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FALL 1981

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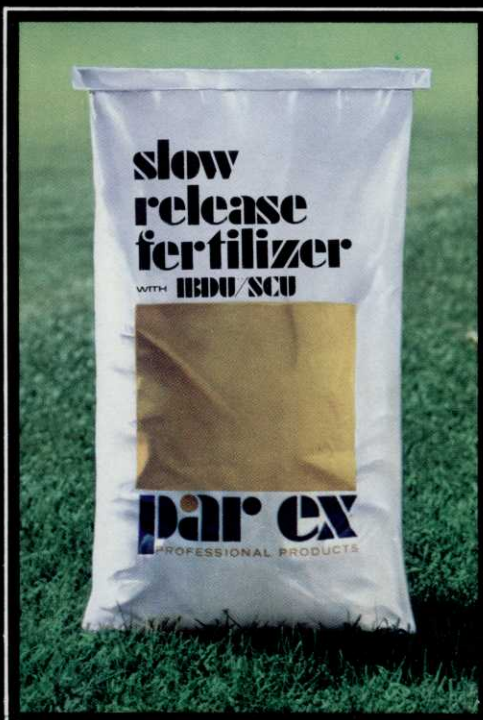
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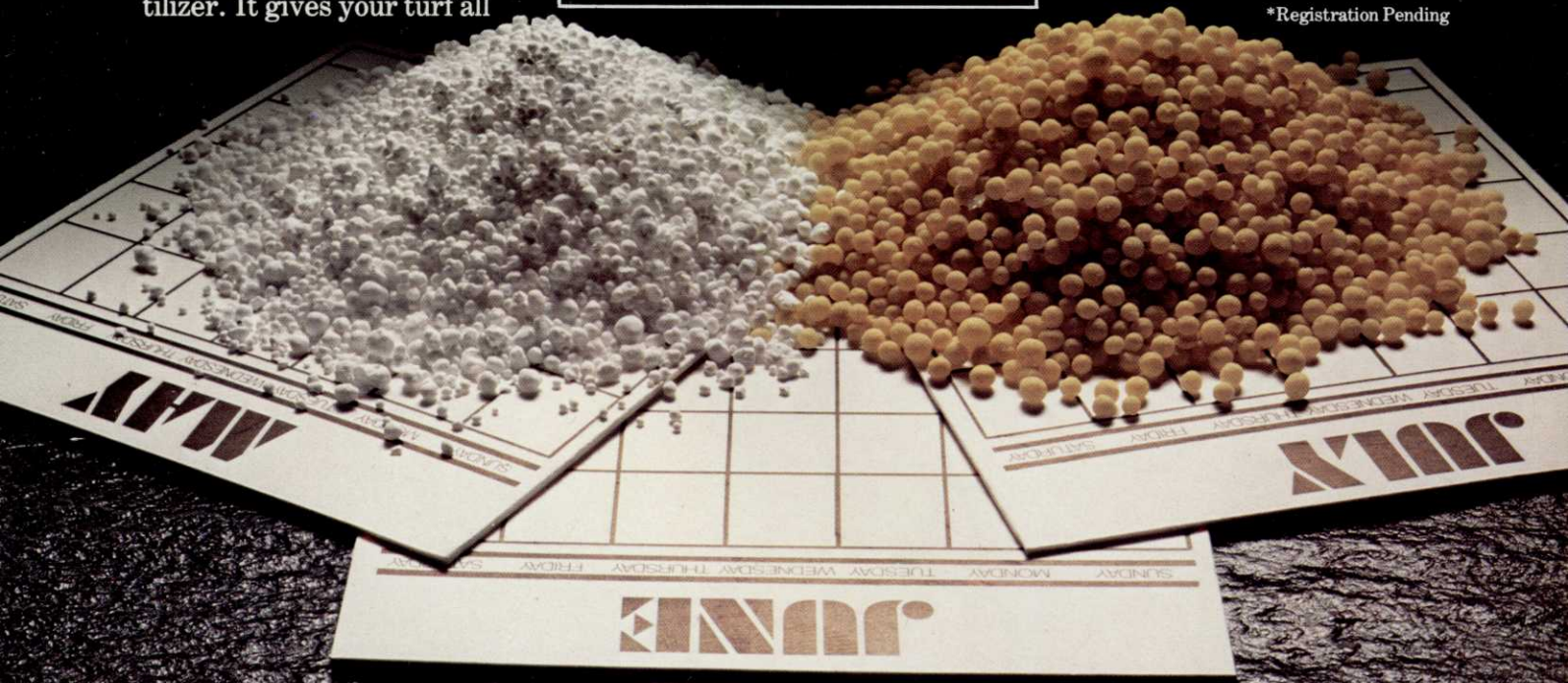
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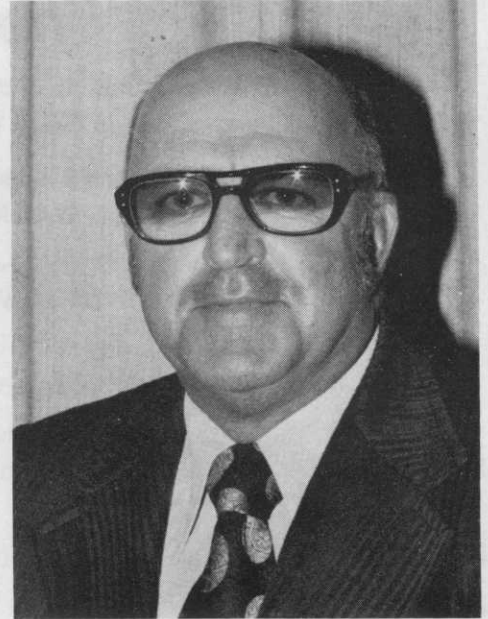
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President's Message



Communication — the act of passing along; transferring; a giving of information by talking, writing, etc.

The failure to communicate properly, or even more simply, the lack of good communication is probably one of the biggest creators of, or contributors to, problems which we all face every day.

Were the instructions given to the crew explicit enough to make them aware of the need to do a certain job in a specific manner?

Do the members of your club know that you will be aerifying the greens next week?

Did we get all of the facts pertaining to an issue or a decision that was made by others with which we disagreed before we arrived at our conclusion or were critical of that resolution?

Did we prejudge someone's guilt because we were not privy to all of the facts?

Did the citizen voice an unpopular condemnation of golf course irrigation practices simply because he was not informed of the unique demands of our circumstances?

Did the instructions mean we should turn left or right at the junction?

Did the teacher's homework assignment include the entire chapter?

Do we know why the bomb was dropped?

One could go on and on with example after example, from the ridiculous to the sublime, of situations which develop needlessly simply because we fail to communicate properly. Either we do not get our point across or we flunk the test by not grasping the essence of the information presented to us.

Recently I had the pleasure of attending a meeting comprised of golf course superintendents, a distributor's representatives, and a major manufacturer's representatives at which the dialogue was one on one and dealt with the present and future needs of our industry. This was excellent communication performed in an atmosphere of mutual respect and open minded consideration of each other. All three parties contributed and all three parties received. Communication at its finest — more of this is needed.

