present in the exudate will form, and can be observed closely with a low power magnifying glass.

If you pour a small amount of exudate on a piece of window glass, the salts will etch marks on the surface. Fill a glass with exudate from a well fertilized green and pour it on one spot of grass, and you will get a severe chemical burn.

Try pouring a small amount of exudate in the palm of your hand and allow it to dry. Feel how sticky it is.

Surprisingly, very little research has been done on the subject of exudate liquids. Dr. Randy McCoy while at Oklahoma State University, wrote his thesis on how an extract from thatch could kill seedlings.

He gathered clean thatch from a well fertilized green and placed it in a clean glass container. He then filled the container with hot water. After allowing this to seep for a while, he poured off the water, which resembled a strong tea. Using this extract from thatch, he found that he could kill any plant seedlings by simply watering them with it.

Other experiments have shown that you can kill not only seedlings, but any young plant. This extract will also burn leaves and stems of mature plants as well.

Pour some pure exudate in a petri dish or small clean saucer. In order to gather pure, uncontaminated exudate, use a glass tube or clean soda straw. Touch the end of the tube to the exudated droplet and it will be drawn into the tube by capillary action. After gathering a number of droplets in this manner, blow the liquid into your clean container. Cover the container and store in a warm place. Observe the fungi that germinate and grow in the pure exudate. Since fungi have no chlorophyll, they can only grow in a medium that has an abundant supply of ready made food. Exudated liquid is a perfect food for any fungal spores. These simple basic experiments

demonstrate how exudate and turfgrass management practices can have a profound affect upon the health and growth of the turf.

When we take a glass of exudate, and pour it in one spot, we find that we can burn the turf. Great care must be exercised in the selection of fertilizer, especially its nitrogen content, and its rate of availability. Nitrogen that is quickly available will move into the plant cells and can be found in the exudate. This is the reason that quickly available nitrogen fertilizers must be applied with care. As we know, when it is applied it must be quickly watered in or it will burn the grass leaves and stems. When a lot of nitrogen is contained in the plant cells, it will move through the leaves and out of the plant as exudate. This falls on the lower leaves and stems, causing the same kind of chemical burn.

A slow release nitrogen fertilizer, either organic or inorganic, releases slowly and the exudate will have only small amounts of this nutrient at any one time. The danger of chemical burn at the time of application and in the exudate is greatly diminished.

Now, lets look at thatch and the experiments that Dr. Randy McCoy made. We must assume that the thatch, acting like a sponge, soaked up the high nitrogen exudates. Minimal surface watering allowed the salt concentration to build up to a point where the thatch literally changed into a potentially dangerous material. A torrential rain storm and high temperatures could release enough salts to cause a severe chemical burn. Another assumption would be that disease fungi would immediately begin to flourish in dying and dead grass's and therefore should be considered the secondary cause of the grass's demise. Obviously we need a great deal of research in this area of turfgrass culture.

What about Dr. Robert Endo's research, where he demonstrated that fungal spores that germinated in water grew very slowly, while spores that germinated in droplets of exudate grew very rapidly. This research certainly demonstrated many things. Especially important to the golf course superintendent, it demonstrated why early morning syringing is important, because it dilutes the accumulated exudate by washing it off of the leaves and back into the soil.



Exudate can kill grass when salt concentration is high.



Close up of leaves and stems burned by exudate.



Extracts from thatch can kill seedlings. (Dr. Randy McCoy)



Fungal spores germinate and grow rapidly from exudate droplets. (Note growth of mycellium from exudated droplet, lower centre of picture Dr. Endo.)

We look at Dr. Mike Britton's research and his graphic illustrations of how fungal spores germinate slowly in water, while spores germinated in water with sugar added grew more rapidly. When he added glutamine to a solution, spores germinated quickly and the mycellium from these spores grew many times faster. He found that glutamine is one of the ingredients in exudated liquid.

The presence of glutamine is known to every golfer, because his hands get sticky when he plays while the so called "Dew" is on the turf. The presence of glutamine also accounts for the fact that clippings accumulate on the mowers. Syringing the turf when exudate is present in the early morning will quickly wash this material back into the soil. Clean water dries more rapidly than exudate, therefore less clippings adhere to the mowers. It is interesting to note that over forty years ago, Dr. Fred Grau, after making a survey of member clubs, found that greenkeepers (as they were called then) that practiced early morning watering had far less disease than those that didn't. Today we know that it was not the time of watering, but that the washing off of the exudate minimised the incidence of disease. Golf course superintendents have always been a very important part of turfgrass research. In practicing their science and art, they found many ways to combat problems that seemed to have no answers.

To mention a few, Carl Bretzlaf, Golf Course Superintendent of Meridian Hills, Indianapolis, and past president of the GCSAA many years ago, had a reputation of having little or no disease problems on his golf greens. His secret was that he had a home made rig that consisted of two iron wheels, and five layers of burlap bags that was pushed over the greens—to dry them off! O.J. Noer, agronomist for the city of Milwaukee, always preached that "mold never grows on dry bread" and on that basis Carl dried his greens. His men would then syringe the grass with water and then mow. What he was doing was physically removing the exudate, washing what remained on the grass back into the soil and then mowing.

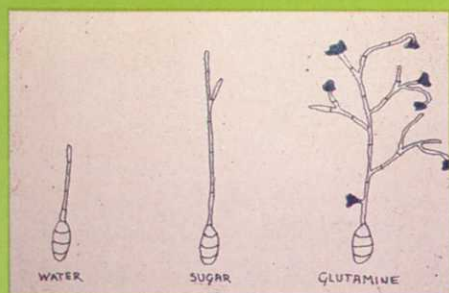
At Merion Golf Club, Ardmore, Pennsylvania, superintendent Joseph Valentine, in addition to syringing the greens, would, during periods of stress apply a little hydrated lime when the grass was dry and then wash it in. He always felt that the pH in the thatch layer was important in relation to disease incidence. He also believed in frequent light topdressing to control thatch and disease. Years later, Dr. Ralph Engle's research at Rutgers, New Jersey revealed that there was a correlation between pH and each disease organism that effects turfgrasses. Here again we see the need for basic research to explore the pH of thatch and exudate.

We need research to update the research of Dr. J. K. Wilson, Cornell University, New York, that he performed in 1923. (Sixty-four years ago). Dr. Wilson was walking across campus early one morning and noticed that there was more "Dew" on some areas of the lawns than others. He suspected that it was due to soil moisture. However, when analyzed the moisture content of the soils, he found, surprisingly, it was the same in the light "dew areas" and the "heavy dew" areas.

These results piqued his curiosity, so he decided to investigate. His research disclosed that the droplets that he found on the grass blades were not "dew" at all. It was liquid pumped out of the leaves.

This liquid, first found and reported in Egypt in 1893 was referred to as guttated water. Guttated water and exudated water are one and the same, and can be found reported either way in the literature.

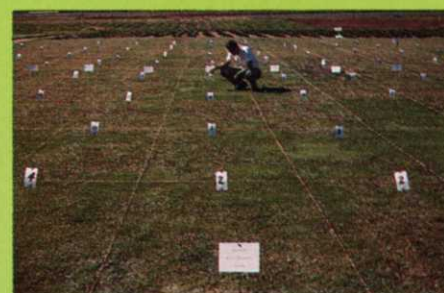
Dr. Wilson also made another interesting discovery. He found that all grasses do not exudate at the same rate. He classified each of the turfgrasses in the following order: the Bentgrasses, Bermudagrasses, and Poa Annua were prolific pumpers of exudated fluid. The Bluegrasses were medium pumpers (except Poa Annua). We can also include St. Augustinegrasses as medium pumpers. The Fescuegrasses, Zoysiagrasses and the ryegrasses were the low pumpers.



Germination of fungus spores in various solutions. Note differences in the development of mycellium and appressorium in the same time frame. (Dr. Britton)



Early morning syringing has proven to be a sound practice. If exudated liquid is diluted, its effects are minimised. (Dr. Fred Grau)



Different species of turfgrasses exudate at different rates.



Bentgrasses and Poa Annua are prolific pumpers of exudate. (J.K. Wilson)



Bermudagrasses also exudate at a high rate. (J.K. Wilson)



The bluegrasses, excluding Poa Annua, are medium pumpers of exudate. (J.K. Wilson)

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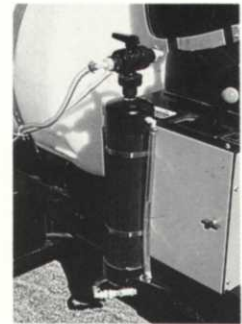
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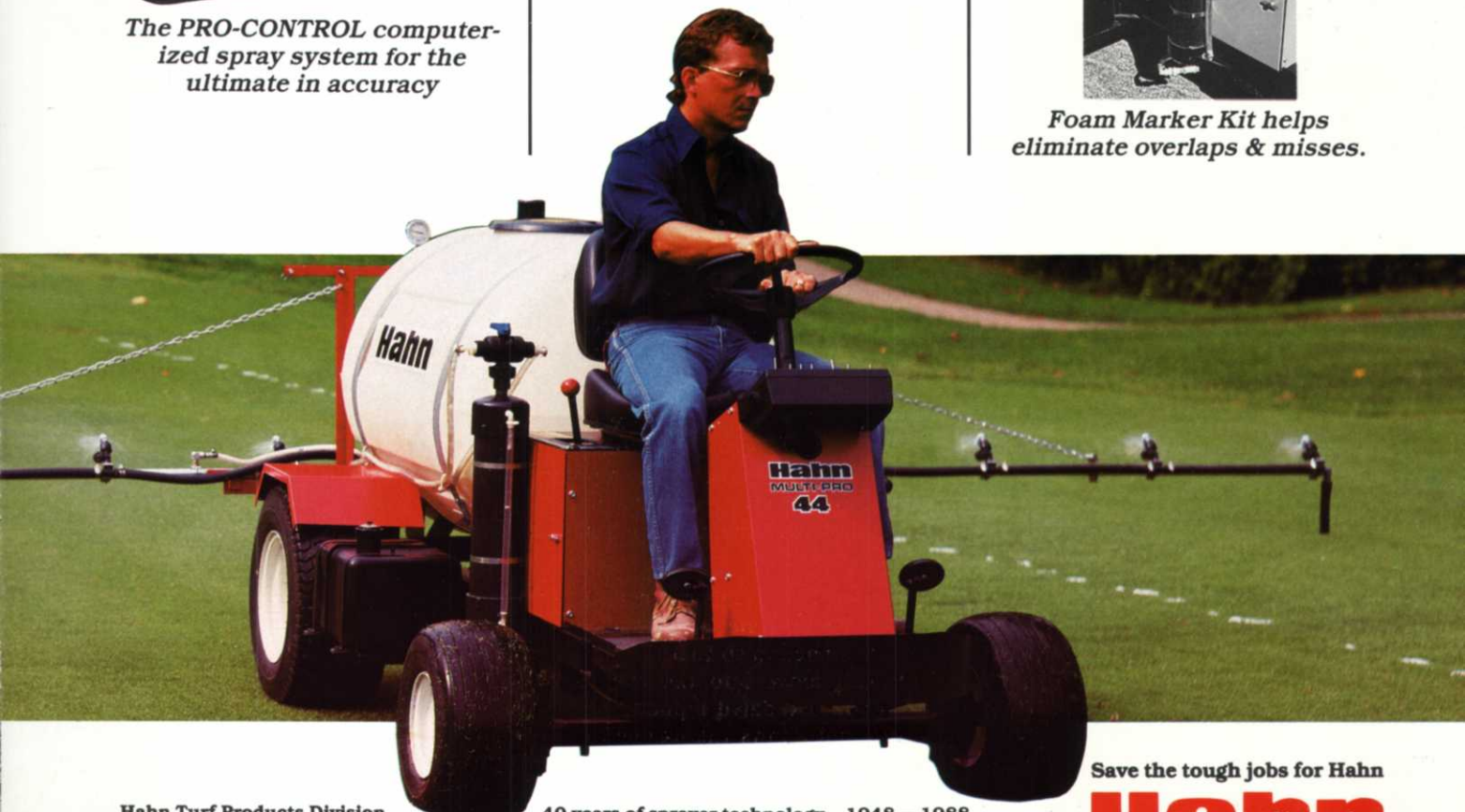
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Many greens have been lost for no apparent reason.

We have all seen these differences in the amount of exudate, when we look at an area of mixed grasses in the early morning. Can we not draw the conclusion from Dr. Wilson's work that there must be a correlation between grass species, exudate and diseases on turfgrass areas? More exudate means more problems. It is obvious that more diseases occur on Bentgrasses, Bermudagrasses, and Poa Annua. The Bluegrasses, excluding Poa Annua, have less diseases than the foregoing species. Zoysiagrasses, Fescuegrasses and Ryegrasses have little or no problems with diseases.

After sixty-five years, it seems that we have a great deal of research to catch up on. Golf course superintendents cannot do this research alone.

When we lose grass for some unknown reason, we need to find the answers. When 18 greens are lost overnight, we need to take a hard look at our management practices and an even harder look at research. We need research that gives us answers to problems and not just cures.

Lets briefly review what we have discussed. First, lets look closely at exudated water. It is a natural function of the plant to force this liquid out when it imbibes too much water. This, in a few words is a very simplistic answer to a complicated function that needs answers.

As the exudate forms and falls to the lower leaves and stems, new droplets are formed. No one knows how much exudate forms under conditions of high or low humidity, or at what temperature. No one knows when the chemical concentration is critical. On windy nights, when exudate evaporates, do the residual salts remain to cause problems later? How much sugar and glutamines are formed? Does the nitrogen in the exudate become nitrate, and upon exposure to the air become nitrite? This is only a short list of questions that need answers.

In the meantime, what do we do about dew and exudate? The answer for the present is to modify management practices to recognize that exudate plays an important role, especially during periods of stress.

Until money is found from sources other than industry for needed research, we might want to look at turfgrass management in a different way. A popular cliché is "when you look at a doughnut, don't look at the hole, look at the whole doughnut".

Starting with the management of the soil, we concentrate on the need to relieve compaction so that air, and nutrients can move into the root zone. What about exudated liquid. An open porous soil allows the exudate to be diluted and washed down into the soil to



The fescue grasses, ryegrasses and zoysiagrasses were classified as low pumpers of exudate. (J.K. Wilson)



Grass dies overnight. During periods of stress, temperatures rise to dangerous levels. Reason for loss of 18 greens — unknown.



Soil must be open and porous, so that exudate can be washed down into the soil.

be recycled. Aerification, therefore is essential to minimize or eliminate high concentration of salts at the soil surface.

Next, lets look at the grass species. If the grass that we are using, exudates at a high rate, then we must manage it differently than a grass that exudates at a low rate.

What about our irrigation practices? Dilution at the right time is one of the keys to control exudate. Irrigation can be done anytime, but careful syringing in the morning to dilute and wash off the exudate, and get it down into the soil is vital. If the exudate is washed down into the thatch or soil surface without dilution, problems may occur.

Now, lets turn to fertilization. We have heard the expression, "nitrogen is nitrogen, no matter what the source". This may be true but if one is growing grass on a golf green, or any intensive use



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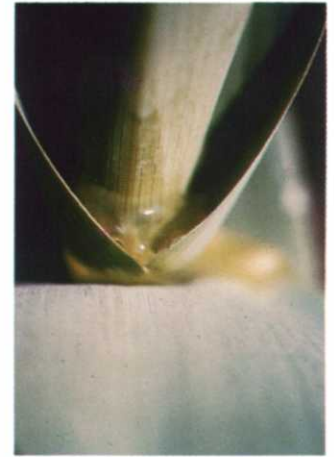
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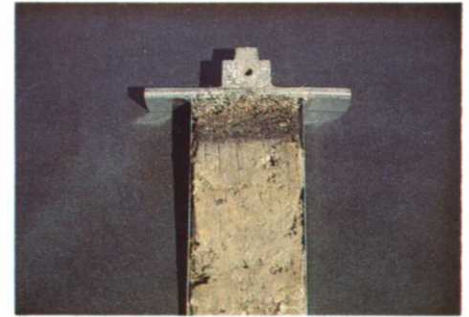
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Exudated water is a beautiful natural function of the grass plant. Poets have called it magic rain. Others will call it dew. The turfgrass manager recognizes nature's recycling process, and uses it to produce better turf.



When syringing, apply enough water to wash exudate out of pockets where leaf joins stem. Poling or preventing dew formation should not be substituted for a two minute irrigation syringin cycle.



Heavy thatch layers can become sponges that absorb and hold exudated liquid.

Acknowledgements:

Dr. Randy McCoy, Oklahoma State University
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Dr. Fred V. Grau, USGA Green section
Dr. O.J. Noer, City of Milwaukee
Dr. George N. Hoffer, Purdue University
All photographs by Author

area, more emphasis should be placed on how quickly the nitrogen moves into the plant and out with the exudate, than the source of nitrogen.

Fast release nitrogens must be applied frequently and in light amounts. This will minimize the concentration of this element in the plant tissue and exudate. Slow release nitrogen sources are safer, and result in lower concentrations in the tissue and exudate. Care must be exercised with some slow release materials, in that a portion of the nitrogen is quickly water soluble when first applied.

What do we know about the salt index of nutrients for turfgrasses? We know that more research is needed in this area. Muriate of potash, for instance has a salt index of 116, while sulphate of potash has

a salt index of 46, which do we use and when? We know that the higher the salts in a soil, the higher the need for water. On intensive use areas, are we watering too much because of our selection of nutrients that have a high salt index? We also know that exudated water will contain salts in relation to their availability to the plant cells.

What about pH levels in the exudated liquid? Is it affected by acidifying fertilizers? If they are, can these differences in pH be found in the soil and the plant cells? If they are, then can we predict which pathogen will affect the grass plant.?

Lastly, we look at management practices. We have learned that early morning syringing is a sound practice. Almost

everything we do in turfgrass management comes into play when we think in terms of biological culture. These, of course, include aerification, verticutting, height and frequency of cut, controlled nutrient applications, soil profile temperatures, pH at all levels of the soil horizon, topdressing, irrigation practices, etc.

We know that we can rely on some proven research, some theory, and lots of green thumb hands on experience to keep grass alive during periods of stress.

We also desperately need more meaningful research to separate dew from exudate. As we get the answers, turfgrass management will become more biological and cultural than curative. ■

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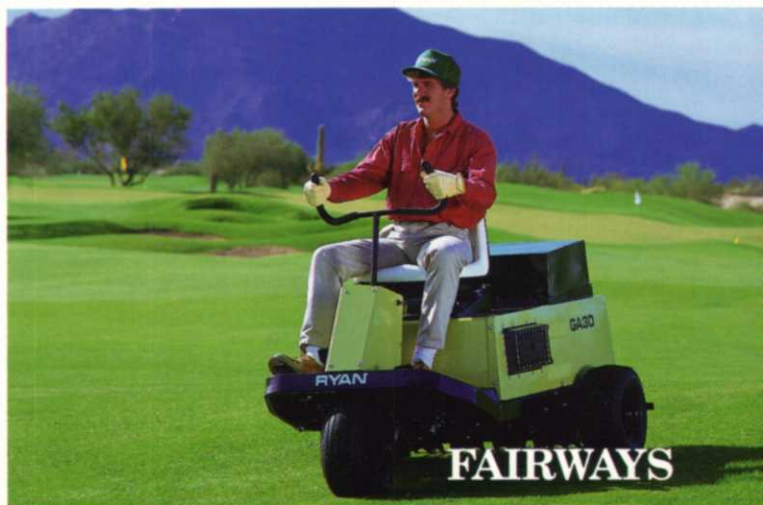
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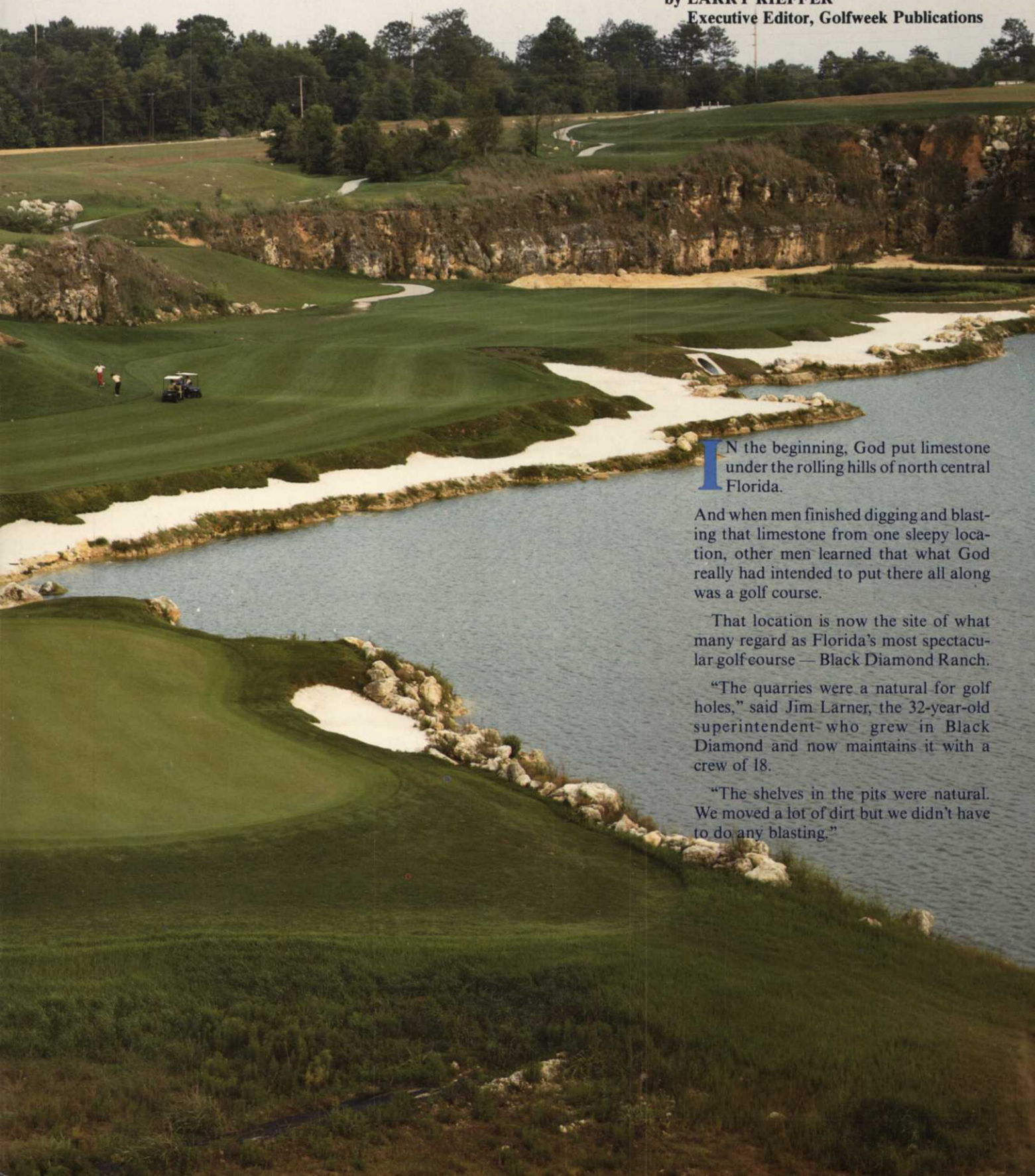


Hole No. 15, 371 yard, par 4.

Black Diamond Ranch God Provided The Rough

Man Carved Out A Diamond

by LARRY KIEFFER
Executive Editor, Golfweek Publications



IN the beginning, God put limestone under the rolling hills of north central Florida.

And when men finished digging and blasting that limestone from one sleepy location, other men learned that what God really had intended to put there all along was a golf course.

That location is now the site of what many regard as Florida's most spectacular golf course — Black Diamond Ranch.

“The quarries were a natural for golf holes,” said Jim Larner, the 32-year-old superintendent who grew in Black Diamond and now maintains it with a crew of 18.

“The shelves in the pits were natural. We moved a lot of dirt but we didn't have to do any blasting.”



Good luck at the chasm between tee and green on No. 13.

Mounting the stairs to the 177-yard pro tees of No. 13, the first of five Quarry Holes.

“The key to the whole project was the quarries,” said Geoff Greene, president of Gulf to Lakes Corporation, which will develop Black Diamond’s 1200 acres of rolling timberland and sand scrub into 599 homesites and two golf courses over the next 10 years.

“The quarries were very spectacular before we ever started so they had to be done in such a way that the course wasn’t gimmicky. We wanted it to be a very top-rated golf course and it is possible to over-kill with one feature.

“Finding the right architect to do the right thing with those quarries was the key.”

After interviewing nearly a dozen — the list of candidates reads like a “Who’s Who of Golf Course Architecture” — Greene and his boss, Gulf to Lakes owner Stan Olsen, settled on Tom Fazio.

“Tom is a true architect with a tremendous respect for nature,” Greene said. “Too many so called architects are really players or developers at heart but Tom Fazio is a true architect. He’s done a miraculous job in utilizing the quarries but keeping the overall effect natural.” Fazio worked five holes — Nos. 13 through 17 — in and around the two quarries.

“Vertical drops of up to 100 feet, large boulders, wild flowers, cliffs and crystal

BLACK DIAMOND RANCH GC

FACTS & FIGURES

LOCATION:	40 miles southwest of Ocala. On Route 491, about a mile north of Lecanto, which is on SR 44 between Inverness and Crystal River.
DEVELOPER:	Gulf to Lakes Corporation, Crystal River, Fla.
MANAGEMENT:	Stan Olsen, principal; Geoff Greene, president; Terry LaGree, general manager; Jim Larner, superintendent.
SIZE & SCOPE:	120 acres comprising 599 single-family homesites and two golf courses, clubhouse and full package of country club amenities when built out in 10 years.
PLAYING POLICIES:	Strictly private; members must be resident property-owners; course will be turned over to members when community is completely built out.
COURSE ARCHITECT:	Tom Fazio
CONTRACTORS:	Fazio Associates did major earth moving; Central Florida Turf did irrigation, final grading and planting.
TERRAIN:	Rolling to moderately hilly. Five holes built around two retired limestone quarries offering elevation changes of more than 100 feet.
SOIL:	Sand and clay
CHRONOLOGY:	First dirt moved January 1987; sprigging completed August 27, 1987; course opened Dec. 5, 1987.

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Hole No. 15, 371 yard, par 4, looking from behind the green down the fairway toward the tee. Inset, No. 15 from the pro tee.



clear Black Diamond Lake make these holes some of the most exciting golf to be found," writes Fazio in the course's yardage book.

"This unique piece of land offers spectacular, panoramic views unheard of in the Southeast."

Strong words for a man who lives not far from the Blue Ridge Parkway in the North Carolina mountains.

Although they are spectacular, the five Quarry Holes are not the most difficult on the course. They offer long carries over water and unplayable wasteland from the back tees, but the less venturesome can play all five on the ground all the way.

First and foremost, Black Diamond Ranch is a members' course.

The quarries were not the only developmental challenges presented by the site.

"This golf course is one of the biggest challenges any superintendent could face," says Lerner, who started as a golf course mechanic in his native Sarasota while still a student at Riverview High School.

"We sit right on top of the Floridian Aquifer. Except for the quarry pond (Black Diamond Lake) and a small irrigation pond, there is no water on the course."

Because there is no place to put storm runoff, each hole had to be built to retain its own water, Lerner said. The percula-

COURSE LENGTH:	5321-7159 yards. Course rating and Slope not yet available.
TEES:	At least four and as many as seven tees available for each hole. Turf: 328 bermudagrass cut to 3/8 inch; overseeded in winter with fiesta.
FAIRWAYS:	Rolling and severely banked and undulated. Turf: 419 bermudagrass cut to 1/2 inch; overseeded in winter with derby.
GREENS:	Average 8,800 square feet (range 3,000-10,000). Stimpmeter reading not available. Turf: Tifdwarf bermudagrass cut to 5/32 inch; overseeded in winter with a mixture of Penncross bentgrass and saber.
ROUGHS:	Bermudagrass within coverage area of twin-row irrigation system is cut to about 1-1/4 inches; remainder is native sand scrub, predominantly wiregrass.
WATER:	Only two bodies of water come into play: an irrigation pond on No. 9 and Black Diamond Lake (quarry pond Nos. 14 and 15).
OTHER HAZARDS:	96 bunkers filled with DOT sand; transitional grasses are centipede and zoysia. Mounds sodded with zoysia.
DRAINAGE:	Each hole, some with drainage retention areas, must hold 100 percent of its own water at a percolation rate of 1/2-inch per hour or slower.
MAINTENANCE STAFF:	18 on golf course, including one assistant superintendent and two mechanics.
EQUIPMENT:	Toro Varitime, irrigation control, Toro 450D fairway mower, Toro greensmower, John Deere 856 4-wheel drive with 5-gang pull unit, 4 John Deere tractors, 10 Flymos built from spare parts.

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Hole No. 16, 218 yard par 3.



Hole No. 13, 183 yard par 3.

tion rate is limited to an inch every two hours, meaning several holes acquired drainage retention areas just off the fairway.


The DRAs, however, do not look out of place. Except for the playing areas, all of Black of Diamond has been left pretty much in its natural state.

“That’s a big thing with Fazio,” Lerner said. “If it’s not a tee box, a fairway or a green, then leave it alone. He likes things natural.”

Bermudagrass extends to the coverage area of the twin-row irrigation system, often defined by rows of trees. Beyond that, the dominant vegetation is wiregrass and palmetto scrub. Except on one hole, at least 100 feet of natural wasteland separates the fairways from the rear lot lines.

Drainage is not the only problem at Black Diamond caused by water. Particularly in the quarries, the fairways are severely banked and undulated. Torrential downpours during the grow-in period caused considerable erosion.

“But on the whole, I would have predicted that we would have had more problems here than we did,” Lerner said. “I thought sure we would have a problem with air circulation and fungus on those

- 
- A stylized illustration of a green gator, shown from the side, with its head at the top left and its body curving downwards towards the bottom right. The gator is rendered in a bright green color with black outlines for its scales and features.
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No. 14, 529 yard, par 5 from green back to tees. Pro tee is at extreme right.

greens down in the pits and I thought maybe the limestone and clay would interfere with turf growth but so far nothing has developed.”

One problem he didn't expect was with the zoysiagrass planted on several mounds and around the bunkers.

“It isn't doing well at all,” Lerner said, “But that might be because it's a slow grower and we really poured on the nitrogen last fall during the grow-in period, which was very short.”

Sprigging was completed Aug. 27, 1987 and the course opened for play Dec. 5.

Still the course hasn't really been under much stress since it opened. Play is limited strictly to the 50-some members who have bought lots at Black Diamond.

“When they pay \$50,000 to \$100,000 for a lot, those members deserve their privacy,” says Greene.

“We knew from the beginning that this project either had to be a wide open resort or strictly private. You can't do both. It's not fair to make somebody who's paid a lot of money for his membership share his golf course with a weekend warrior.

“And we decided very early on to make this a private course.”



Jim Lerner inspects the zoysia-sodded banks behind No. 14 green. Zoysia didn't do too well in first season because of high fertilization during grow-in of playing areas.

The decision to go private was one factor which led to the hiring of Lerner.

“We interviewed a lot of superintendents and looked at their courses and most of them had outstanding maintenance programs but in addition to being bright, young and aggressive — all qualities we were looking for — Jim had three things going for him: stability, grow-in experience and he survived the transition at his last golf course from the developer to the equity members.”

Before his move to Black Diamond in March of 1987, Lerner had spent the last 10 years at Palm Aire CC in Sarasota, the last seven as superintendent. He grew in the club's second 18 holes and saw it through the transition in ownership.

“Ordinarily, when the members take over, the first thing that happens is the pro and the superintendent lose their jobs,” Greene said. “Jim survived. That was impressive.”

“It was a very difficult decision,” said Lerner of the move to Black Diamond. But a heady weekend in February 1987 convinced the two-time president of the Suncoast GCSA to leave culturally refined Sarasota — his lifelong hometown — for the wilds of tiny Lecanto, 45 miles southwest of Ocala between Inverness and Crystal River.

“Here I was, settled in as the superintendent at an established, 36-hole private club. I didn't think there was any way I would move.”

Lerner consented to the initial interview out of respect for Black Diamond General Manager Terry LaGree, whom Lerner had known from LaGree's days as a landscape architect with Palm Aire.

“I went up on a Friday and interviewed

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with Terry and Geoff Greene and once I saw the project, I knew I'd have to consider it," he said. "I told them I'd have to talk it over with my wife but the next day, Saturday, they called and asked if (wife) Terri and I could come up and have lunch with the owner, Stan Olsen. We came up, did the interview, took a quick look around and came home. Monday morning, they called and asked if they could fly in that afternoon to look at my golf courses. They did and when I put them on the plane to go home, I said I'd take the job if they offered it to me.

"They called the next morning to ask when I could start."

"Starting" meant starting from scratch, including the hiring of a crew of 18 to maintain the golf course plus six more to handle the landscaping throughout the rest of Black Diamond.

His assistant, Stuart Bozeman, came from the maintenance staff at Meadowcrest, Gulf to Lakes Corporation's nearby swimming and tennis community.

"Your crew is what makes you," Larner says. And he said it's much easier to recruit and retain a good crew at a place like Black Diamond because "every time something gets written about this place, I make sure they know about it and that they know I think they are responsible for keeping this place as spectacular as it is.