There can be no mutual understanding without communication between people. This is a challenge we must all strive to conquer. Certainly, above and beyond our daily routine, the contributing to and the absorbing of the wealth of information in this publication is a good place to start.

Bill Wagner

The Florida Green

The Official Bulletin of the Florida Golf Course Superintendents Association

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TABLE OF CONTENTS

President's Message	3
Water Conservation Strategies	
For Florida Golf Courses	5
Mole Cricket Experiment	8
North Florida Divots	9
Treasure Coast "Tide"ings	10
Sunlight and Your Skin	13
Year-Round Sunglasses Use Urged	15
West Coast Buccaneers	16
Birth Control Pills Helps Plants Multiply	18
Turtle Creek Hosts Annual Meeting	20
South Florida Sunshine	21
Supers Lose Friend	24
Agronomy Quiz	24
Adalayd — A New Turfgrass Species	25
Cantu Buys Zaun West	30
The Gator Growls	31
Palm Beach Trade Winds	33
Bay Hill Hosts 5th Crowfoot Open	35
Fifth Annual Crowfoot Open	37
Guest Editorial	38

ABOUT OUT COVER

Looking from behind a 150 year old oak tree at the 13th tee of The Deerwood Club, Jacksonville, Florida. Chip Powell is the golf course superintendent.

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Water Conservation Strategies For Florida Golf Courses

By DR. BRUCE J. AUGUSTIN
Extension Turf and Water Specialist
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Water or rather the lack of water is a pressing concern throughout Florida. The South Florida Water Management District officials say we are experiencing a one in 700 year drought, one of the most severe droughts yet in Florida. As a result, water storage in many surface and ground reservoirs is at all time lows in parts of Florida. If the lack of rainfall is not enough of a problem, residents' demands for water continue to increase.

Without significant amounts of rainfall this summer and fall, severe restrictions on water use for landscape irrigation are likely to be imposed during the winter of 1981-82. Golf courses are the number one target for irrigation curtailment by water management districts. The general public perceives golf turf irrigation as a non-essential use of water even though residential irrigation is far more wasteful and uses much more water than golf courses.

Unless the usual rainfall pattern during the fall months changes radically, the outlook for turf irrigation is bleak for the coming year. To have your golf course survive with little or no water, it is essential that action be taken immediately. The turf must be conditioned and priorities established for water use on the golf course.

Conditioning The Turf

Bermudagrass can survive drought remarkably well if the turf is conditioned or hardened-off. The secret to drought conditioning a turf is to grow a good root system. All phases of turf management are involved in this process.

The height of cut should be increased on all turf areas and especially on those areas that will not receive any supplemental irrigation. Greater leaf area for photosynthesis will produce more carbohydrates for plant growth including root systems. The higher the height of cut the deeper and more extensive the root system.

Irrigation practices for fairways should be modified so that water is applied only when signs of stress or wilt occur. On tees and greens, water should be applied when there is a loss of turgidity in the leaves, but before noticeable wilt occurs. Limiting the frequency of irrigation encourages a deeper root system. The amount of water applied at any one time should correspond only to the amount needed to wet the rootzone. These practices provide a good mixture of water oxygen in the soil for deep root growth.

Potassium and micronutrients should be applied on a regular basis. Nitrogen should be withheld on fairways. On greens and tees, apply only enough nitrogen to promote some growth for protection against wear.

Pest control is equally important as other management practices in preparing for drought. Nematode control and application of pesticides for insect control need to be accomplished BEFORE water is limiting so the turf has every opportunity to develop a deep root system.

Setting Water Use Priorities

When faced with water use restrictions it is important to have a list of water use priorities for your golf course. The first step in developing this list is to calibrate the irrigation system of the entire golf course, not just the greens. A superintendent should know the irrigation rate in inches per hour for all areas of his course. Do not forget about the areas around the clubhouse and entrance way. Next, calculate the number of gallons of water it takes for a normal irrigation of the greens, tees, fairways, fairway approaches, rough, and other turf areas. Now make the list of priorities for water, usually greens are at the top and rough areas are the bottom. Determine the percentage of the total irrigation water to each of these areas. It may be surprising that you could shut-off irrigation on the rough areas and the fairway approaches and still provide normal

(Continued on Page 6)

CALIBRATION OF IRRIGATION SYSTEM

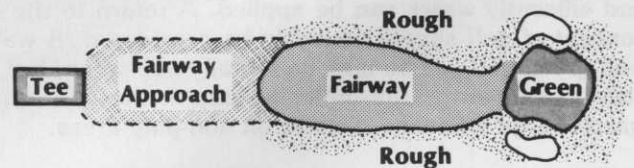


Figure 1. Calibrate the irrigation system on the entire golf course for inches per hour, and number of gallons of water applied to each area of the golf course. Use this information to set water use priorities.

Water Conservation

(Continued From Page 5)

amounts of water to the rest of the golf course with 25 percent water restriction. Under more severe water restrictions, decisions on what areas to irrigate can be still made more logically with a set of priorities.

It is important that the list of water use priorities be made with the greens committee based on the superintendents recommendations. This process keeps the members involved in decisions that affect their golf course. Communication with the membership is vital, especially if the golf course appearance changes from lush green to brown turf.

GOLF COURSE IRRIGATION SYSTEM

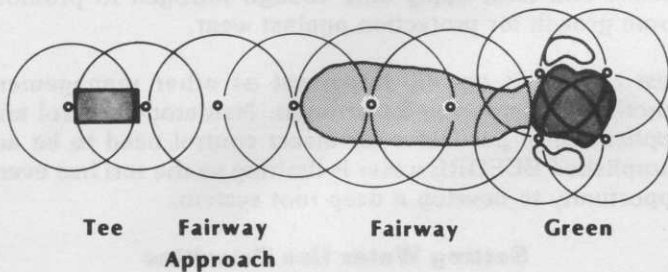


Figure 2. A typical golf course irrigation system. Note the large amount of non-playing areas under irrigation.

Long Term Strategies

Water use restrictions are likely to be with us for the foreseeable future. Current irrigation rates of 700,000 to 1,000,000 gallons of water per night on the typical 18 hole golf course are coming to an end. Whether restrictions stem from the lack of rainfall or the continual population growth and demand, the days of unlimited irrigation are over. The water management districts are going to allocate water first for residential use, then for agriculture which produces a food crop and far down the list will be golf courses and landscape irrigation.

The time is now to plan for survival of golf courses in the future. Evaluation of current golf course irrigation systems is one approach in order to determine just how judiciously and efficiently water can be applied. A return to the links concept of golf should seriously be considered. A wall-to-wall green golf course may be visually appealing, but does little to encourage the duffer to stay in the fairway, and wastes large amounts of water on non-play areas.