"The hardest thing is to get them to see things the way you see them, which should be the way the golfer sees them."

Larner also had to start from scratch with his equipment.

"I demonstrated every piece of equip-



Jim Larner, superintendent.

ment that I felt would handle the hills and undulations. I found I had to take pieces from different companies to get the job done."

Larner ended up with Toro 450D fairway mowers and Toro greensmowers, a John Deere 856 4-wheel-drive with a 5-gang pull unit for steep slopes and four John Deere tractors.

He also built 10 Flymos from spare parts.

"We live and die with the Flymos," Larner said. "You can't buy them anymore but at least the parts are still available."

Because of the steep banks at Black Diamond, three workers spend three and half days a week on them.

While his crew is mowing, Larner says he spends "about 25 hours a week" in the office and the rest inspecting the golf course and supervising the crew. In his

spare time, he likes to fish, swim and play golf.

"I live on the water over the Crystal River and I have two boats — a pontoon boat for the family and a 19-foot open fisherman for me."

He plays golf whenever he can ("I can play anywhere from a 10 to an 18, depending on how I'm swinging it"), which is not as often as he would like. He has unlimited playing privileges at Black Diamond and the rest of his crew gets to play on Thursdays, which is employee day.

When Black Diamond begins the transition to equity members, he looks forward to playing golf with the members of the greens committee.

"But not too often unless I am sure they can beat me," he says with an easy laugh.

"Actually, it's not as important to play with the committee members as it is to listen to them and never argue with them. If you disagree with something they want to do, don't tell them they're wrong, take them out on the course and show them why they're wrong. If you can't do that, then maybe they're not wrong."

After a pause, he adds:

"The nicest thing about this job is that I can do things the way I want to do them so long as I stay within my budget and get the job done. I can't describe the feeling I get when I walk out on the golf course two days after I've fertilized and it's greener.

"That's what the golf course superintendent is all about. If you don't have pride in your work, you're not going to make it." ■

BLACK DIAMOND RANCH GC

SUPERINTENDENT PROFILE

NAME: Jim Larner

AGE: 32

EXPERIENCE: Forest Lakes CC, Sarasota Fla. (18 holes, semi-private) began as mechanic in 1972 and switched to greenskeeper after six months; Sunrise CC, Sarasota, (18 semi-private) greenskeeper 1973-75; Bent Tree G&RC, Sarasota, (18, private) greenskeeper and heavy equipment operator 1975-77; Palm Aire CC, Sarasota (36, private equity), started as assistant superintendent in 1977 and became superintendent in 1979. Black Diamond Ranch GC, Lecanto, Fla. (18, private) superintendent 1987.

RESPONSIBILITIES: Golf course, Grounds maintenance and landscaping, and security. Total staff of 30.

PERSONAL: Married (Terri 1984) with one daughter (Tara 2); graduated from Sarasota Riverview High School in 1972.

PROFESSIONAL: Member of GCSAA since 1981; president of Suncoast Chapter 1985-87. Working on certification.

PHILOSOPHY: Don't argue with your staff or with the members of your greens committee. Listen very carefully to what they have to say. If you don't agree with them, take them out on the golf course and show them why they are wrong. If you can't do that, then maybe they're not wrong.

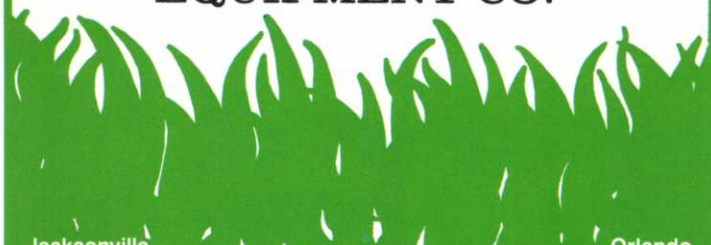
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*Michael Watkins, General Manager &
George Maxwell, Starter.*

Fabulous is the best way to describe the weekend of the 14th Annual Poa Annua Classic. Those who were able to be there, will have a warm spot in their hearts as they remember special events. Naples Beach Club and Hotel on the Gulf in Naples, Florida is always a most gracious host.

The schedule of events included an educational seminar, FGCSA board meeting, tournaments, and a *Back to the 50's* Banquet and Dance. The Kingston Trio was an added attraction when they appeared that weekend for a benefit concert at the hotel to help feed the hungry in the Naples area.

Golf carts were lined up ready to transport eager contenders to their starting point in the shotgun tournament at 8:00 A.M. on Monday, May 23rd. Golf Course Superintendents and Suppliers Representatives participated in the 14th Poa Annua Classic co-hosting with Naples

Beach Club & Hotel, the Everglades Chapter of the FGCSA and Sponsors.

Just before the tournament began we were introduced to Mr. Henry Watkins, President and owner of Naples Beach Hotel and Golf Club. He knew we were doing an article for the Florida Green and gave us names of a few people to interview that could give interesting stories they experienced at the golf course and hotel. He was very gracious, then hurried off to get his golf cart. He was playing in the tournament also.

It looked like a ride at Disney World as we watched the golf carts all take off at the same time. An exciting awakening in the tranquil city of Naples.

While the tournament was in process, we went looking for the first person on our list from Mr. Watkins. His name was George Maxwell. George was in the starters booth. After we explained to George

why we were there, he told us Naples has been his home for 30 years. He has worked for Naples Beach Club for 25 of those years.



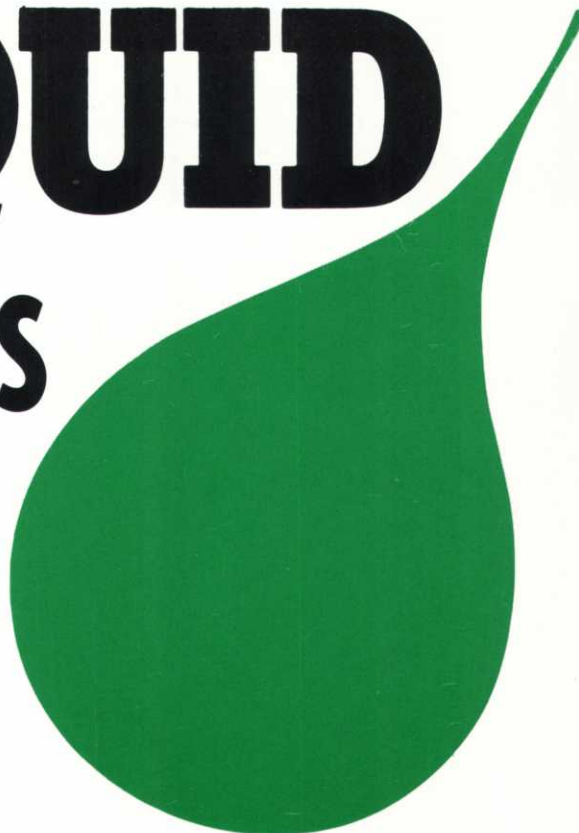
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Jim Duffy, Head Pro & Henry Watkins, President and Owner of Naples Beach Club & Hotel.

We asked George how old the golf course is?

George: It's about 50 years old. Built around 1937 or 1938. Originally 18 holes were built. There was not enough play to keep all 18 open, so they kept the back nine closed.

Florida Green: What was it like when you first came here?

George: This was the only golf course in the area for several years. Now there is 30 for 40 in the Naples area.

When I was 12 years old, I was a caddie here. The first owner I met at that time, was Larry McVail. he also owned the New York Yankees. I remember carrying his bag for nine holes and he told me about three baseball teams he had owned. At first I thought he was just exaggerating, but found out later he wasn't. Lived in the house over there (He pointed south across the road from the starters booth.) Soon after that the Watkins people took over.

The Club Pro, Jim Duffy, and I worked with Mr. Watkins Senior the founder. He has been gone now a few years. His son Henry Jr. took over as President and his grandson Michael is General Manager. They are a fine bunch of people. Its always been a family run organization.

F.G.: The golf course had some changes made a few years ago. What where those changes.?

George: It was completely renovated. Ron Garl the Golf Course Architect was in charge of it. He put

in new mounds, tees, traps, lakes and watering system. It was improved a thousand percent.

F.G.: Do you think it brought more play to the golf course?

George: There are days in winter we run five or six hundred golfers through. It's a popular golf course. The locals like it. It's not the toughest golf course to play. People enjoy playing here. It's a fun course.

We thanked George for his time and headed for the Pro Shop to meet Jim Duffy the Golf Pro. To our surprise Ron Garl, the architect who did the renovation was there too.

While Jim was finishing taking care of business, we asked Ron if he would discuss the renovation. He kindly obliged:

Ron Garl: We started the renovation plans and program in 1978. We worked on one nine at a time. In October of '81 we had the entire project done. it was a complete remodeling job from start to finish.

F.G: What were some of the changes?

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Ron: Our goal was to improve the golf course, not change the turf. The task of remodeling was to keep the initial character plus add a little challenge to the golf course.

We put in a new automatic irrigation system with new pump stations and made three new lakes.

All the holes stayed in the same place. We changed traps, tees, bunkers and put in new grass. 419 Bermuda on the fairways and 328 Bermuda on the greens.

We are experimenting on the new second putting green with Classic Dwarf. So far we are very pleased with it.

F.G.: Was there anything special you did on the golf course during renovation?

Ron: Yes, instead of using railroad ties to build embankment walls for the greens, we used Rough-sawn timber. Pete Dye kind of brought in the new fad of doing walls with railroad ties. When we did these walls, as far as I know, they were the first walls

actually built that were structural and were built out of Rough-sawn timber.

F.G.: Will it last a long time?

Ron: This is real good wood and being pressure treated, should last a long time. It's still new in the field. Most of it is on the greens and gets watered regularly and rained on. We don't really know what the longevity is. Tim Kris with Fox Lake Construction, Inc. in Palm Harbor, Florida did a super job building these walls.

F.G.: Did anything unusual happen while the remodeling was going on?

Ron: When we were digging one of the lakes, we uncovered what used to be the dumping area 40 years ago. We dug up old whiskey bottles and all kinds of old stuff.

F.G.: In your renovation, you seem to have a strong feeling toward keeping the tradition of its era alive.



Girl, a stray dog wandered in the pro shop 13 years ago. Found a good home.

Ron: We felt it was important to keep the golf course in the tradition that it was initially designed. Not to just come in and make it a new modern golf course and do a lot of things that are in vogue now. We feel like the traditions are a real part of the game. Just because you remodel, it doesn't mean you give it a new taste or whole new feel. This golf course has its own character that needs to stay through the years so people can come back and say: 'This is what a golf course built in the 30's and 40's in Flor-

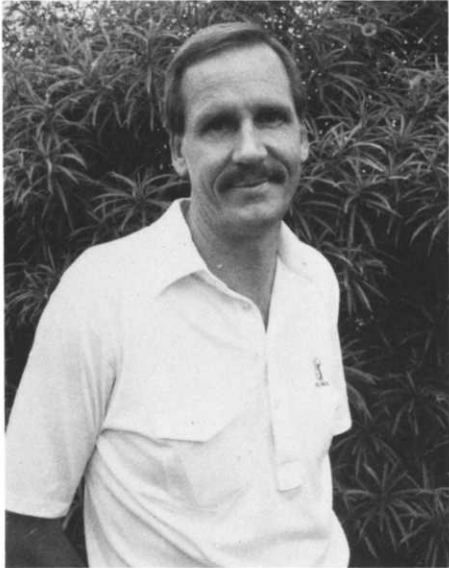
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Ron Garl, Architect.

ida was like. 'They don't all have to disappear and all look alike. I'm not sure that all the fancy stuff we are doing today is correct anyway. Maybe they are going to look back in 100 years and say: 'You know, those traditional courses were really a lot better golf courses.' I think the trend will actually go back that way.

Jim Duffy walked up to us as we ended the interview with Ron. We could sense a genuine friendship between these two professional people. Ron had to leave and we continued our talk with Jim. He has been the Pro at Naples Beach Club since 1958 and Head Pro since 1965.

Jim Duffy: During renovation Ron was here every week making sure everything was done right. With Ron, we just turned him loose; told him what we wanted. He did exactly what we thought and



Charlotte & George Jones, writers for *The Florida Green*.

hoped would turn out. He built the golf course to suit the type of play we have. He made a lot of subtle changes. For example the ninth green was a double tier, he left it a double tier. A couple of greens were left the same shape.

F.G.: Is the golf course harder to play now?

Jim: It was much easier before it was done than it is now. More difficult for the handicapper but not too difficult for the average player.

Most of our people here in the winter are retired and they don't want a back-breaker course. Here they have a competitive golf course, finish in a reasonable length of time, and still have a good time playing.

The golf course is more playable now. it's also easier for our superintendent Dick Naccarato to do his job.

When we remodeled the golf course we also remodeled the restaurant. it used to be called The Old 19th Hole. Now it's called the Brassie.

F.G.: You have been very successful with major tournaments!

Jim: There have been so many major Florida events played here. Florida Seniors Golf Association, Florida PGA, South Florida Open, Southern Golf Association, Florida Seniors Open, Florida State Womens Senior Golf Association, Poa Annuu Classic, two Pro Tournaments, and a lot of national organizations. We will average 60,000 plays this year.

F.G.: Being here on the Gulf you can have some storms rush in on you.

Jim: Last year, 1987, just before the Poa Annual Classic, we had a tornado touch down. We lost 45 trees and the fence around the tennis court came down.

F.G.: We heard about that and you had a lot of clean up help from some of the FGCSA members here for the tournament.

Jim: That's right, and the tournament went on as scheduled. The

weather can cause many problems. In the last five years we have lost nearly 400 trees, mostly Eucalyptus. You can't afford to lose trees on a golf course.

When our interview ended with Jim he excused himself to take care of customers. We talked to two young men that worked in the Pro Shop. They were Danny Bracy and Larry Gantzer. Both of them have been working at the club for eight years or more. Larry introduced us to Girl, a stray dog that wandered in 13 years ago and just decided to call the Pro Shop home. Everyone loves Girl.

Being there for the Poa Annuu and experiencing the hospitality shown by all the staff of Naples Beach Hotel and Club, made us feel lucky to be part of the Florida Golf Course Superintendents Association. This is one of the benefits of the profession. Along with an educational seminar, it's a way to relax, renew friendships, and get to know someone new in the business and give them words of encouragement. (We all need this now and then.)

The best thing about this event was seeing families together enjoying the pool, a swim in the Gulf, collecting shells, playing in the sand, or just relaxing together and having fun. Superintendents having unpredictable hours are not able to spend the time with their family they would like to. The whole family can come and enjoy this event together. If you didn't bring your family this year, do so next year. They will love you for it! It's a great mini vacation for all!

Naples Beach Hotel and Golf Course is unique in many ways. It's not just a hotel and golf course. it offers guest the most relaxed and tranquil atmosphere. A memorable vacation or week-end getaway. It's one of the only places you have golf on one side of the road and a beach on the other. Gulf or golf, take your pick! Guests can park their car and can walk to the beach or to the tees.

It was another super Poa Annuu. Special thanks to all of you that helped to make it so. We appreciate the accommodations and friendliness shown by the entire staff of Naples Beach Club and Hotel, Dick Naccarato, Golf Course Superintendent; Jim Duffy, Head Pro; Everglades, the Host Chapter, all our Sponsors and Volunteers. WHAT A FABULOUS WEEKEND! ■

A Step Back in Time

NAPLES BEACH HOTEL & GOLF CLUB

Imagine having the unique experience of being able to step back in time to 1880! A time when Florida had only been a state for 40 years! We could watch the exuberance, frustration and joy of General John Williams as he was building his three story hotel on the beach on the Gulf of Mexico. He called it the Naples Hotel.

The General's joy was short-lived. Soon after the Naples Hotel was built, he went into bankruptcy. You can imagine the hurt and defeat the General must have felt when he had to sell out to a newspaperman named Mr. Haldeman. (Mr. Haldeman was to become a City of Naples founding father.)

It wasn't easy for the hotel because the clientele were mostly of the gentlemen class that enjoyed hunting and fishing. They had to travel 40 miles by boat from Ft. Myers to get to the remote village.

Naples Hotel was sold twice again and as time passed it was inherited by three sisters. The sisters, not being interested in the hotel business, put it up for sale. Roads were built by then and travel was made easier by automobile.

The year was 1946 in our time travel, and this was when Mr. Henry Watkins, Sr. saw the hotel. He was a defense con-

tractor for the Army during World War II and owned a toy manufacturing business in Ohio. He wanted to sell out and move his family south into the sunshine.

Can you see the expression on Mr. Watkins' face when he found the hotel deed also included more than 20,00 acres when he inquired into its purchase. Three-fourths of the platted city of Naples! You can almost feel his determination in finding investors. When he did, a partnership was formed and the deal was made along with a new adventure for the Naples Hotel.

A few blocks north of the hotel was an abandoned 18-hole golf course. Mr. Watkins, Sr. leased it from its owners, the Joslin family of Jergens Lotion fame. The first nine holes were restored in 1946 for use by himself and his hotel guests. At that time it was the only golf course in that part of the state. Later the back nine was restored and in 1950 he and his partners bought the property outright.

Mr. Watkins then moved his offices from the old Naples Hotel into the existing two-story clubhouse.

The partnership disposed of its extensive real estate holdings in Naples and Mr. Watkins bought sole ownership of the hotel and golf course properties. He start-

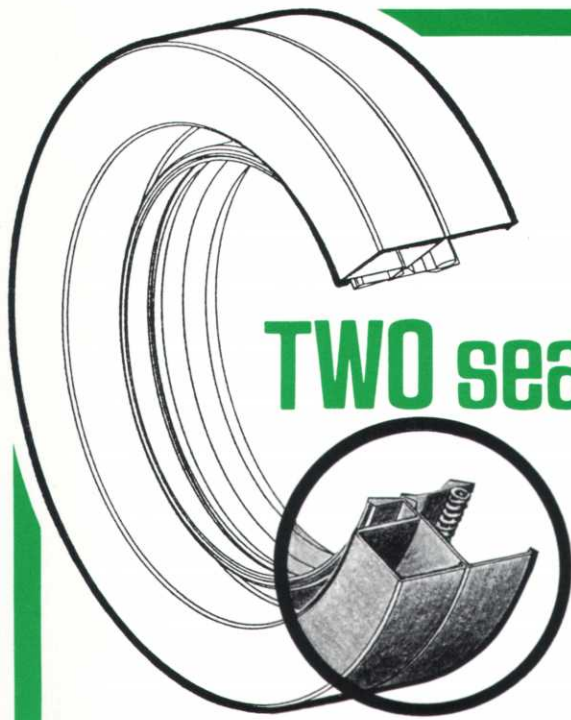
ed adding to the hotel complex and by 1953 completed construction of a two-story 35-room structure. This marked the start of the Naples Beach Hotel and Golf Club.

Mr. Watkins operated both properties for a time, but eventually all operations were transferred several blocks up the street at the new location and the 100-year-old original Naples Hotel was demolished.

New sections of the Naples Beach Hotel have been added every couple of years until now the complex has six residential buildings including the five-story tower, two-story main wing, two-level patio wing, a five-floor penthouse, two-level cabana wing, and the nine-story Watkins wings.

Mr. Watkins Sr., active in the resort until 1978, passed away in 1981 at the age of 92. He would have been very proud of his family for now the role of president is handled in the same tradition by his son Henry Watkins Jr. A third-generation Watkins, his grandson Michael, serves as General Manager.

As we step back into the present, we watched a humble beginning of Naples Hotel grow into the "Grand Lady" she is today. The NAPLES BEACH HOTEL AND GOLF CLUB reigns in a class by itself. ■



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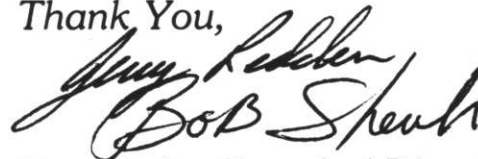
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Everglades Golf Course Supt's Assn.

On behalf of the membership of the Everglades chapter, allow me to extend a special thank you to all the supplier agencies that donated time and money to the poa annua this year. Without your help we couldn't host such a successful tournament each year!

Thank You,



Everglades Board of Directors

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1988 POA ANNUA





CONGRATULATIONS



Congratulations went to Palm Beach Chapter for bringing home the trophy! This was done through the team effort of Dick Blake, Glen Klauk, Ken Anderson and Robert Drake.

Central Fl. Chapter placed 2nd and 3rd place team was Everglades Chapter.

Low Gross superintendents were Roy MacDonald and Glen Klauk. Low Net superintendents were Scott Zakany and Dick Blake.

The Suppliers Division was won by Will Corder, Low Gross; Zakany and Dick Blake.

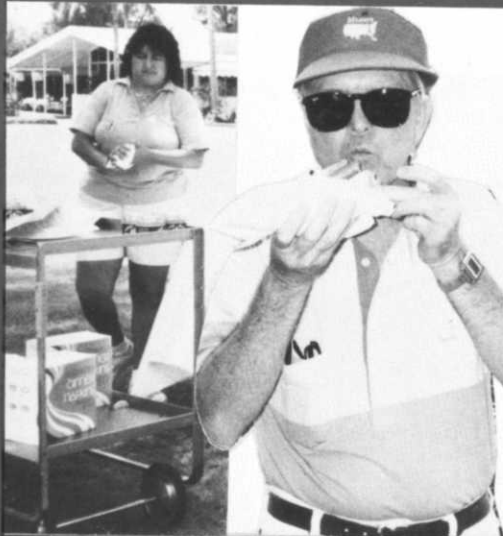
Everyone that entered the competition is a winner. What better way is there than to support our own profession!

Congratulations to all!











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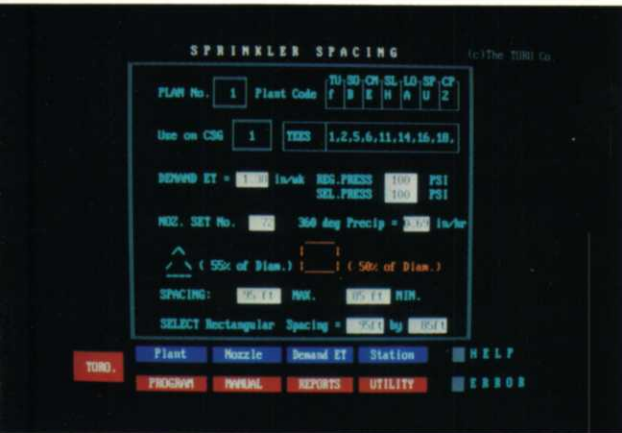
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Network 8000 accomplishes all of this by combining a computerized central controller with satellites of amazingly extensive stand-alone capabilities.

The central controller utilizes an IBM personal computer as the hub of the operation, including keyboard, color monitor, matrix printer and a "mouse" for easy access to all functions.

This non-dedicated central is capable of "transparent" multiple function, which provides for *simultaneous* business and irrigation program

operation. It's like getting two important pieces of equipment for the price of one!

Network 8000 provides automatic adjustment of irrigation system operation, responding to such key factors as rainfall, evapotranspiration rate, plant materials, soil types, soil compaction, geographic location, terrain slope, Ph factor and system design. A manual override is provided for all factors.

The central programmer will operate any station, set the running time, assign it to any program and set up to three repeats for any station. It can operate up to 800 satellites of 32 stations each, for a total of 25,600 stations.

Toro's new Network 8000 central provides two-way communication: it "down-loads" information to the satellites and "up-loads" information from the satellites.

Also, with this central station you enjoy the advantages of water-budgeting by means of percentage increase/decrease control (by station, by program, by CSG, or the total system), from 1% to 900%.

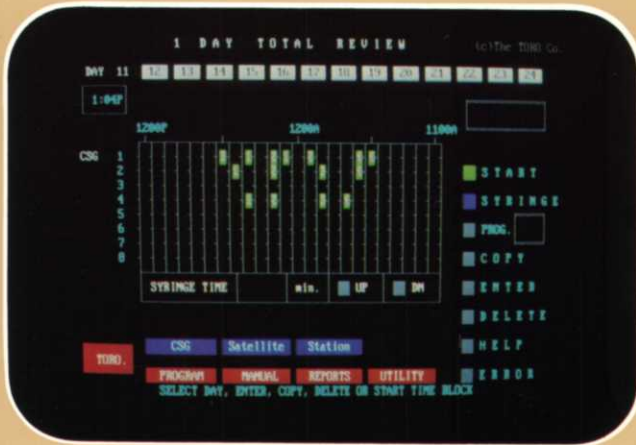
But this is only the beginning of the story. You have to see it perform to fully appreciate exactly what it can do for you and your irrigation. Call *The Man from Toro* for a no-obligation demonstration.

*Requires satellite rain gauge monitoring equipment

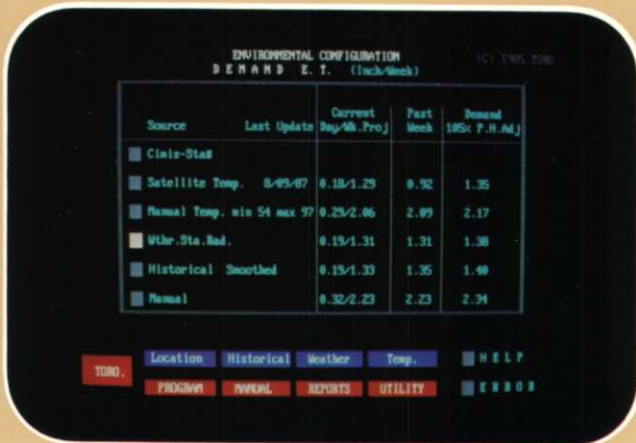


Key components to Network 8000 are the IBM personal computer, with color monitor and keyboard, operated with handy "mouse" and/or keyboard. Shown in the middle is Toro's Delay & Distribution Unit. On the right, IBM matrix printer and stand.

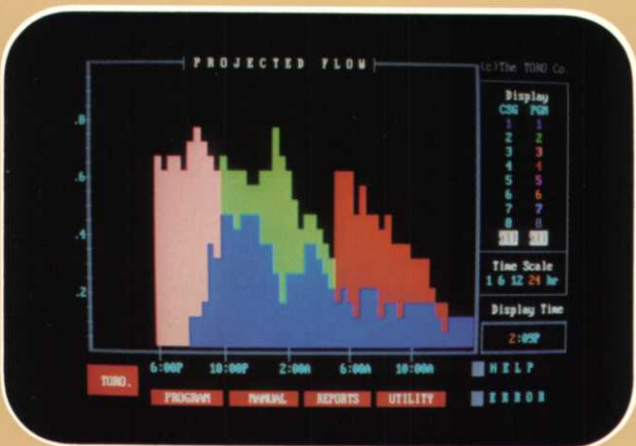
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SATELLITE CONTROLLER

Matching the Network 8000 central for advanced and innovative design is Toro's new satellite/stand-alone solid state controller, available in a stainless steel case or a green painted steel case. The satellite is a 32-station unit, with each station capable of operating three Toro electric valve-in-head solenoids.

As with the central, this new satellite offers two-way communication. It receives, stores and sends all commands generated by central. At the same time, it up-loads to the central such key factors as satellite status, air temperature*, changes made in station timing at the satellite, and valve wire failure sensing.

Each station is capable of minute and hour timing, from 1 minute to 4 hours and 15 minutes per station, in one-minute increments.

Toro's new Network 8000 Satellite also provides water-budgeting capability, with percentage increase/decrease from 1% to 900%.

The combination of the equally amazing new satellite and central controllers make Network 8000 your first step into the 21st Century, with pay-off *now* in terms of better turfgrass at lower costs.



NETWORK 8000

MODEL 198-39-88



- Toro's Network 8000 is the first and only totally automatic irrigation control system.
- Random access allows the central programmer to (1) operate any station; (2) set the running time; (3) assign it to any program; and (4) set up three repeats for any of the programs.
- Color monitor and graphics printer provide total program viewing and hard copy.
- Central provides status indications for each of up to 800 satellites.
- Central station provides for simultaneous business and irrigation program operation.
- Solid-state satellite may be centrally programmed or provide stand-alone capability.
- Each satellite has 32 stations which may operate as many as 4 stations simultaneously on 1 or as many as 4 programs.
- Each satellite has 8 programs available, and each program has up to 3 repeat cycles.
- Multi-manual syringe program may be set at the satellite.
- Control system has two-way communication: it "down-loads" central-created programs to satellites; "up-loads" satellite-created or stored program information to central.
- Water-budgeting provided by percentage increase/decrease of station timing. May be adjusted from 1% to 900% of the original setting for (1) each station; (2) each program; or (3) for the entire system.
- An option is offered which provides a "projected flow" screen for system as scheduled, and an "actual flow" screen when option is executed. Lets you utilize your pump station most efficiently.
- A second option makes your Network 8000 telephone compatible. A system in a non-contiguous configuration may (through modem) operate from a central location via a dial-telephone line.
- Another option is a weather station, with rain gauge. This weather station provides information for calculation of local evapotranspiration.
- Utility programs are available, too. Through a "switch closure interface," any station or satellite will control lights, fountains, water aerification devices, etc.
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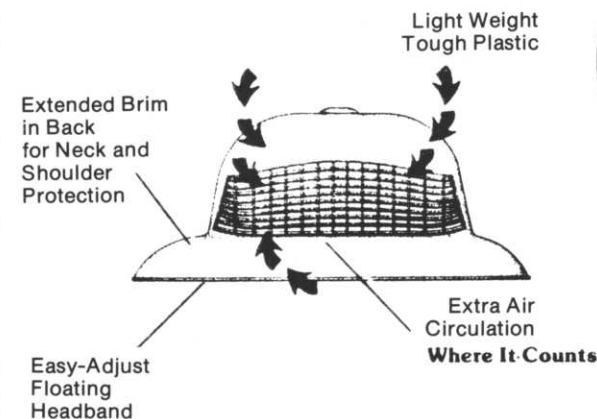
Fertilizer suspensions have been used for many years, but may be new to golf course superintendents. Fertilizer particles are suspended by the use of clay and agitation while being distributed through large spray nozzles. Uniformity is assured because of constant pressure, controlled speed and nozzle placement and design.

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Classification of Turfgrass Fungicides

by MONICA ELLIOTT JUHNKE

University of Florida — IFAS Fort Lauderdale Research and Education Center Fort Lauderdale, FL 33314

THINK back for just a moment. If you were a golf course superintendent ten years ago and Pythium Blight was creeping across your championship course, what fungicide choices did you have? Not many! Approximately 50% of the currently available turfgrass fungicides have been registered only since 1979. Now that a superintendent has an expanded fungicide inventory, how many know *why* they select a particular fungicide for one disease but not another?

Fungi are organisms that have no chlorophyll, the substance that makes plants green and able to produce their own energy for growth. Because fungi cannot produce their own energy, they must rely on living or dead hosts for energy and growth. Some fungi are totally harmless, like mushrooms in the grocery store, while others cause plant diseases.

Fungi are composed of mycelia, thread-like bodies that usually branch as they grow in length, and reproduce by developing spores. These spores are small, independent fungal bodies which germinate to produce mycelia. A very generalized fungal life cycle alternates between mycelia and spores. Both structures can infect a plant to cause disease. In Florida, four major fungal diseases of golf course turfgrass that may be controlled with fungicides are Brown Patch, Dollar Spot, Helminthosporium Leaf/Crown Complex, and Pythium Blight/Root Rot.

Fungicides, chemicals that inhibit fungi, have two different types of names. Each fungicide has one common chemical name, but may have many brand names. The number of brand names depends on the number of companies which market that particular fungicide. When fungicides are

mentioned in this article the common name will be listed first with a brand name in parenthesis. This is not meant as an endorsement but rather a method to associate the common name with a familiar brand name.

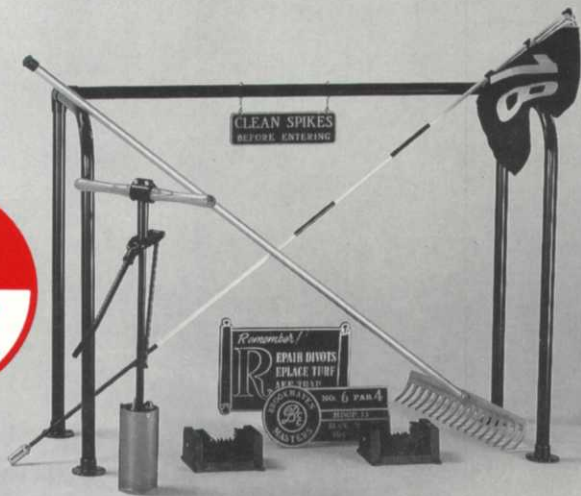
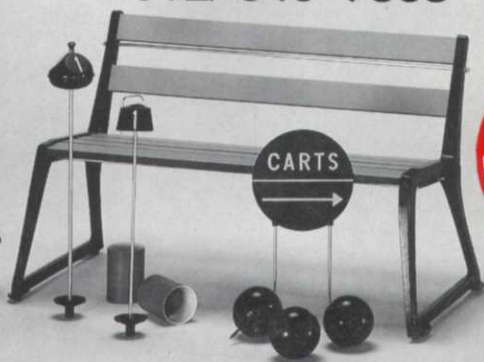
Membranes are essential for life because they protect organisms from the outside environment; sterols are a necessary component of a membrane, any membrane. For example, cholesterol is the essential sterol in human membranes while most fungal membranes contain ergosterol. *Pythium* species are the exception since their membranes do not contain ergosterol. The EBI fungicides are systemic fungicides that inhibit the production of ergosterol. Thus, they are effective compounds when used to control ergosterol-containing fungi, such as the causal agents of Brown Patch, Dollar Spot and Helmin-

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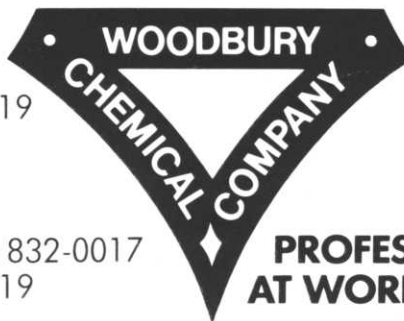
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thosporium Leaf Spot, but do *not* control Pythium diseases.