The greatest future hope for providing water to golf courses in Florida is sewage effluent. It is an untapped resource. Urban areas produce billions of gallons of effluent every day, and precious little is used for turf irrigation. The major obstacle to the use of sewage effluent in Florida is public opinion. The turf industry needs to lobby with state and local governments to change existing laws and ordinances

that prohibit use of sewage effluent for irrigation. Only then will we be assured of continuing to have the number and quality of golf courses that are famous in Florida. ■

MODIFIED IRRIGATION SYSTEM

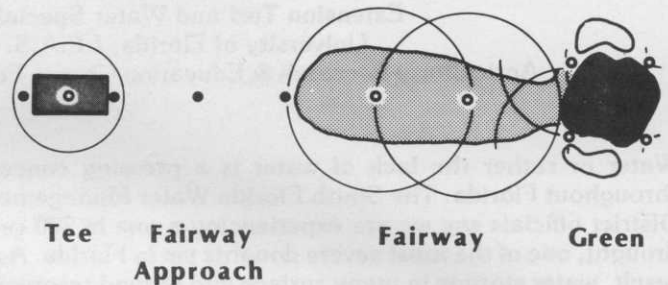


Figure 3. A modified golf course irrigation system for water conservation. The tee area is irrigated with one small head. Irrigation in the fairway approach has been eliminated. Sprinkler heads on the green have been converted to part-circle. Fairway irrigation could also be reduced by one head or more depending on the length of the hole and the need to conserve water.

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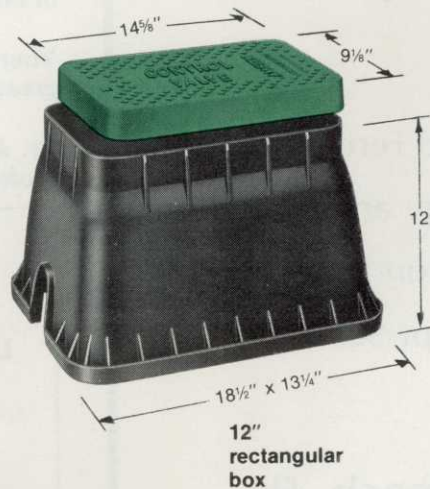
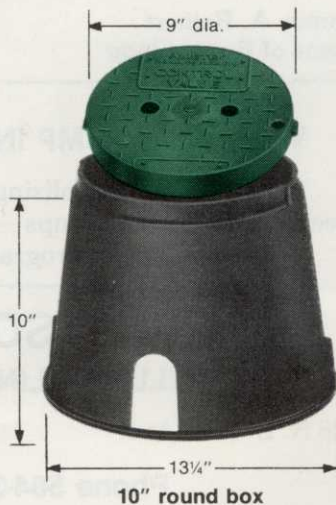
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Mole Cricket Experiment

Golf Course Superintendents or other Turfgrass Managers:

I need your help in a State-wide experiment on mole crickets which I am conducting. We are beginning to see increased mole cricket activity at this time of year, and insecticide treatments may be needed to prevent extensive damage. For this study I need the following:

1. When you treat with insecticides, collect all the dead mole crickets from a treated area large enough to get about 1 quart jar full of them (be sure to collect before the birds arrive in the morning or collect right after treatment) – collect all stages please.
2. I need mole crickets from all species of turf (Bermuda, bahia, St. Augustinegrass, etc. (please keep specimens from each grass separate).
3. Fill a quart or larger jar about one half full with alcohol (rubbing alcohol is OK) and collect the crickets directly into it, then finish filling the jar with alcohol.
4. Label the jar with the following information: Size of the collection area, chemical and method of treatment used, date, grass variety, golf course, address, and collector.
5. Call (305) 475-8990 to let me know you have the samples, and either send them to me or drop them by the Research Center in Ft. Lauderdale.

Mole crickets from this study will be used in several ways. First, we can determine which species is most important in damaging turfgrass. If only one species is prevalent, then this will aid in future research; that is, we can concentrate on one species instead of two as we are now doing. We will also be able to determine the species distribution across the State. Finally, we can search these specimens for presence of any natural parasites or predators.

Your assistance in this study and support of our program is greatly appreciated.

Dr. James A. Reinert
Professor of Entomology

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NORTH FLORIDA

DIVOTS



By EDDIE SNIPES
Assistant Superintendent
San Jose Country Club

Now playing in the North Florida area, "The Drought of 81", consult your nearest rain gauge for nonexistent rain recordings. Some people may jest at this remark unless they happen to be a golf course superintendent.

Golf course superintendents in North Florida are now experiencing drought conditions that for years seemed indigenous to the southern regions of the state. Many are experiencing first hand the ramifications that go with long term dry weather conditions. One finds that the ramifications of a drought are far reaching and in some cases not always bad.

Rising electric bills due to increased running of irrigation pumps have many superintendents and club managers worried. Close watch on the rising number in kilowatt hours during a time when electric rates are already high is an expense that really puts a dent in the budget.

With irrigation systems constantly running, some courses have developed wet spots that in turn lead to the appearance of fungi. Weed control suffers from the constant running of irrigation systems. Some courses cannot afford to go without water for fear of damage to the turf. Turf stress during a drought preys heavily on the minds of superintendents. Raising the various heights of cut and aeration are some ways superintendents have sought to relieve turf stress. With water restrictions and cutbacks now in effect, sewage affluent systems are being discussed as a long term answer to some of our water problems. Even with

the advancements made in irrigation systems, the consensus of opinion is that no one or anything puts out water like Mother Nature.

With all the negative ramifications of a drought, golf pros and irrigation distributors are not that unhappy. Blue skies mean more rounds of golf played and lack of rain means more irrigation supplies and parts being ordered. Both of these things mean money.

During these dry conditions good attitudes and a high spirit of cooperation exist between North Florida Golf Course Superintendents Chapter members and the St. Johns River Water Management District. Mr. Bob Moresi of the St. Johns River Water Management District office attended the July 14 meeting and spoke to the Chapter. The superintendents were given a brief history of water management in the state of Florida. He also discussed the lens or bubble theory that accounts for Florida's water supply and tried to dismiss any notions of underground rivers from the Carolina's feeding into Florida. Enforcement of restrictions, registrations of new wells, and the metering of wells to record water consumption were also discussed. The meeting was very productive and educational to both parties from the many questions that were raised.

North Florida may be high and dry now, but through our Superintendents Chapter and the help of our state agencies we will work together to ensure that enough water is available to grow quality turf in our area now and in the future. ■

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Treasure Coast "Tide"ings

By JAMES P. CALLAGHAN
Riomar Country Club

Drought Hits Treasure Coast Hard

All golf course superintendents along the Treasure Coast have had to cope with one of the worst droughts in recent memory. In fact, an official from the St. John's Water Management District stated that the recent drought had a return period of 200 years!

Most golf courses fared relatively well under the adverse conditions. Many areas received less than 40% of the rainfall expected from July '80 through June '81 and Vero Beach received only 7 inches of rain during the first six months of this year.