The three EBI fungicides utilized for turfgrass disease control are fenarimol (Rubigan), propiconazol (Banner) and triadimefon (Bayleton). All three systemic chemicals have curative and protective action. Bayleton has been registered for use on turfgrass in Florida for a number of years. However, Banner is newly registered for warm-season turfgrass disease control this year. Since Banner is new, be sure to read the Banner label carefully for precautionary statements.

Golf course superintendents may be more familiar with Rubigan as a herbicide for *Poa annua* control than as a fungicide. A side effect of EBI fungicides is their plant growth regulation property. This property has been exploited with Rubigan which also inhibits the production of gibberellin, a plant hormone which regulates plant cell elongation and growth. At recommended rates, *Poa annua* is sensitive to Rubigan but bermudagrass and perennial ryegrass are not.

GENERAL FUNGICIDE GROUPS

Fungicides are divided into different groups based on: 1.) general activity - pro-

TECTIVE OR CURATIVE; and 2.) location of that activity - contact or local systemic or systemic. A protective fungicide does not cure or eradicate fungal pathogens that have already infected the plant but does protect the plant against future pathogen activity. For example, fungal spores which are released on a leaf after a protective fungicide has been applied will be prevented from infecting that leaf. A curative fungicide, however, is capable of eradicating a fungal pathogen which has already established itself in a host plant and initiated a disease.

Contact fungicides remain on the plant surface and do not penetrate into the plant. These fungicides are normally only protective. Local-systemic fungicides remain on the plant surface but also penetrate the plant surface and move very short distances within the plant. They are also protective fungicides.

Systemic fungicides do penetrate plant surfaces (or seed coats) and then translocate (move) inside the plant. Systemic fungicides are translocated via xylem or phloem tissue. Xylem is formed from plant water conducting tubes so compounds in the xylem move in an upward direction with the water system. Phloem is

formed from tubes which move photosynthates (plant products) from leaf tissue to other plant organs (i.e. upward and downward directions). Except for fosetyl-A1 (Aliette) which is translocated in xylem and phloem, systemic fungicides are xylem-limited. In general, systemic fungicides have curative and protective activities. They often have extended residual activity. Table 1 lists the currently registered turfgrass fungicides in Florida.

CHEMICAL FUNGICIDE GROUPS

In addition to the general groups of fungicides discussed above, fungicides are divided into groups based on their chemical properties. Discussed below are the chemical groups of turfgrass fungicides.

Benzimidazole Fungicides (Systemic; Curative and Protective)

A second group of systemic fungicides which control turfgrass diseases other than *Pythium* is the benzimidazole (BZD) fungicides. These chemicals include benomyl (Tersan 1991) and thiophanate methyl (Fungo). BZD fungicides control plant diseases by inhibiting development of the fungal skeleton (i.e. support structures of the fungus). Like the EBI fungicides, BZD fungicides are both protective

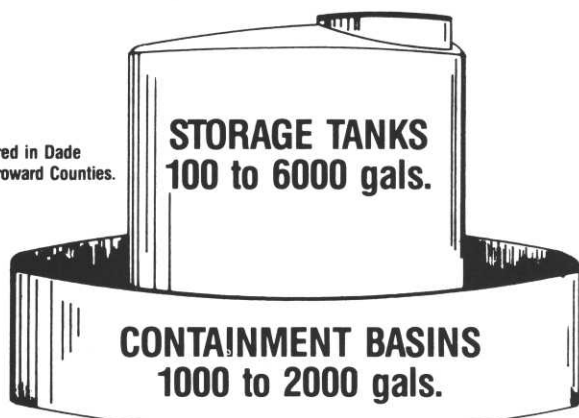
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and curative. They bind tightly to plant surfaces and degrade slowly, and therefore directly protect the plant from fungal attack via residual activity. However, BZD fungicides also penetrate plant surfaces and translocate in the xylem to provide systemic, curative action against established pathogens.

PYTHIUM FUNGICIDES

As indicated previously, *Pythium* is a very different fungus from the other fungi that cause turfgrass diseases. A major difference is the lack of ergosterol in *Pythium* cell membranes. The five fungicides recommended for controlling *Pythium* diseases fall into three general groups based on location of activity - contact, local-systemic and systemic fungicides.

The contact fungicides are chloroneb (Terraneb) and ethazol (Koban) which were discussed previously with the aromatic hydrocarbon fungicides. They are protective compounds only, since they inhibit fungal mycelia and spores on the plant surface. The local-systemic fungicide propamocarb (Banol) does penetrate the plant surface but is degraded rapidly inside the plant so systemic effects are localized and short in duration. Metalaxyl (Subdue, Apron) and foestyl-AI (Alette)

are both systemic fungicides. Their activities, however, are very different.

Metalaxyl is formulated as Subdue for foliar applications and Apron for seed treatments. Metalaxyl easily penetrates the plant surface or seed coat and is rapidly translocated in the xylem (i.e. upward with the water stream). It has curative and protective activity and, since it moves in the xylem, protects new plant growth better than old plant tissue. Metalaxyl also has extended residual activity in plant tissue which allows you to extend the interval between spray applications.

Aromatic Hydrocarbon Fungicides (Contact; Protective)

Aromatic hydrocarbon (AH) fungicides are contact fungicides that destroy fungal membranes inside a fungal cell. This stops the fungus from growing and spreading to more plants. Therefore, AH fungicides are classified as protective and not curative fungicides. Examples are chloroneb (Terraneb), ethazol (Koban, Terrazole) and PCNB (Terraclor). These compounds evaporate quickly (high volatility) or are sensitive to ultraviolet sunlight. Thus, they are best used as soil incorporated fungicides since the soil will provide some chemical stability.

Dicarboximide Fungicides (Contact; Protective)

Two dicarboximide fungicides available for broad-spectrum turfgrass disease control are iprodione (Chipco 26019) and vinclozolin (Vorlan). The mechanism of action of these compounds is not entirely clear, although they appear to destroy fungal membranes and interfere with DNA synthesis. Since they stop fungi from spreading, these contact fungicides are protective in action. Although dicarboximide fungicides alone have a broad spectrum of activity, they are often mixed with other fungicides to enhance disease control.

Ethylenebisdithiocarbamate (EBDC) Fungicides (Contact; Protective)

These contact fungicides include maneb (Tersan LSR), mancozeb (Fore) and zineb (Zineb). The EBDC fungicides are protective compounds and have been available for many years. They have no specific mechanism of action nor site of action and are active against many fungal plant pathogens. Thus, they can help to prevent the spread of many turfgrass diseases and are often combined with other fungicides to enhance disease control.

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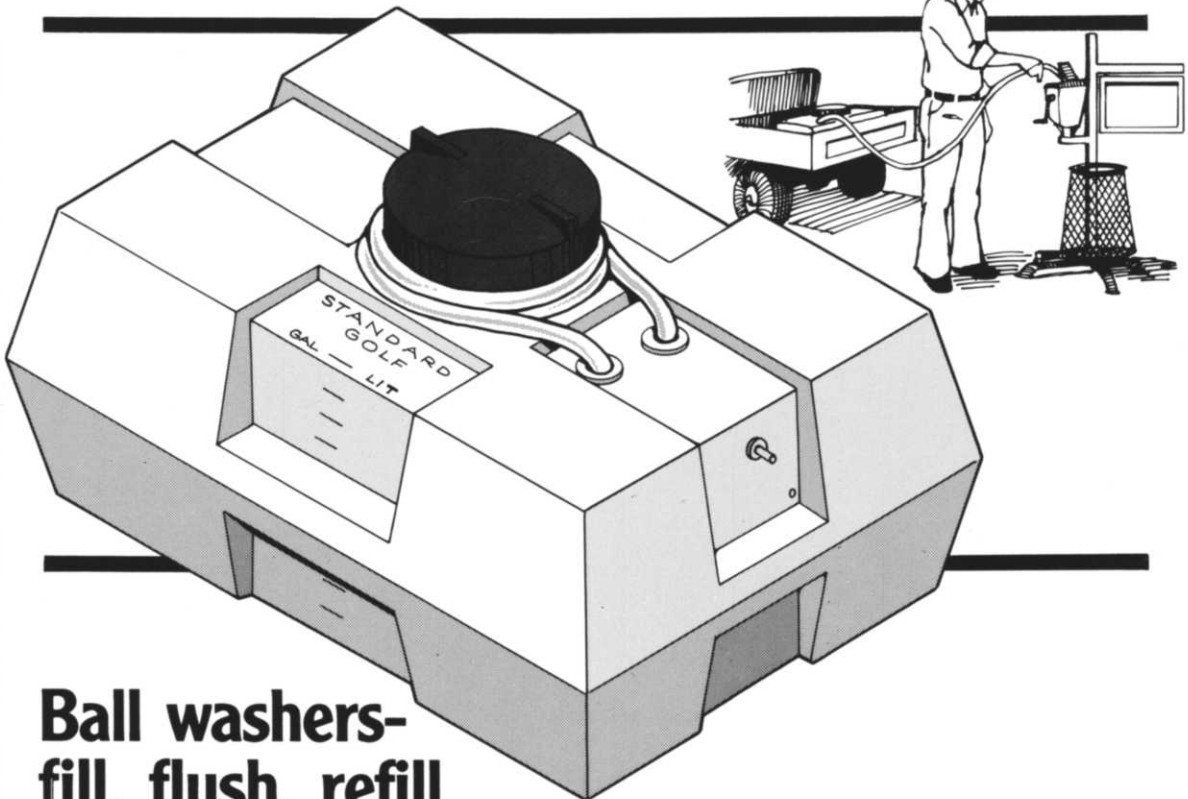
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Miscellaneous Contact Fungicides
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Two contact fungicides which do not fall into the above chemical groups are anilazine (Dyrene) and chlorothalonil (Daconil 2787). Both are broad spectrum, protective leaf fungicides. Anilazine is quickly and strongly absorbed by fungal spores present on the leaf and then inhibits a variety of spore functions. Chlorothalonil, which is also an algicide, does have more specific mechanisms of action. It reacts with glutathione to disrupt regulation of cell functions and it also inhibits sulfur-dependent enzymes in the cell.

Ergosterol Biosynthesis Inhibiting (EBI) Fungicides (Systemic; Curative and Protective)

Metalaxyl controls *Pythium* by inhibiting RNA synthesis, an essential process for cell growth. The sensitive fungal stages are mycelia and spore production. It does not inhibit spore germination, zoospore release or plant penetration by the fungus.

Therefore, metalaxyl primarily inhibits growth of fungal mycelia after plant penetration. In other words, it is killing the mycelia already inside the plant and mycelia that enter the plant. This is why metalaxyl is often mixed with contact, protective fungicides such as mancozeb (Fore). The mancozeb inhibits spore germination and initial penetration by *Pythium* on the leaf surface but does not effect fungal growth within the leaves; the metalaxyl will eradicate mycelia which has penetrated the plant surface. Because metalaxyl is both systemic and persistent, most of the disease control achieved from the mixture is from metalaxyl but the mancozeb provides an additional measure of control.

Fosetyl-AI (Aliette) is also systemically active against *Pythium* diseases - *Pythium* Blight and *Pythium* Root Rot. It is a unique systemic fungicide because it moves *both* in xylem and phloem. Therefore, foliarly applied fosetyl-AI will move down to the roots to protect against *Pythium* Root Rot. The other systemic fungicides

that have been discussed are not translocated in the phloem. If they are to protect plant roots, they must be absorbed by the roots.

Fosetyl-AI has weak curative activity of *Pythium* but is excellent at protecting new plant growth. Like metalaxyl, it inhibits mycelia and spore production. How fosetyl-AI controls *Pythium* is not entirely clear, yet. It is known that fosetyl-AI is degraded in the plant tissue to phosphoric acid and it is this latter compound which produces the antifungal activity, either directly on the fungus or indirectly by triggering defense reactions of the plant.

SUMMARY

Fungicides have been and will continue to be a major component of an integrated disease control program. As indicated in this article, there is a wide variety of chemicals available for turfgrass disease control. Knowing how to select fungicides based on their general activity and location of that activity will allow you to be a better manager of golf course turfgrass. ■

Table 1. Turfgrass fungicides registered in Florida.

Common Name of Fungicide	General Fungicide Group					Disease Control			
	Location			Action		Brown Patch	Dollar Spot	Helminthosporium	Pythium
	Contact	Local-Systemic	Systemic	Protective	Curative				
Anilazine	+	-	-	+	-	+	+	+	-
Benomyl	-	-	+	+	+	+	+	-	-
Chloroneb	+	-	-	+	-	-	-	-	+
Chlorothalonil	+	-	-	+	-	+	+	+	-
Ethazol	+	-	-	+	-	-	-	-	+
Fosetyl-AI	-	-	+	+	+	-	-	-	+
Fenarimol	-	-	+	+	+	+	+	-	-
Iprodione	+	-	-	+	-	+	+	+	-
Maneb	+	-	-	+	-	+	+	+	-
Mancozeb	+	-	-	+	-	+	+	+	-
Metalaxyl	-	-	+	+	+	-	-	-	+
PCNB	+	-	-	+	-	+	-	-	-
Propamocarb	-	+	-	+	-	-	-	-	+
Propiconazol	-	-	+	+	+	+	+	+	-
Thiophanate Methyl	-	-	+	+	+	+	+	-	-
Thiram	+	-	-	+	-	+	+	-	-
Triadimefon	-	-	+	+	+	+	+	-	-
Vinclozolin	+	-	-	+	-	-	+	+	-
Zineb	+	-	-	+	-	-	-	+	-

Fungicide Tips From Dr. Couch

by MARK JARRELL

IN May, those in attendance at the joint meeting of the Palm Beach and South Florida Superintendent Associations were given a special treat in the form of a presentation by the leading turfgrass pathologist in the world, Dr. Houston B. Couch.

Dr. Couch, Professor of Plant Pathology at Virginia Tech and author of "Diseases of Turfgrasses", shared vital information concerning the proper use of fungicides. His dynamic and fact-filled presentation left many of us feeling a little ignorant, and disappointed that more time hadn't been available for his talk.

His admirable efforts to cover so much ground in so little time caused some confusion of facts with us slower-witted types, so I wrote to Dr. Couch requesting a synopsis of the information he had tried to convey. He responded quickly and generously with a copy of the complete report and permission to use it as we saw fit.

What follows is the most useful information for Superintendents from Dr. Couch's field research program which was initiated at Virginia Tech in 1977.

I. Granular vs. Spray Formulations

- 1.) Granular formulations of non-systemic fungicides require 2 to 3 times the active ingredient level of spray formulations to produce the same degree of disease control.
- 2.) Granular formulations of non-systemic fungicides require a longer time to bring the target

diseases under control, and they hold their established levels of control for a shorter period than the same active ingredients as spray formulations.

- 3.) There can be a significant difference in efficiency of disease control among various granular fungicide product lines of the same active ingredient.
- 4.) Application of granular fungicides to wet leaves improves their disease control effectiveness.
- 5.) Watering immediately after the application of granular fungicides reduces their effectiveness in disease control. The extent of this reduction can vary among the various product lines.
- 6.) Mowing and collecting clippings immediately after the application of granular fungicides reduces their effectiveness in disease control. The extent of this reduction can vary extensively among the various product lines.

II. Optimum Dilution Rates and Flat Fan Nozzle Tip Size

- 1.) With each of 6 fungicides tested, optimum disease control was consistently achieved with the T-8002 tip.
- 2.) The optimum dilution levels for maximum disease control for the tested fungicides were as follows:

Fungicide	Dilution/1,000 sq. ft.
Daconil 2787	1 gallon
Dyrene	1-2 gallons
Bayleton	2 gallons
Chipco 26019	0.5-4 gallons
Banner	2 gallons
Vorlan	1-2 gallons

III. Optimum Nozzle Types and Nozzle Pressure

- 1.) For greens spraying, Dr. Couch's "pick of the litter" is flat fan T-8002 or T-8004 tips at 30-60 psi at the nozzle.
- 2.) With the exception of Dyrene, the Raindrop RA-10 and RA-15 swirl chamber nozzles at 30 psi nozzle pressure work just as well as the flat fan nozzles. Dr. Couch feels the ideal setup is fair-way spraying with the Raindrop nozzles (there are fewer skips from a bouncing boom and their delivery rate is much higher) and then changing to flat fans for the greens.
- 3.) It is critical to space the Raindrop nozzles on the boom to provide for a 100% overlap (whereas with the flat fan, a 30-60% overlap is adequate).