Golf courses located inland that have ample quality water supplies escaped the nightmare found along the coastal sections. Tom Burrows, superintendent of the Turtle Creek Club in Tequesta, reported that he had enough water to pull through "fairly well". Likewise, Bill Mangold of Crane Creek Golf and Raquet Club in Stuart said that he welcomes dry spells so that he can control water application himself because of his heavy soil conditions.

However, for those golf courses located on the barrier island or near the Indian River to the west, problems reached crisis proportions. Fear of losing wells to saltwater intrusion was beginning to cause sleepless nights. With the average need of 500,000 gallons of water per 18 holes per day, superintendents along the coast really had their hands tied when mandatory cutbacks were issued. And to add insult to injury, many courses lost their overtaxed irrigation pumps for extended periods of time.

In Indian River County, Adam Yurigan of the John's Island Club reported touch and go situations. Although he has access to effluent, its volume is cutback during the hot summer months as the population of the development thins out. Adam is able to supplement water from his shallow wells with water from a private well in Wabasso, some five miles to the west. He stated, "without that Wabasso well, we'd definitely be in a bind."

Just down the road a bit, Riomar Country Club has 18 two-inch shallow wells, all within 600 yds. of the Atlantic to the east and the Indian River to the west. Towards the end of June, they were discharging approximately half their normal total rate of 300,000 gallons per day and chloride concentration was up from 700 to over 1200 ppm.

Other superintendents in St. Lucie and Martin Counties had similar stories. Lonnie Stubbs of Sandpiper Bay reported a critical condition and that he had to divert water normally used on the Wilderness course to the Saints and Sinners

courses. Joe Snook, superintendent of Riverbend in Tequesta, stated he was having a difficult time because his daily allocation for water use was low to begin with as compared to other area golf courses.

Getting To The Root Of The Problem

Although we may not see another drought as severe as the one of '81 in our lifetime, many superintendents are going to implement measures to insure that their turf will hold up better during dry periods. Superintendents along the Treasure Coast are going to tackle the root of the problem — grass root that is. Deep, fibrous roots are the superintendent's insurance policy under drought conditions.

One basic way to stimulate root development is to make sure potassium levels are adequate in the soil. In talking with several area fertilizer representatives, there is a definite trend toward using blends with a percentage of potash equal to or exceeding that of nitrogen to increase root development.

Another measure that area superintendents have found effective is the use of wetting agents or surfactants. Because these materials break the surface tension of the water, they enable water to percolate into the soil effectively toward the root zone even under compacted or thatchy conditions. Some superintendents have reported that regular use of wetting agents reduces the volume of water needed to sustain turf, especially in problem areas, by 15-50%.

Reducing nematode populations is probably the priority item in our area to encourage better root development. With sugar sand being the primary soil base for golf courses along the Treasure coast, we are a vacation paradise for the little undesireables. Those golf courses in our location such as Turtle Creek and John's Island that inject for nematodes annually had the healthy turf to show off even during the hot periods in June and July. Superintendents who have been injecting in alternate years or even waiting to the third year are going to persuade their clubs' officials that annual injections should prove to be a step in the right direction.

Other measures mentioned to stimulate increased root development are increased aerification and increasing time in watering cycles but decreasing the number of cycles. These measures enable water to move down into the root zone and discourage shallow root formation.

The golf course superintendents along the Treasure Coast probably won't mind seeing a mild dry spell in the near future. They believe that they are taking appropriate measures and would like to see mother nature put them to the test. ■

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Sunlight and Your Skin

By STEPHEN E. CHIARELLO, M.D., P.A.

Dermatology & Dermatological Surgery

Diplomate of the American Board of Dermatology

Why Avoid the Sun?

Sunlight permanently damages skin. Ordinary sun exposure during tanning and outdoor sports causes permanent skin changes. These changes build up over the years, so that even moderate repeated sun exposure causes visible skin damage. Most of the wrinkling, roughening, and freckling that appears on the face, hands and arms of white adults comes from sun damage, not age. You can see this if you compare less sun-exposed areas, such as your abdomen or the undersides of your arms, with sun-exposed areas such as your face, neck, or upper surfaces of your arms. The natural coloration of your skin, pigment, protects you from the damaging effects of sunlight. Persons with fair skin, who have little pigment, are more prone to sun damage than dark-skinned individuals.

The Skin-Damaging Effects of Sunlight

The skin-damaging effects of sunlight gradually lead to roughening, freckling, and wrinkling. Many people in their 30s and 40s are unhappy because their wrinkled, roughened, sun-damaged skin makes them appear 10 or 15 years older. Unfortunately, there's no way to undo these changes. Young people should realize that they'll ultimately pay a steep price for the temporary glamour of a deep tan.

A more serious effect of sun damage is skin cancer. Sun damage is the chief cause of skin cancer. Here again, fair-skinned individuals are much more susceptible. Skin cancer rarely occurs in blacks. As you might expect, skin cancer tends to occur on sun-exposed areas such as the face, neck, shoulders, and arms. While skin cancers can usually be removed by minor surgery in a doctor's office, it's better to prevent them.

Ultraviolet Rays — The Invisible Enemy

Sunlight contains both ordinary, harmless, visible light and shorter, invisible light rays called ultraviolet light. Tanning, burning, and skin damage from sunlight are caused by ultraviolet rays. Since ultraviolet rays produce both tanning and skin damage, it's impossible to tan "safely" and avoid permanent skin damage. Discussions on sunbathing that describe "safe" tanning refer to the avoidance of sunburn. By proper timing, most persons can get a deep tan without a sunburn. However, no one can get a tan without some skin damage.

Sun-Protective Measures

There are two basic ways of protecting your skin from the damaging effects of ultraviolet rays: (1) blocking out all light with an opaque material such as clothing and (2) using a chemical sunscreen that selectively absorbs ultraviolet rays. Blocking out all light with clothing is most effective. Certain sun protectives depend on the same principle. They coat the skin with a paintlike pigment that mechanically blocks light. They work well, but they're messy and rather unsightly.

There are also many clear sunscreens that absorb ultraviolet light. These "clean" sunscreens contain either PABA (para-aminobenzoic acid) or a benzophenone compound. Some of the PABA-containing sunscreens are taken up by the skin and will provide some protection in the water, provided they're applied one or two hours before swimming. An occasional person is allergic to PABA or its derivative. So please try PABA-type sunscreens on a small area of skin before spreading it all over your body. The other chemical class of sun protectives, the benzophenones, rarely cause skin allergy. Benzophenones wash off, however, and therefore do not protect swimmers. Some benzophenones have a bitter taste that can be annoying when applied near the mouth.

There are many sun protectives on the market. If they're designed and act as "sunlight blockers" and contain a PABA derivative or benzophenone, they're probably adequate. Water removes most sunscreens. Remember to put on another coat of sunscreen after swimming or bathing. If you're sweating heavily, use some more sunscreen every hour or two. If you're in very bright sunlight, it's wise to protect your skin as much as possible with clothing (long sleeves, gloves, wide-brimmed hats) and use one of the "clean" chemical sunscreens on the parts of your skin exposed to the sun.

Protect your lips from sun damage. The darker the lipstick shades are effective for women. Men — and women who don't wear lipstick — should use an ultraviolet-absorbing lip pomade. Women can use make-up with a sun protective. The sun protective should be applied first, then the make-up itself — especially if heavily colored — provides some sun protection.

You should aim to minimize sun exposure, not avoid it. Being outdoors is fun and healthful; don't let fear of sun damage keep you inside during sunny weather. Do use sun protectives when enjoying sports or a walk in the sun.

Specific Sun Protection Instructions

1. Avoid the 10 a.m. to 2:00 p.m. sun whenever possible as 70% of the earth's harmful radiation reaches us at that time.
2. Wear protective clothing: a broad brimmed hat and long sleeved, tightly woven white cotton shirt.
3. Apply a sunscreen containing both PABA and Benzophenone to dry skin at least one (1) hour before sun exposure for maximum protection. Wipe or wash residual from palms. Let dry before putting on clothes.

Hydration of Skin: (Bath or Shower) Immediately before application, provides an increased "protection reservoir". Daily application maintains this "protective reservoir". Always reapply after swimming or excessive sweating.

Exposed areas of the skin most likely to suffer sun damage are the face, (especially ears and nose, the scalp if you are bald), the back of the neck, arms, top of the hands and exposed parts of the chest. ■

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Year-round Sunglasses Use Urged

In preparation for summer, sun worshippers usually update their beach-going equipment, including buying a new pair of sunglasses when necessary.

Experts in the eyewear field advise us that sunglasses should be part of our outdoor life year-round, not just during the bright and sunny summer months.

"The basic reason (to wear sunglasses) is for the protection of the eyes against burn or cataracts and to make you more comfortable (by reducing the amount of light reaching the eye)," said Phillip L. Kaufman, vice president of the Illinois Optometric Association and a practicing optometrist.

The spectrum of light consists of different wave lengths ranging from ultraviolet at one end to infrared at the other, with a visible range in the middle, Kaufman said.

"The two types of light that do damage to your eyes are the ultraviolet and the infrared. What most (non-prescription) sunglasses will filter out is the visible spectrum, but not the infrared and ultraviolet. In order to get both the infrared and ultraviolet, one has to wear optically manufactured lenses with special dyes for tints that block out the harmful rays."

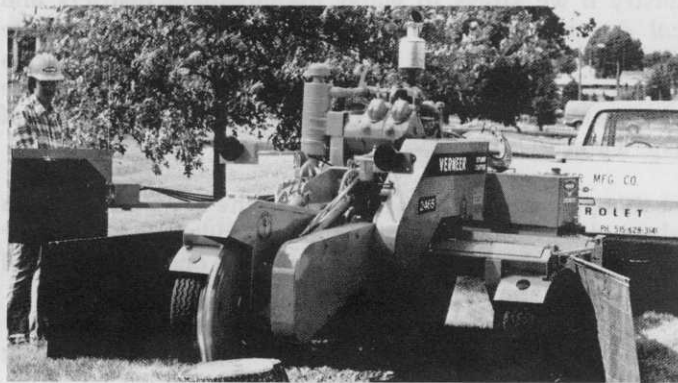
Another problem with buying over-the-counter sunglasses at the local drug or variety store is that many of the lenses are distorted.

"Hold up a pair of real cheap sunglasses, about a foot away and see for yourself," said Kaufman. "If the line of the lens is not perfectly straight from top to bottom and right to left (or the edge distorts, sways, curves or moves), that lens has some distortion in it and can make you uncomfortable. However, the human visual system is so miserably adaptable that patients learn to adapt to them."

Sunglasses have become very fashionable, Kaufman said.

"And they (consumers) are exposing themselves to conditions for fashion's sake and getting away from the protective value of sunglasses, and that is not good." ■

(Reprinted from the Palm Beach Post-Times and The Chicago Sun-Times.)



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West Coast Buccaneers



By REED LeFEBVRE
Pines & Palms Management Corp.

Water — the lack of it or the abundance of it. This seems to be the main topic of conversation among golf course superintendents on the west coast of Florida. I questioned several members of our association regarding this issue.

Harvey Phillips said they have had 4.5 inches of rain at the Biltmore from August 20, 1981 to September 1, 1981. However, before that Harvey was restricted to watering only between 8 p.m. and 8 a.m. He is trying to regulate this "feast or famine" situation by negotiating for the use of effluent water. It will probably be at least a year though before this plan is realized.

Lee Todd reports an adequate water supply at the Dunedin C.C. The club was put on mandatory watering restrictions for the first time this summer. Lee said they have no plans in the immediate future for using effluent water.

Lakewood C.C. golf course is "pretty wet" at the present time, according to Dick Grill. Dick uses effluent water which takes care of one side of the water issue for him.

Dan Morgan down at Sun City is currently "pretty damp." Dan's wells are in good shape and everything held up very well during the recent dry period. Sun City plans to use effluent water on all their courses within four years.

With only about a quarter of their usual rainfall, Don Wilson up in Crystal River reported he is fairly dry. His wells are in excellent shape though and he doesn't anticipate any real problems in the near future. Don was restricted to night time only watering.

Fred Tucker at Timber Oaks in Pasco County continues to have his own unique problems. Timber Oaks Golf Course is dry and getting little moisture compared with most of the rest of the west coast. The SWFWMD cut them back to 40 per cent of their normal water needs while the county

allowed only night time watering. The matter was further complicated when the SWFWMD required flow meters to be placed on the wells and pumps. Timber Oaks uses effluent water, but since the county restricts its use to within 50 feet of residential dwellings, a dual irrigation system is required for the course.

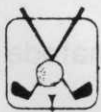
At the Plant City Golf Club we could get only enough water during the early summer to "keep the roots alive." At the present time we are pretty wet though. During the drought we conserved water which prevented our well from cavitating. The availability of a source for effluent water at our location is almost nil and so, at this point, we have no plans to use it.

The superintendents in our area agree that use of effluent water for irrigation will be the only salvation for many courses. It is all too clear — especially in our heavily populated areas — that if the natural supply of potable water is only adequate now, it will be unavailable for any type of recreational uses in the not too distant future.

It might be best for our profession and the golf course industry if we stress to water management districts and local governments that using effluent water to irrigate recreational lands will not only conserve a precious resource we are rapidly depleting, but will also solve some of the problems the various counties are facing disposing of waste water.

Just this past week it was reported in the news that Tampa had to dump raw sewage into the Hillsborough River because of all the rain. A similar situation occurred south of here in the Manatee River.

Do we just wait until we turn on the faucet and nothing comes out before we do something? ■



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Birth Control Pill Help Plants Multiply

Birth control pills for plants? When Bob Kundtz said he wanted some for a horticultural experiment both his doctor and druggist were taken aback.

But Kundtz, known as the "wizard" of Florida's Cypress Gardens, wanted the pills, not to prevent conception but to get some plants to reproduce.