- 1.) Do not use flood jet nozzles for application of fungicides.

IV. Effect of Post-Spray Rainfall or Irrigation on Fungicide Effectiveness

- 1.) If leaf washing from rainfall or irrigation occurs before the spray dries on the leaves, non-systemic fungicides are rendered completely ineffective in disease control. However, once these sprays have



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dried on the leaves, the leaf washing will not alter their disease control effectiveness.

- 2.) Systemic fungicides are not as vulnerable as the non-systemics to reduction in disease control effectiveness by rainfall or irrigation before the spray dries on the leaves. However, there can be a significant difference among systemic fungicides with respect to the degree of reduction in disease control efficiency brought on by leaf washing before the spray dries. For example, control of dollar spot by Rubigan was reduced 50% by leaf washing, but the effectiveness of Bayleton was not reduced.
- 3.) If the fungicide formulation contains an effective sticking agent, either rainfall or irrigation immediately after the spray dries on the leaves will not appreciably reduce the material's initial disease control effectiveness.
- 4.) The basic effectiveness of a turfgrass fungicide is established by the initial amount of water used in the spray formulation. Once the material has dried on the

leaves, it can not be dislodged or redistributed on the plant by sprinkler irrigation or rainfall.

V. Effect of pH of the Mixture and In-Tank Storage Time on the Stability of Turfgrass Fungicides

The pH of the spray solution can have a significant effect on the performance of certain pesticides. In the alkaline range, some fungicides undergo hydrolysis, which is an irreversible chemical reaction in which the hydroxyl ions in the water interact with the pesticide in such a manner as to break it down into a different compound.

In instances where a fungicide itself is stable under alkaline conditions, there is still the possibility of the makeup of the formulation itself becoming altered. Among the fungicides used on turf, Actidione, Dyrene, and Daconil 2787 will hydrolyze to varying degrees if the spray is alkaline.

- 1.) The initial preparations of Chipco 26019, Vorlan, Banner, and Bayleton are tank stable in the pH 3.5 - pH 9.5 range. Also, storage for a period of 24 hours at these pH levels apparently does not alter the disease control effectiveness.

- 2.) If Daconil 2787 is allowed to stand for 20 hours before being used regardless of the pH of the solution, it will lose a significant amount of its fungicidal properties.

- 3.) Dyrene is alkaline sensitive. It should be prepared in a solution between pH 3.5 and 6.5 and used immediately. If it stays in the tank for 20 hours before use, a major reduction in disease control effectiveness occurs at both acid and alkaline pH levels.

- 4.) If Rubigan is used at the time it is prepared, pH does not affect its disease control effectiveness. It will retain its effectiveness for 24 hours at pH ranges from 6.5 to 9.5, but will lose a significant amount of disease control potential if allowed to stand 24 hours at pH 3.5

Dr. Couch's final advice for us in Florida was to do our best to keep Monica Juncke, our turfgrass pathologist in Ft. Lauderdale, busy and happy. She joins a select group of only 5 fulltime pathologists working strictly on turfgrass problems on the North American continent. ■



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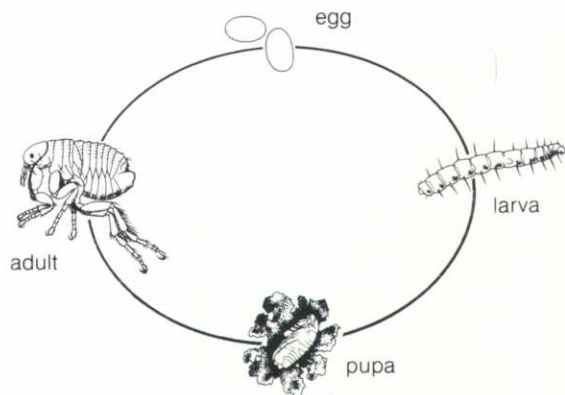
by **RUSS MITCHELL**
Woodbury Chemical Co.

IT has been brought to my attention, that as we are always discussing mole crickets and nematodes, that there are other things that can be helpful to superintendents in their never ending responsibilities around the golf course.

SPIDER CONTROL

How often are you required to do pest control in and around the clubhouse, restrooms or under the eaves of buildings where cobwebs are unsightly and a nuisance. Of the several good products on the market the wettable powders are the formulation of choice. The reason is the residual will be much greater. You should get at least 30 days from these products. FICAM W will give excellent results. It is a carbamate with no odor and is easy to handle. Also the new pyrethroids like CYNOFF AND DEMON are excellent choices also. Their active ingredient is cypermethrin. They give long residual with quick knockdown. There is a new chemical available in this family also called TEMPO. Its active ingredient is cyfluthren. It should work equally as well. This product is interesting because it also has pending turf labeling for mole crickets and is currently labeled for ornamentals.

Always remember to clean out your sprayer before using WP formulations if EC solutions have been previously used. The oil in the EC will cause the WP to ball up in the tank causing you to spray mostly water or clog up your spray tips when the lumps of concentrate stick in the tip.



Fleas have a 4 stage life cycle which consists of the egg, larva, pupa and adult stages.

These products are also labeled for ants, roaches, etc. and give excellent results. They are labeled for both inside and outdoor use.

FLEAS

Whether in the superintendents office or in the clubhouse fleas can be a real problem. One point to make is that I recommend that you use a professional pest control company to do the clubhouse because of their experience and also to protect you from liability due to a carpet stain. Having said this I also realize that this matter falls within the responsibility of a number of supers. If so here is the way to get good indoor control. First remember that if we are talking about an office and there is a dog that comes and goes you will never get 100% control. Having said this there are products that work well. The two products of choice by professionals are Safrotin and Dursban L.O.

Also Ficam W is labeled. It has one drawback as being a wettable powder, the residual is greatly reduced if the carpet is vacuumed because the product will be sucked up. The other products are EC formulations so vacuuming is not a problem. Safrotin is a restricted use pesticide. This should be no problem since all golf courses use some restricted products now such as NEMECUR. Both Safrotin and L.O. are effective if properly applied. This sounds simple but with flea treatments it is crucial that the proper amount of chemical contacts the carpet. For example if the chemical to be applied has been diluted properly then the important thing is to see how many square feet one gallon is to cover. If it states one gallon per 1500 square feet then one gallon will not treat a 5000 square foot clubhouse. You may make it go that far but do not blame the chemical for lack of control. A B&G sprayer is the best choice for application to carpets. Its fan tip is perfect for the proper spray pattern. If your office is where the problem is and you do not wish to invest \$132.00 for a sprayer there are also excellent total release aerosols available. These can be purchased with a growth regulator in them which will give quick kill due to their dual mixture of a contact killing chemical and hormone. The most available of these is the Precor Plus fogger. This is a professional product. One can covers 6000 cubic feet and gives 120 day control.

Precor can also be purchased in liquid



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form to be mixed with Safrotin or L.O. This is the ideal way to manage your flea problem. After your first application of both residual and growth regulator you can follow up every 90 days with just Precor alone and never have a problem again because proper control of the adults with your initial spray application will allow the growth regulator to prevent new eggs from completing their life cycle.

ROACH CONTROL

Roaches can be a problem in your maintenance buildings, locker rooms, and of course in the clubhouse kitchen. Once again I recommend that you hire a professional pest control company for the clubhouse and kitchen area but I realize that some of you have this responsibility. Demon, Safrotin, Cynoff, Tempo, Ficam Plus, Baygon, and Dursban all give good control. Here again placement and type of formulation are the key factors in gaining good control. If you can get away with a powder residue the wettable powders will always give the longest residual. If large roaches are a problem coming in from outdoors you must treat the entry points. Doors, windows, and attics are the

main treatment sites. If your clubhouse has a dropped ceiling this is a key area to place a product like a Baygon or Dursban roachbait. This is very effective since the large roaches are coming in foraging for food. Also treat the mulched and landscaped areas around the clubhouse since this is the major breeding ground for these pests.

If your problem is with german roaches, the small types that are found in kitchens, you have to treat in a totally different manner. These roaches will be very close to their food and water source. They do not like direct light and prefer to feed in the dark. If you see many german roaches in the open and in the daytime you can rest assured that you have quite a severe problem as the roaches are so plentiful that they are competing with each other for food and the weaker roaches are having to feed in this unfriendly environment.

They prefer to stay in cracks at all times other than feeding. That is why most roach control attempts on germans are just that, attempts. Baseboard sprays will do nothing for german roach control. Placement of any of these chemicals in the

cracks and crevices will give good control. The synthetic pyrethoid insecticides will also give good flushing action and a quick knockdown. Reapply every 30 days or as necessary.

FLIES

Flies in the maintenance building can be a serious nuisance in the summer. The rains drive the flies inside and several species do inflict a nasty bite. Control is best achieved by using baits. The best are Flytek and Stimukil. Both contain a sex attractant (muscamone) and a toxicant. The attractant draws the fly to the bait and then the fly feeds on the sugar based granule. The bait contains the toxicant Methemyl. This is a very effective bait either wet or dry so do not throw it away when humidity makes it damp. Tests have shown that the bait works better when damp.

WITH ALL THE PRODUCTS LISTED PLEASE READ THE LABEL CAREFULLY AND FOLLOW IT TO THE LETTER. THIS IS FOR MAXIMUM EFFECTIVENESS AND YOUR SAFETY. ■

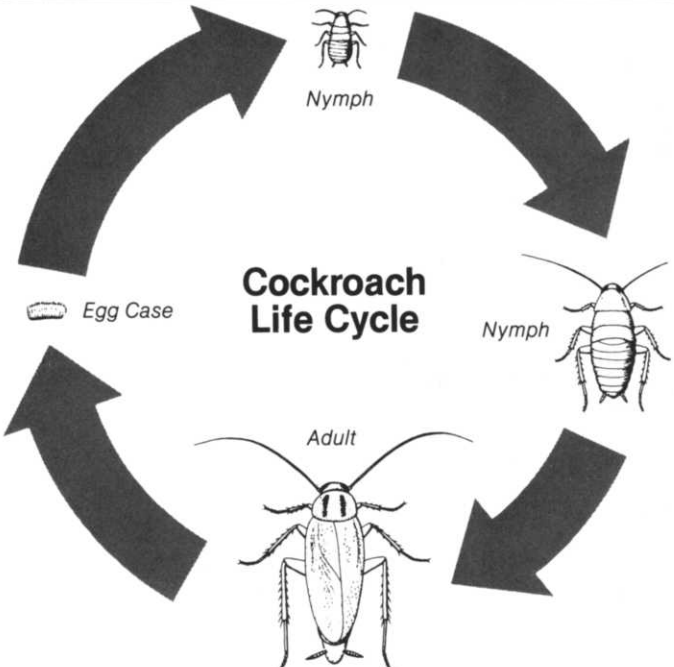
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The Feet That Move the Crow

by **GEORGE and CHARLOTTE JONES**
Wellington Golf Club

When we walked inside the pretty Grand Cypress Golf Club, we came upon a lady sitting behind the table that had all the prizes for the Browfoot Open. We introduced ourselves and found the lady to be Vilma Kamphaus, the Crowfoot Open's Secretary. She was waiting for the tournament to end and share in the excitement of giving out the prizes to the winners. After talking to her for a few moments, we thought she was so interesting, that we asked if she wouldn't mind being interviewed for the magazine. At first she wanted us to talk to the executive committee members. She thought they might have a lot more to tell us. We explained we would like to have a little input from behind the scenes of the Crowfoot Open. Vilma and her husband Larry have worked on the Crowfoot Open for many years. Larry is the Committee Chairman.

The first question we asked Vilma was: How did you get personally involved with



Grand Express Trolley

the Crowfoot Open?

Vilma: I was volunteered quite a few years ago to help stuff envelopes with the towels and handouts that were given to each one in the tournament. I thought the towels could have been a little better quality than they were. I mentioned having a friend that did

monogramming and asked the committee if I could look into getting a classier towel to monogram. I got the OK to call my friend and got prices for the next year. They turned out beautiful. The same friend also found some promotional things and we were able to give out some nice gifts with the Crowfoot logo on them.

Trolley

Clang, clang, clang went the trolley. Ding, ding, ding went its bell as it crossed streets and cart paths on a scenic seven mile round-trip track at the Grand Cypress Resort in Orlando, Florida. This is one of the modes of transportation we took while we were there for the Crowfoot Open.

When we stepped inside the trolley, it gave us a feeling of turn-of-the-century transportation in the early nineteen hundreds.

We discovered the eighty year old trollies were purchased by Grand Cypress in 1983 from Brussels, Belgium. They were restored with attention to detail inside and out by Belgian craftsmen. Some of the traditional European designs are its tulip bulb lighting, leather hanging straps, light oak paneling, and cane seats. It runs electrically by overhead wire and pole slide.

The trollies have an interesting history. They were used in Brussels for more than six decades. During World War I they collected and distributed laundry, transported food and served as ambulances.

It's quite unique for guests at Grand Cypress to climb aboard the trolley for a leisurely ride to their destination on the property. Conductors in authentic style uniforms are helpful and courteous. They talk fondly of the trolley they operate.

For a few moments we held the memory of a bygone era. It all added grace and elegance that's ideally suited to the quality of lifestyle at Grand Cypress Resort. ■

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F.G.: When did you become the Crowfoot Open Secretary?

Vilma: When Larry became chairman of the committee, I'd take his phone calls at home. Helping him little by little just got me involved. The committee asked me to come aboard and help them handle everything and to help keep things organized. It's grown from there. I've been the secretary for six years now.

Larry teases me about knowing everyone in town. I've lived in the Orlando area all my life. And I know a lot of people here. It got so funny because for a while when Larry would mention something like needing a printer for brochures, I'd say, 'I went to school with someone that's a printer.' Whenever he mentioned needing to get something done, I'd know someone that could help. One time when Arnold Palmer was in town advertising for Toro, Larry came home and informed me he was going to have lunch with Arnold and Ken Melrose, the President of Toro. I said to Larry, 'I went to school with Ken Melrose!' Larry quipped back at me, 'No way, this guy is up there in Minneapolis! Now I'm tired of hearing that.' So I pulled out my old high school year book and showed him Ken's picture. Then I said, 'When you have lunch with Ken Melrose, ask him if he knows me!' When Larry came home, he laughed and said to me, 'You did it again! Ken did go to school with you!'

I did get to see Ken at the Bay Hill Classic in the Toro tent. We had a good time talking about old friends and remembering our school days.

F.G.: Do you spend a lot of time getting everything organized?

Vilma: Yes, it takes time to get it all together. The committee has the hardest job making the contacts and raising the funds needed. I'm on the phone a lot and I do a lot of running errands and picking up things.

This has been great for me. Most of the work is done in the Summer. That's when I have time to get a majority of it accomplished. I'm a Remedial Math Teacher at St. Johns Vianney Catholic

School. It's a private school. My job is to bring students up to grade level, like a tutor. The school is affiliated with the church Larry and I were married in twenty-one years ago.

Besides taking up my time it also takes up space in our garage! That's where everything is stored. The sponsor boards, the big crow and things we use each year. After ten years Larry bought me a new car (he likes to drive the wheels off of them before he buys a new one). My beautiful new car sits in the driveway because there is no room for it in the garage!

Our whole family is involved with the Crowfoot Open. Our two sons and daughter help us. I guess you could call it a family affair.

F.G.: We noticed your son taking pictures during the tournament.

Vilma: Our oldest son Larry is very interested in photography and takes pictures for us. He is a senior in high school and has been a yearbook photographer for three years.

His high school, Dr. Phillips High, did a motion picture. This is a first for any high school. They wrote, produced and directed a movie. The people from Universal Studios volunteered a man to come to the school and train a student on operating the big movie camera. Our Larry was the student picked for the training. Now he is an assistant camera man and helps film commercials with them. He is going to continue studying this on through college. We are thrilled with this opportunity that came his way.

F.G.: How do you like working with a committee of seven men?

Vilma: This committee of guys are the nicest people to work with. They are all low-key and easy going. They are all fine gentlemen. We all work as a team getting it together.

F.G.: Your husband Larry has been with the Disney organization for a long time.

Vilma: Larry is going on his 18th year at Disney. Those first years were rough. he dug holes and planted trees along the boulevard where all the hotels are. He helped build the golf course and worked his way to the top.

When we celebrate his 20th year with Disney, we get free health insurance for life. Isn't that a great benefit!