Soaked in a solution of one birth control pill to one quart of water, the plants soon sprout new offshoots complete with root systems. The offshoots are then separated and repotted as new plants.

"I first heard of it in Australia about three years ago," says the well-traveled vice president of the famous flower-and-water-ski attraction in Central Florida.

"I couldn't get a variegated pineapple to put out new growth quick enough. And this friend of mine said, 'No problem, old chap. Do thus and so.'

"I thought he was pulling my leg, but I kept it in the back of my mind," Kundtz says. "It sort of bugged me.

"About a year later, I couldn't get a pandanus (a member of the lily family) to throw any keiki (a horticulture term for new growth). So I went to the drugstore and asked for some birth control pills.

"There was a lot of whispering in the back of the store, and then I found out I needed a prescription for them. So, I went over to my doctor. He said, 'Bob, does your wife know?'"

But Kundtz persisted through all the ribbing, got his pills and tried them out.

"It really does work," he says. "Little plants come out thicker than hairs on a dog's back."

Kundtz says a gynecologist friend of his believes it's the estrogen — a growth hormone — in the pills that causes new plant growth quickly.



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So far, he knows the pills work on the lily family, bromeliads and ferns.

Now, Kundtz is trying to find out whether he can get other plants to do the same. He is treating tomatoes and pepper plants in his home garden and intends to try the pills on shrubs.

"It's really too early to tell, but the peppers seem to be branching," he says. "I'm going to keep playing around with it and see what else I can do."

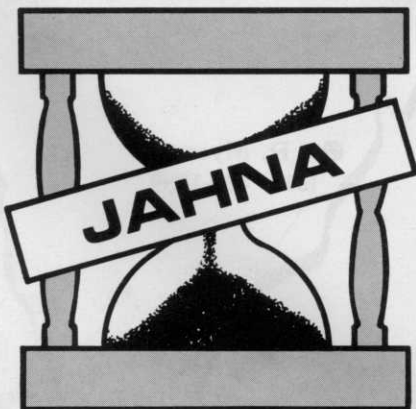
He's also interested in seeing whether the birth control pill solution would increase root systems in trees and stimulate flowering, which in fruit trees would mean more fruit or berries.

He says a home gardener can probably get results as well as anyone but jokingly warns that the pills aren't cleared by the Food and Drug Administration for gardening.

"It certainly doesn't hurt the plant any," he says.

And knowing how you can help your plants doesn't help you in getting the pills if you're a male greenthumb. Most doctors frown on issuing the birth control prescriptions for philodendrons. ■

Reprinted from *The Associated Press*.



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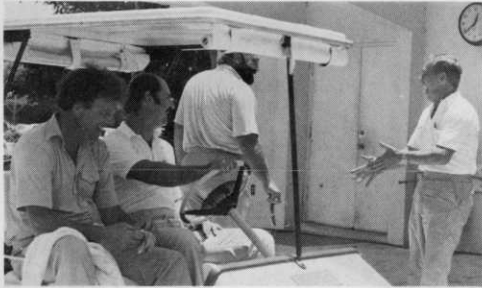
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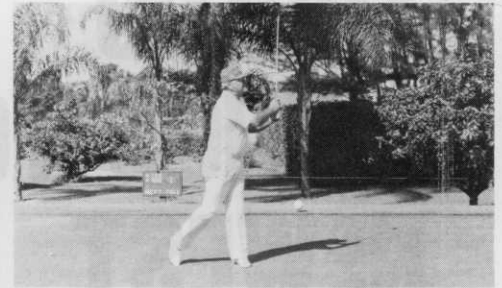
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Sharing a golf joke before tee-off time are from left to right: Sonny Smith, Ed Haithcock, Bill Mangold, and Joe Snook.



The First Annual Treasure Coast G.C.S.A. Golf Tournament was held over the demanding Turtle Creek Course.



Immediate Past-President, Adam Yurigan, Jr., shows form that took him to victory with an impressive 77.

Turtle Creek Hosts Annual Meeting

The First Annual Meeting of the Treasure Coast Chapter Florida Golf Course Superintendents Association was held at the Turtle Creek Club in Tequesta recently.

The days' events included the First Annual Treasure Coast Chapter Golf Tournament, cocktail hour, steak cookout and Annual Business Meeting.

Elected to office for the 1981-82 year were: Lonnie Stubbs, President (Sandpiper Bay Resort - Port St. Lucie); James Callaghan, Vice President-Internal Affairs (Riomar Country Club - Vero Beach); Bill Mangold, Secretary (Crane Creek Golf and Raquet Club - Stuart); Joe Snook, Treasurer (Riverbend Country Club - Tequesta); Craig Baker, Director (Indian River Plantation - Stuart); Jerry Broome, Director (Sailfish Point Yacht and Country Club - Tequesta); and Bob Hurst, Director (Jupiter Island Club - Hobe Sound). The Executive Committee is rounded out with Adam Yurigan, Jr., Immediate Past President (John's Island Club - Vero Beach) and Tom Burrows, Vice President - State Affairs (Turtle Creek Club - Tequesta). ■



Jim Callaghan knocks another one down the middle of the fairway.



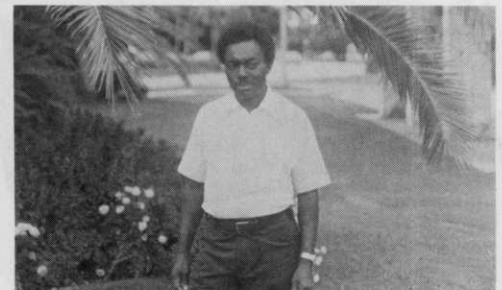
Golf Committee Chairman, Craig Baker (center) and right hand man, Tex Ardoyno (left) tally results of tournament with Tom Burrows, host superintendent.



Appetites were hearty for the steak cookout.



The new officers of the Treasure Coast Chapter Florida Golf Course Superintendents Association are from left to right: Adam Yurigan, Jr., James Callaghan, Bob Hurst, Bill Mangold, Craig Baker, Lonnie Stubbs, Joe Snooks, and Tom Burrows.



President-Elect, Lonnie Stubbs, is Golf Course Superintendent of the renowned Sandpiper Bay Resort in Port St. Lucie.

Photos courtesy of Treasure Coast Chapter Florida Golf Course Superintendents Association.



South Florida Sunshine



By BRAD KOCHER
Inverrary Country Club

The original theme of this magazine issue was irrigation. Water, being the primary ingredient for a successful irrigation system, has become the hottest issue of 1981. Water shortages, including previous and existing cutbacks, are said to be the rule rather than the exception in the 1980's and probably infinitely.

The last real shortage experienced in South Florida was in 1971. It was not as severe as the one we are now experiencing and according to South Florida Water Management officials it will take at least two years of above average rainfall to rectify our present problem. That is not to say that we won't continue to have problems.

The primary concern of South Florida Water Management is salt water intrusion. All solutions to problems are really aimed at preventing salt water intrusion. Most of the well fields that supply drinking water to South Florida are located within five miles of the coastline. Therefore, if more water is taken out of these wells than can be recharged by rain or eastward flowing canals, salt water can intrude into the wells that supply our drinking water.

Basically, the system works this way. The average rainfall in South Florida is 55"-60" a year. These rains can readily recharge well fields in the coastal areas. In times of less rain, such as we experience between December and June, well fields can be recharged by eastward flowing canals and rivers such as the Hillsboro Canal, C-14, C-13, New River, etc. These canals carry fresh water and runoff water eastward toward the sea. If these canals get low, South Florida Water Management can open gates in the conservation areas to the West of us and permit the higher water levels in these areas to recharge our eastward flowing canals.

As a backup system to the conservation areas, we have Lake Okeechobee. Higher water levels are usually present in the lakes and can be used to supply our canals when they get low.

What has been non-existent in these times of drought and even in our rainy season, June through December, are sufficient rains in the conservation areas and in Lake Okeechobee. We are experiencing sufficient coastal rains to supply our well fields, the Biscayne Aquifer and our canal systems. The big problem at present is that when the coastal rains diminish we have very little "backup water" to recharge our well fields. Hence, we have drought conditions and water restrictions.

From what I have heard, most golf courses fell under the 25% restriction imposed in May and were asked not to do

any daytime watering. This was not the most comfortable situation. However, it was bearable even if it did mean some inconvenience in the normal day to day maintenance of our golf courses.

We were not too far from a 50% water cutback, when sufficient rains began to fall to recharge our well fields and the 25% was reduced to 10%. What would have happened at 50% cutback is anyone's guess. I am led to believe by South Florida Water Management that no water would be permitted for landscape irrigation which includes golf courses. That's right — NONE — or at best very little.

This possibility poses an infinite number of problems. Who gets water, for what purpose, how much and when. Unfortunately, we don't really know the answers to the questions. However, it becomes obvious to me that golf courses need to come up with plans for coping with shortages. Education of South Florida Water Management of our needs and necessities, better record keeping, monitoring of our irrigation systems, impact of golf courses on the economy of South Florida and just a general willingness to become a part of the solution.

I would imagine when we start discussing who gets water and how much, there can be some very adamant discussions. When an individual's livelihood or profession is being threatened, there needs to be a great deal of facts, figures and just plain common sense abounding.

The turf industry is second in Florida only to citrus in our State's Agriculture economy. Without further research it is difficult to estimate the economic hardship that golf would have on our tourist oriented economy. The figure is undoubtedly monumental and would have far reaching effects. It is easy to say that tourists will not come to South Florida if they can't enjoy good golfing. If South Florida's golf courses do not survive, the economy would suffer severely.

It is very discomfoting to realize that this problem will be with us for some time and that solutions will take years to implement. We are behind on our solutions, but hopefully they can be resolved quickly.

Most golf courses will need to look into alternative sources of water. It is mind boggling to think we dump somewhere in the neighborhood of 200 million gallons of fresh water a day into the ocean in the form of sewage effluent in South Florida. That is 200 million gallons of fresh, usable water dumped into the salt water sea and lost forever. The city of St. Petersburg, Florida, presently has five golf courses on their sewage effluent system and not only do they make

(Continued on Page 22)

South Florida Sunshine

(Continued From Page 21)

excellent use of fresh water, but annual nitrogen requirements have been reduced 25-30%. In addition, the water not consumed by the turfgrass plant is returned to the water table and can replenish well fields.

This last point in itself is noteworthy. With all the concrete and asphalt going up around us, golf courses at least provide thousands of acres that water can filter through and get back into the water table.

Waste is probably the #1 culprit. Irrigating, when not necessary, especially by the homeowner with the automatic sprinkler system, is a common practice. It would be difficult to compute actual consumption but no doubt home irrigation is one the largest consumers of drinking quality water.

General waste by individuals is a large scale problem. We use shower heads that waste water, water closets that use more water than they should. We let water run when we shave or brush our teeth, run it unnecessarily in food preparation and countless other wasteful ways. It seems a shame that everyone gets concerned about water waste after the fact.

It is a general belief that there will be water shortages nationwide for years to come, and only those who are well prepared and water conscious will endure shortages with the least amount of discomfort and hardship.

Naturally, superintendents are highly concerned about their golf courses. Our livelihoods depend on ample water, and we are judged, however unfortunately, by the amount

of lush greenery we produce. Certain amounts of that "lush greenery" may diminish due to the conditions which have presented themselves.

I think that it is going to take a concentrated effort by the Superintendent's Associations and other turf related organizations and concerns to develop ways of dealing with water shortages, educating and co-operating with water management officials and the education of both the golfing and non-golfing public. We can all do our part to minimize potentially disastrous consequences in the turf industry. ■

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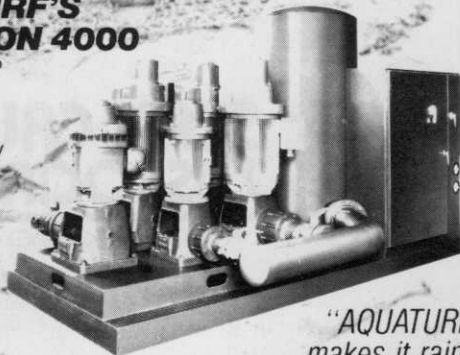
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Supers Lose Friend

By KARL LITTEN

The golf course construction industry has lost one of its finest builders. Jack Miller of Margate, Florida, passed away at the untimely age of 45. Jack was a finish contractor who did the final sculpturing on such noted courses as: Cape Eleuthera in the Bahamas, Poinciana Park C.C. in Kissimmee, Fla.; Ocean Reef in North Key Largo, Fla.; Woodmont and Colony West in Tamarac, Fla.; Boca Lago in Boca Raton, Fla.; The Fountains South in Lake Worth, Fla.; Hunters Run in Boynton Beach, Fla.; and the list goes on.

For over 20 years this familiar figure of a man with an Australian digger, dusty cowboy boots, and an ear to ear smile, sat on his yellow D-6 mount and fashioned golf courses that are, or shall be, world renowned. Customarily, the golf course architect receives all the notoriety for the design and final acceptance, with no acclaim going to the professional charged with the design interpretation. Jack had the ability (though a non-golfer) to build a most challenging course with minimal direction from the architect. This was a true gift that was recognized by his colleagues.

A tireless worker who loved his profession, Jack could be found on the job long after dark, planning the next day's efforts. He was a dedicated family man with strong church affiliations. He will be missed by all who knew him and were touched by his life. ■



Answers:
 1. C. 2. J. 3. B. 4. I. 5. F.
 6. A. 7. E. 8. H. 9. D. 10. G.