Vilma Kamphaus does all the running and piecing things together that the committee members don't have the time to do. She mentioned many times during our talk, "The guys on the committee have the hardest job to do. I help fill in the spaces like all secretaries do."

We thanked Vilma for the interview. It's rare you hear of someone that is born, raised, married and still lives in the same town in Florida! Vilma is truly a Southern Bell. She is a genuinely warm and gracious lady.

There are a lot of feet that move the Crowfoot Open counting Vilma's, the committee members and everyone else involved. You can compare it to running a race. At then end of the race, they are all winners. They gave us a superb 1988 Crowfoot Open. That was their ultimate goal. ■



1988 Crowfoot Committee members: (seated) Vilma Kamphaus; (l to r) Gary Morgan, Tom Alex, Steve Wright, Joe Ondo, Larry Kamphaus, Jim Ellison, Bob Williams.

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Villas of Grand Cypress — situated among the fairways and waterways of the Jack Nicklaus designed golf course.



Conference Center where board meeting was held Saturday, August 6, 1988.

A Successful 12th Annual Crowfoot Open

by **GEORGE and CHARLOTTE JONES**
Wellington Golf Club

The elegant surroundings of the Grand Cypress Resort helped to make the 12th Annual Crowfoot Open a memorable weekend for all participants and their guests from August 6th through the 8th in Orlando, Florida.

Hospitality plus was shown to all by the host chapter, Central Florida, the Crowfoot Committee, all the resort staff, and volunteers.

The FGCSA held a board meeting Saturday August 6th. An educational seminar

was offered Sunday August 7th. The topics were Fungicide Treatment, Tree Selection, and Refurbishing Projects. All three were extremely well presented. Sunday evening festivities included cocktails, buffet dinner, door prizes, entertainment and dancing.

Monday morning, August 8th, a complimentary continental breakfast was served in the club. After breakfast it was check-in time for the golf tournament and warm-up on the driving range.

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It was a very warm day and everyone appreciated the beverages waiting at designated areas on the golf course. At just the right time delicious boxed lunches were delivered to each person in the tournament.



As for the golf course, Jack Nicklaus designed The New Course at Grand Cypress. The design was purposely planned to pay tribute to the great courses of Scotland. There are some similarities to The Old Course at St. Andrews like double greens, stone bridges, walls and burns.

Starting time for the shotgun tournament was 9:00 A.M. While the participants waited in their carts for the start, a hubbub of friendly chatter filled the morning air. Then, they were off anticipating a good round of golf.

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greens, stone bridges, walls and burns.

Golfers on The New Course have the feeling of playing in an open meadow. Very little water comes into play and few trees are located within the interior of the course.

The New Course complements the existing 27 holes, also designed by Jack Nicklaus, but features steeper and more challenging bunkers and slopes. There are 140 bunkers ranging from small pot bunkers to gaping bunkers which have steps for access. The new greens are much larger in square footage with the new 18 encompassing more area than all the existing 27 combined.

Tom Alex, the Golf Course Superin-



Golfers on The New Course have the feeling of playing in an open meadow. Very little water comes into play and few trees are located within the interior of the course.

tendent, gave a talk during the Buffet Dinner Sunday evening before the tournament. He knew this was the first time the Crowfoot Open was to be played on The New Course at Grand Cypress. His advice to everyone in the tournament was, "Stay out of the pot bunkers, watch out for the deep bunkers, and *don't* hit it in the Love Grass mounds. Those of you who have never played it before, **GOOD LUCK!**"

The New Course at Grand Cypress is both interesting and challenging; a different golfing experience. These 18 holes bring the number of golf holes to 45 at Grand Cypress Resort. The original 18 holes (North and South nines) were recently



Brian Bowles, Construction Superintendent, Palm Beach Polo Club

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JB Branstrom, Golf Course Superintendent, Palm Beach Polo Club

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As the sun sets on the beautiful Grand Cypress Golf Course, we start anticipating the 1989 Crowfoot Open.

voted into the Golf Digest Top 100 Golf Courses in the United States.

Everglades Chapter Captures the Crow

The Central Florida Chapter of FGCSA proved to be a most cordial host for The 1988 Crowfoot Open Golf Tournament. They even went so far as to relinquish their crown for the 2nd year, after 3 successive years as team winner.

The Everglades team of Jerry Redden, Mark Black, Richard Kaiser and Ron Richards won The 1988 Crow Foot Open by 5 shots over The Treasure Coast Chapter.

Scott Zakany won a match of cards

over Lee Bennett for Low Gross Super, after both men posted fine scores of 69's. Scott's win gives him a spot on The GCSAA Team for Anaheim in 1989.

Jim Ellison of Central Florida was the Low Net Super, by winning a match of cards over Richard (Dick) Lemmel.

In The Suppliers Division Dick Johnson won a match of cards over Dick Bessier for low gross, after both shot 70.

Bill Gordon won the Calloway Division of Suppliers, with Bill Buchanan and Jerry Porter finishing 2nd and 3rd.

Prizes won by contestants were TV's, VCR's, phones, Answering machines and

\$100.00 gift certificates uniquely engraved in metal medallions.

We are thankful for our Diamond and Gold tournament sponsors. They helped make this tournament successful. We urge you to patronize their businesses. Many thanks for the excellent job accomplished by the well organized Crowfoot Committee, the Grand Cypress Resort Staff, Central Chapter Hosts, Tom Alex the Golf course Superintendent and his fine golf course maintenance staff, Paul Celano the Director of Golf, Larry and Vilma Kamphaus, and many volunteers. The FGCSA members appreciate you all! ■

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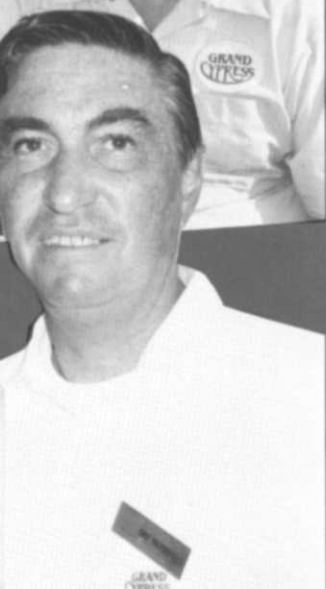
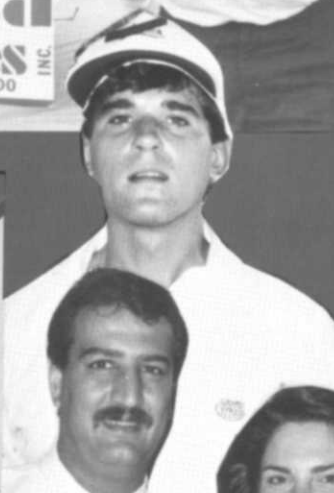
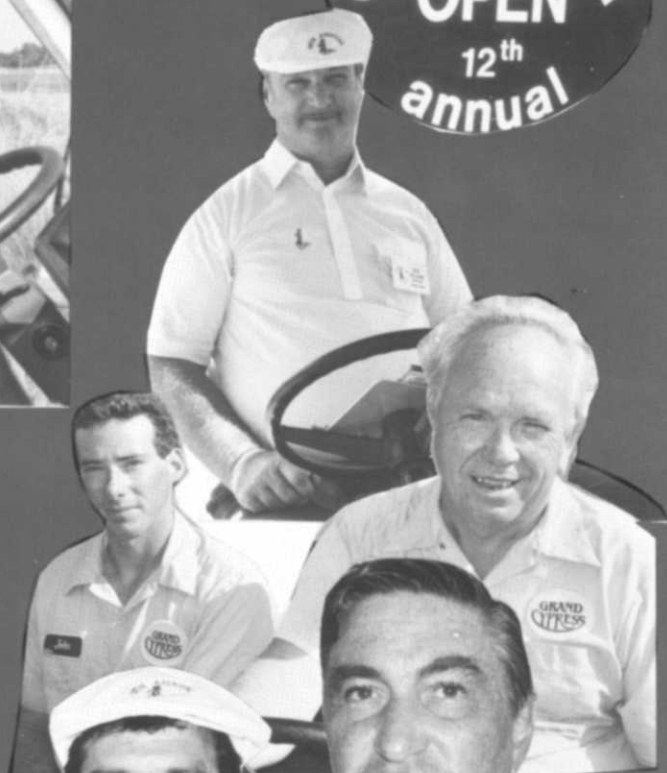
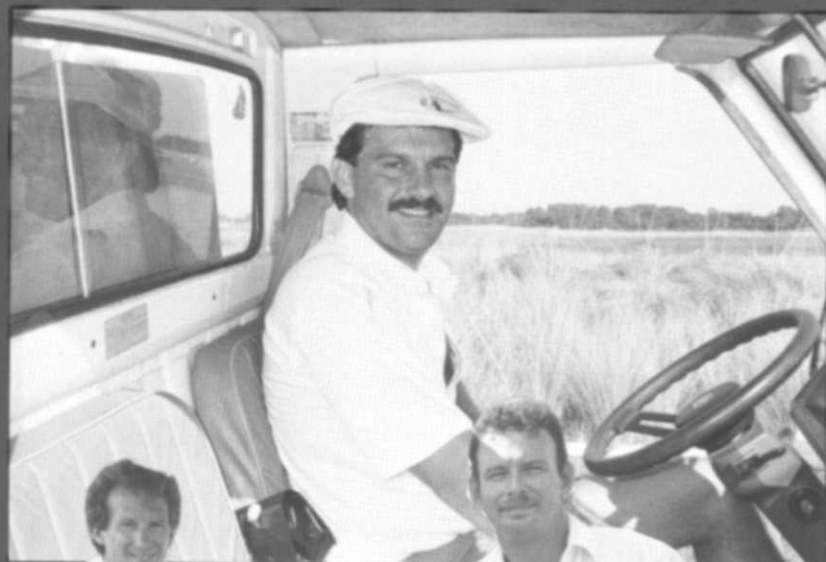
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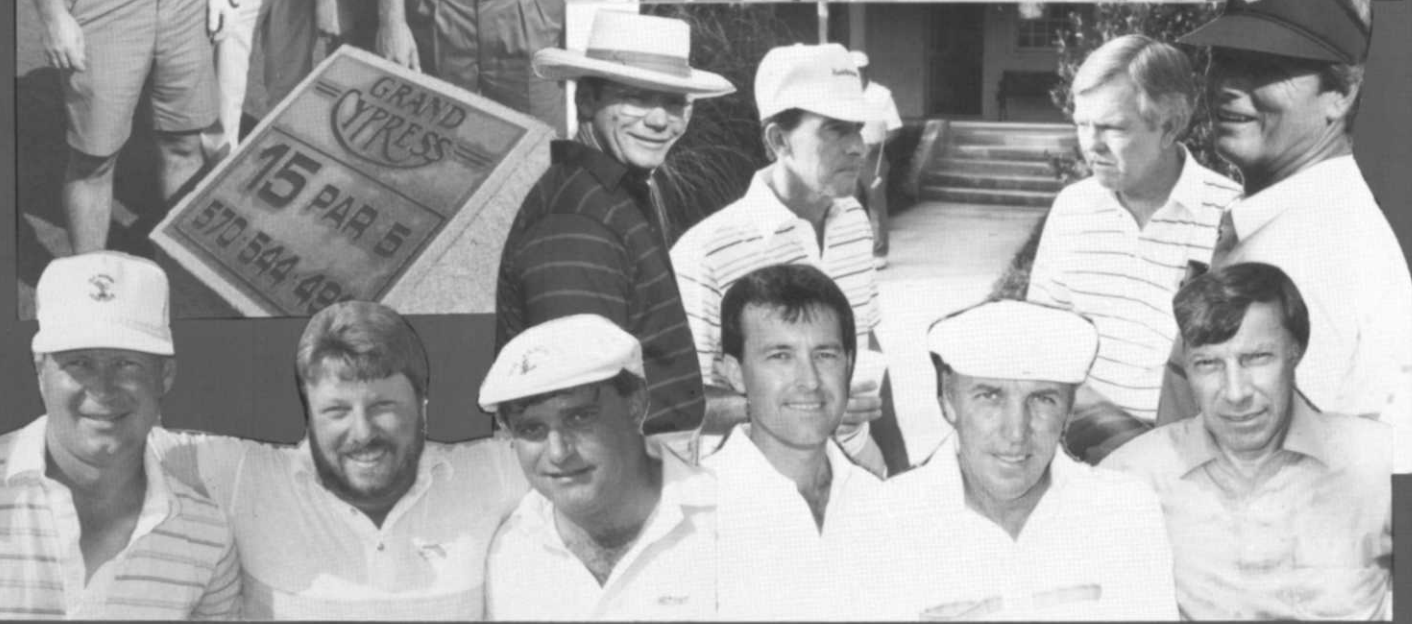
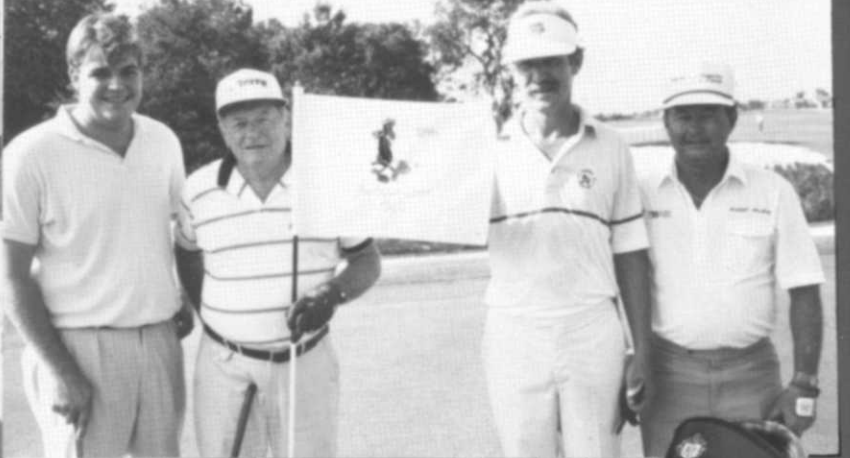
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HORTICULTURALISTS may occasionally see reference to nematode-pathogenic fungi being used for biological nematode control. For instance, a product being offered in the Phillipines for this purpose is "Biocon®." Why aren't such products being recommended in Florida? We simply have not yet found any that were sufficiently effective and safe. The fungus most widely suggested, *Paecilomyces lilacinus*, is already widely distributed, has provided only mediocre control in any experiments,

and may pose a serious human health risk.

P. lilacinus is common in soils around the world, including Florida. It is one of many fungi that may help suppress nematodes when fresh organic matter is incorporated into soil. However, scientists in Europe and the U.S. have achieved less control than claimed by workers in South America and the Asian Pacific when concentrated fungus preparations were added to soil as a "nematicide." Their successes have been discouragingly small and erratic.

P. lilacinus is unlikely to be dangerous in naturally-occurring concentrations, but there are many reports in the medical literature of its causing serious infections of sinus passages, lungs, skin and eyes. The eye infections, though rare, have been so serious as to require surgical removal of the eye to escape fatal spread of the fungus.

The benefits so far are too few and risks too great; we are still looking. Nematology, Entomology, Pathology News January-February 1988

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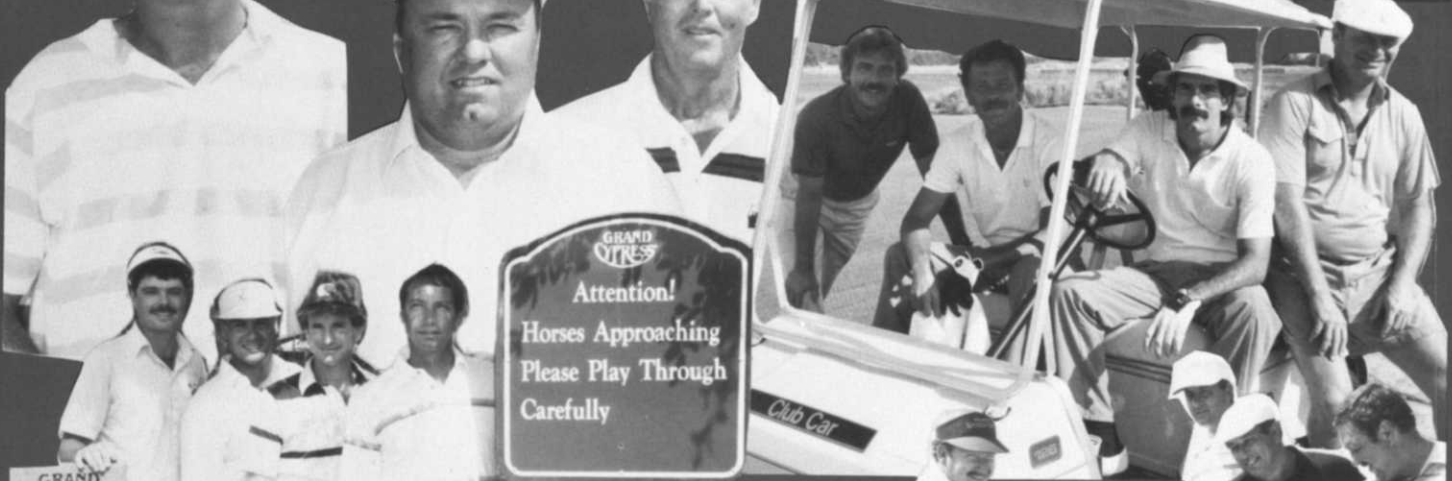
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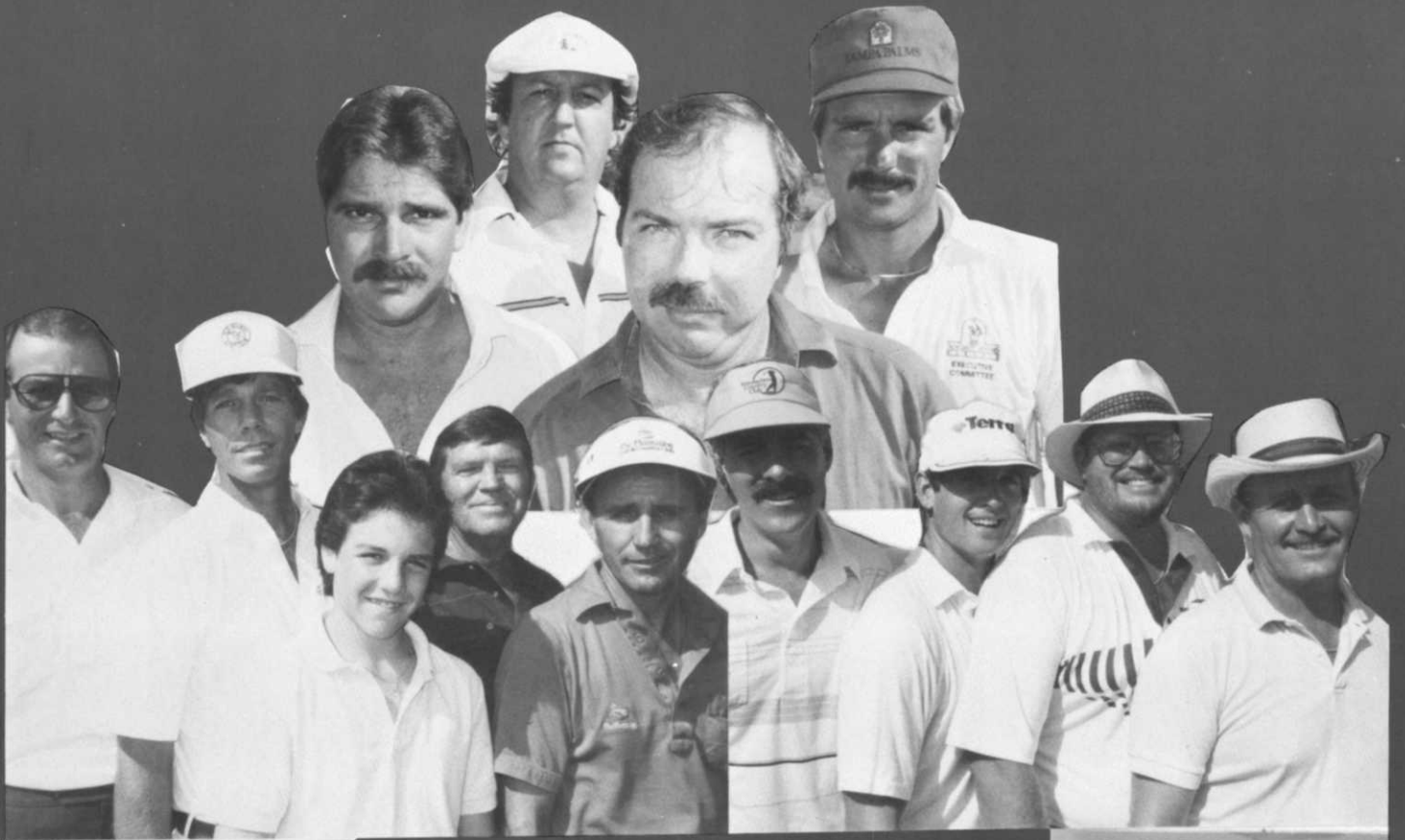
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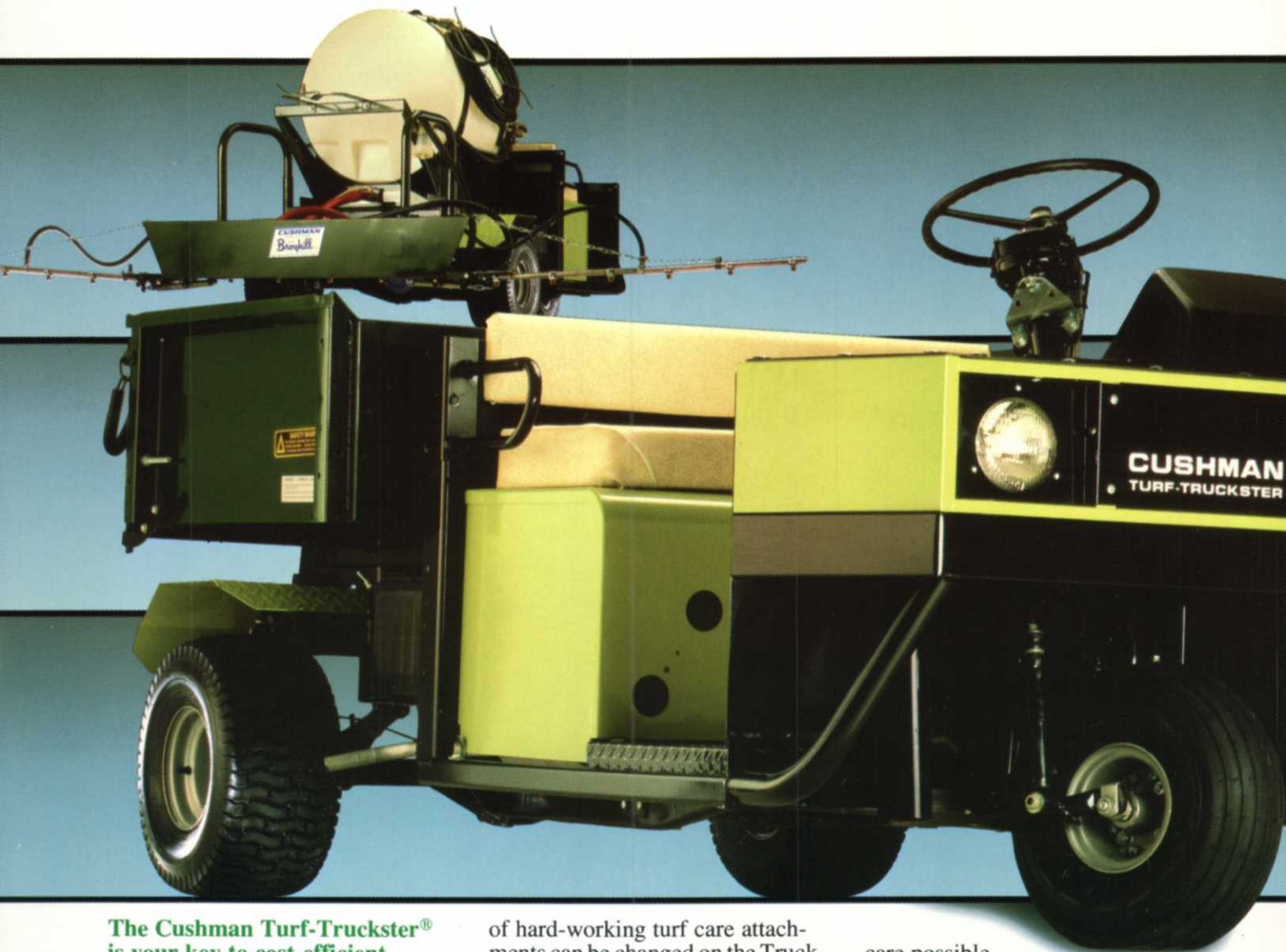
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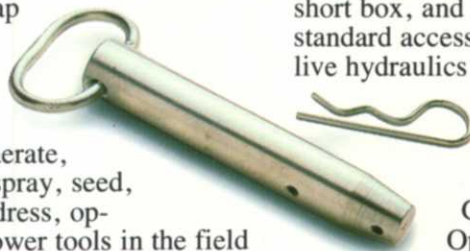
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*A smile costs nothing, but gives much.
It enriches those who receive, without
making poorer those who give.*

*It takes but a moment, but the memory of it
sometimes lasts forever.*

*None is so rich or mighty that he can get
along without it, and none is so poor but
that he can be made rich by it.*

*A smile creates happiness in the home,
fosters good will in business, and is the
countersign of friendship.*

*It brings rest to the weary, cheer to the
discouraged, sunshine to the sad, and it is
nature's best antidote for trouble.*

*Yet it cannot be bought, begged, borrowed,
or stolen, for it is something that is of no
value to anyone until it is given away.*

Some people are too tired to give you a smile.

*Give them one of yours, as none
needs a smile so much as he who has
no more to give.*

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Off The FAIRWAY

by **BOB HUSKY**

Palm Beach Post-Times,
Sunday, Dec. 16, 1956

THE Florida Golf Course Superintendents had one of their most interesting meetings this week when they gathered at the Lake Worth Golf Club where Joe Konwinski was host. Not only were there several items of great interest to the members in regards to their work, but there was an interesting steak dinner served by the women's association of the club.

And having had the pleasure of sinking our teeth into one of the giant cuts of prime beef, we want to give credit to Nat Smith who grilled the meat to perfection.

There were 31 members in attendance, coming all the way from the Miami area on the south and Melbourne on the north.

One of the things brought up before the membership was the importance of the golf course superintendent. Commonly referred to as greenskeeper in the past, he is no longer just that. At one time the greens were the all-important part of a golf course, and the greenskeeper's main object was to keep it in perfect condition. Today, however, the fairway, the rough, the traps, the tees, the drainage, the water supply, fertilization, equipment care, hiring of help and the keeping of books come under the duties of the golf course superintendent.

The golf course superintendent wants the recognition he rightfully deserves. If everything is ship-shape about the course, he should be given credit for the good playing conditions—the same as he is cri-

ticized for anything, imaginable or otherwise, that causes a golfer to make a bad shot.

C. C. Shaw of Miami, long-time member of the association, made a suggestion that any member caught referring to himself or any other course superintendent as a greenskeeper be fined a dollar. When asked to put that in the form of a motion, Shaw started off with "I make a motion that any greenskeeper. . ." Yep! Shaw was the first contributor of a crisp one-dollar bill. And in between the time the meeting ended and the members sat down to eat, Secretary Joe Konwinski, ambling about with ears alert, picked up two more dollars. One was the gift of Jimmy Blackledge, another old-timer in the association.

Another subject for discussion was the labor situation. Like most classes of work, competent help is difficult to find.

Norman Johnson, of the new Florida National Golf Club, told the group that a serious problem came up during the planting and growing period and that some semi-retired men residing in a nearby trailer camp solved his problem by offering their services.

Johnson said use of the older men had worked fine.

"They have pride in their work, and I don't have to tell them over and over how to do something," he said. "They are intelligent men, and successful men, too," he added.

One of his workmen owns a 400-acre farm near Peoria, Ill. Another owned a dry-cleaning plant at Irvington, N.J. Another is a one-armed man, but he can handle a tractor and he has a desire to do a good job.

John Schabinger, president of the association of superintendents says "the golf course superintendent of today has a more enviable reputation to uphold than the old greenskeeper had. The golfing public of today demands a course be kept in the best condition. Club officials demand the best course in the area with the least expenditure, and the superintendent demands of himself and his men the best they can give.

Schabinger, who has charge of the Breakers Hotel course, summed up a superintendent's four major problems as: 1. to satisfy his club officials; 2. to satisfy the golfer; 3. to satisfy the needs of the turf; and 4. to satisfy himself he has done the best job he can.

Schabinger points out the following facts:

"The superintendent has the responsibility for an annual expenditure averaging from \$40,000 to \$50,000 plus the value of the course which is dependent to a considerable degree upon his decisions at maintenance methods.

His decisions regarding the following duties, their performance and timing reflect in the economy of operations.

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"Labor-management relationship is regarded important by all big businesses of today and in golf course maintenance it is a must for continued economical operation because of the small amount of trained labor available in this field. Training of men is one of the superintendent's biggest jobs. After training the men the problem of keeping them by making their

jobs interesting is important."

Schabinger was wound up now. Continuing:

"A daily work schedule must be set up so they will be finished and out of the way, if possible, when the golfer wants to play.

"Watering must be timed for the convenience of the golfer as well as to supply the needs of the grass. A good irrigation system and one kept in good repair is the heart of any golf course. Watering a green is an art learned only by long experience and close observation.

"Fertilizer must be applied as the grass needs it, and preferably just prior to the need. It is one of the most economical ways, when applied properly, to obtain a beautiful course.

"Spraying must be done to save the grass that has already cost so much to get established. This is much cheaper than replanting. The identification of insects or diseases causing damage to turf, and choosing the most effective and economi-

cal spray is absolutely necessary.

"Light top dressings of soil are essential to maintain a smooth putting surface as well as strengthening the grass by the addition of new soil."

We already were late getting back to the office, but Schabinger wasn't about to stop. He was on his pet subject.

"The constant supervision regarding the time of mowing, height of cut and changing height of cut compensate for temperature, moisture and fertilizer availability, as well as the amount of play expected, is an essential duty.

"I could go on and on, such as the policing of the property, relocating of cups in the green, rebuilding of greens, tees and fairways, and attending turf conferences and meetings to learn about the always newer types of grasses, fertilizers, insecticides and methods of maintenance.

"You certainly stayed with me, Bob, but you asked for it." ■



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Dan,

Thanks for the Florida Green. Bill Wagner will truly be missed. We were all fortunate to have known him.

Thanks again.

Jerry Broom

P.S.

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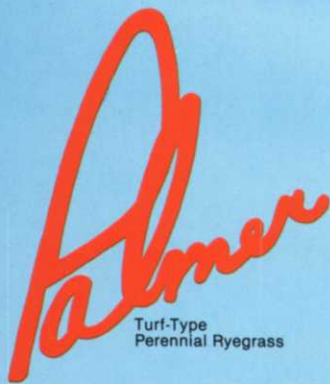
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Repell	5.8	Pennfine	5.3
Tara	5.8	Diplomat	5.3
Premier	5.7	Regal	5.3
Citation II	5.6	Barry	5.2
Manhattan II	5.6	Delray	5.2
Blazer	5.6	Omega	5.1
All Star	5.6	Elka	5.1
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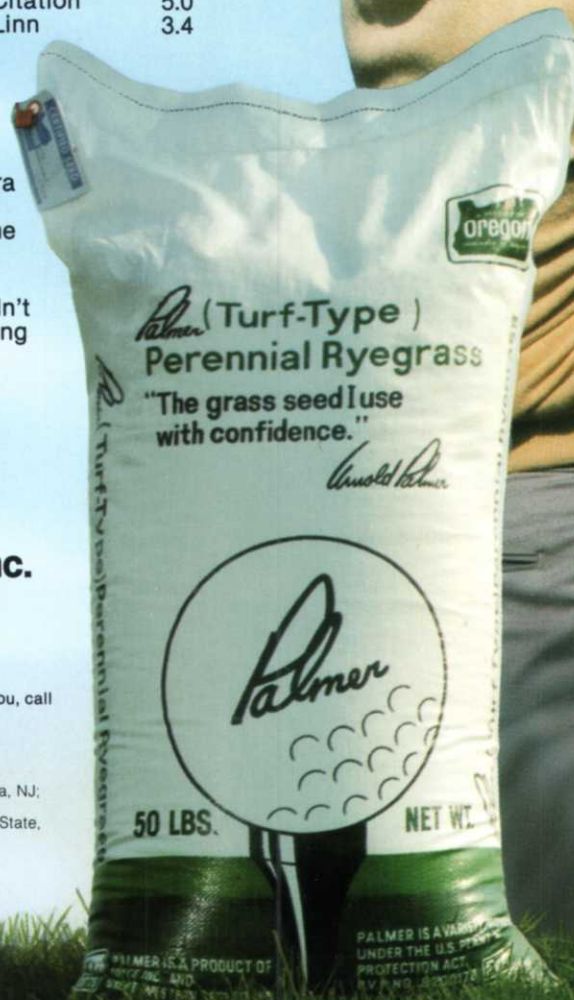


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