Agronomy Quiz

Match the following:

- | | |
|------------------------|----------------------|
| 1. _____ Acid Soil | 6. _____ Syringe |
| 2. _____ Monocot | 7. _____ Node |
| 3. _____ Hybrid | 8. _____ Foliar Burn |
| 4. _____ Culm | 9. _____ Topdressing |
| 5. _____ Alkaline Soil | 10. _____ Dicot |

- A. To spray a turf with small amounts of water.
- B. Product of a cross between individuals of unlike genetic constitution.
- C. Soil whose reaction is below pH 7.
- D. A prepared soil mix added to the surface of a turf.
- E. The joint of a stem, the region of attachment of leaves to a stem.
- F. Soil whose reaction is above pH 7.
- G. Plant having two cotyledons in the seed, as in a broad-leaf species.
- H. Injury to shoot caused by dehydration due to contact with high concentrations of chemicals, fertilizers, or pesticides.
- I. Stem of a grass plant.
- J. Plant having one cotyledon in the seed, grasses are an example.

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By MIKE HENRY
Orange County California
Turf & Landscape Farm Advisor

The goal of building a better mouse trap permeates the American culture. We are naturally striving to improve in all aspects of business, industry and agriculture. Certainly the turf and landscape field is no different. Efforts to develop new and improved plant varieties or to discover exciting new plant species are primary examples.

Although new turfgrass varieties are coming out by the dozen each year, the introduction of a new species to the turf industry is far less common. Even more rare is a new species that survives the test of time and scrutiny of turf managers to become an accepted turf species in common use.

Paspalum vaginatum is not a new grass species to the Western Hemisphere; in fact, it is said to be native to tropical and subtropical regions of North and South America. It has been used in many parts of the world, including South Africa, Australia, New Zealand and the Southeastern United States, as a utility turf for soil erosion control especially in saline soil areas and coastal environments.

It has been in Australia that the greatest use of *Paspalum vaginatum* as a general quality turfgrass has taken place. There it has been used on sports turf areas and occasionally on bowling greens.

It was in Australia that Hugh Whiting, a turf manager and sod producer, came upon a promising *Paspalum* variant near the city of Torquay. He brought the selection to the United States in 1972 and patented it under the name of Futurf. The variety was produced and marketed throughout Southern California. It was used in residential, commercial and park lawns and at least one golf course fairway.

In 1975, Mr. Whiting returned to Australia and happened to spot what he believed to be a superior *Paspalum vaginatum* variety. He returned to the United States with the grass and patented it, giving it the name Adalayd after the city in Australia where he discovered it. Adalayd has been under production since 1976 but until recently its availability was rather limited. In 1978, Adalayd was bought by Burkhard Nurseries, Incorporated — a well known retail operation in Pasadena, California. The grass is now being grown in Redlands, California where sod and stolons are available in greater supply. At this point Futurf is no longer available. Adalayd is being promoted in California and in Texas along the Golf Coast as a salt tolerant turf species and may even be used in the Middle East where water high in dissolved salts is all that is available for landscape irrigation.

Paspalum vaginatum Adalayd is a subtropical turf species (warm season) making it a grass well adapted to warmer

(Continued on Page 26)



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Adalayd

(Continued From Page 25)

areas of Southwestern United States. It will not survive long periods of freezing temperatures so it is limited to the relatively warm winter zones of the west. Generally, it will thrive where the bermudagrasses do well. It has good heat tolerance; although it may not be as happy as the bermudas when the temperature climbs into the 100°F plus range, it shows no ill effects during the summers in Indio, California where temperatures regularly break the 100°F mark.

Being a warm season species Adalayd will go dormant if the winter temperatures fall to freezing level or when a heavy frost occurs. Comparatively speaking, Adalayd seems to be able to hold its green color much better than common bermudagrass but not quite as well as 'Santa Ana' hybrid bermuda — the best warm-season grass for winter color retention under Southern California conditions.

Since Adalayd is a selection from a natural population, it is propagated asexually — using stolons. Seed would not produce a grass with the same desirable characteristics for which Adalayd was chosen. Also, it is said viable seed is not produced in any quantity in this species.

Comparing the growth habit of Adalayd to species more commonly recognized, one might say its stolons resemble Kikuyugrass in size but not in rapidity of growth nor tenacity when subjected to severe stress or herbicides. When growing into an open area the stolons are quite prominent; however, once a dense turf is formed, the grass blade growth becomes much more upright and very dense — covering the ground-hugging stolons and yielding a lawn with a very uniform surface. The texture or grass blade size and uniformity rivals that of a fine perennial ryegrass. Its color is much more attractive than the typical dull greens found in other warm-season turf species. Although comparing it to the color of Kentucky bluegrass is stretching it a bit, it is closer to it in color than any other subtropical turfgrass. The species also produces a heavy network of rhizomes (underground stems) which makes it a suitable species for sod production.

The Adalayd variety does not produce objectionable seedheads when mowed regularly (once/week). In this respect it is considerably better than the Futurf variety and many of

the bermudagrasses. Actually, numerous seedheads are produced; however, they are held in a sheath down among the grass blades for a longer period of time so the expanded seedhead is usually not a detracting feature.

To date no disease problems or insect infestations have been observed on Adalayd. It is perhaps too early to count on this as an enduring feature of the grass. Adalayd, being a less dense-growing turfgrass, is more open to weed invasion than a vigorous hybrid bermudagrass or Zoysiagrass. This hasn't been a serious problem with the grass but it should be taken into consideration. In areas where the grass was severely scalped; damaged with an herbicide; or dormant for long periods during the winter; common weeds such as *Poa annua* have become established. One interesting point that has no scientific evidence to back it up, is that Adalayd appears to be able to compete favorably with bermudagrass. In areas where bermuda contained an Adalayd planting, it has not been able to make much headway since the Adalayd become established. At least after three years of observation, the Adalayd had held its own against the bermuda encroachment.

Adalayd does have one characteristic which places it far above any quality turf species grown in our region. That quality is its extreme salt tolerance. Work carried out by a private laboratory on Futurf showed a 50% growth reduction when irrigated with a water that contained salts giving it an electroconductivity reading of approximately 28 (EC $\times 10^{-}$). This is over half the strength of sea water. Field observations indicate that indeed both *Paspalum* varieties are extremely salt tolerant when maintained in a moist soil environment.

Currently additional work on the salinity tolerance of Adalayd and Futurf is being conducted in the Plant Science Department at the University of California, Riverside Campus. This study will provide a quantitative ranking of *Paspalum vaginatum* with other commonly grown turfgrass species. In any event, Adalayd is certainly a grass to be considered where either high soil or water salinity is a problem.

Research regarding the maintenance needs of *Paspalum vaginatum* has been going on at the University of

(Continued on Page 27)



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Adalayd

(Continued From Page 26)

California, South Coast Field Station in El Toro, California since 1977. Results of mowing height and fertilizer requirements studies plus numerous observations on Futurf and Adalayd will be released sometime this fall in *California Turfgrass Culture*. Additional studies on timing of fertilizer applications and tolerance to common herbicides used on turf are in progress at the South Coast Field Station.

Adalayd is not the end of the search for the ideal turfgrass. Such a grass probably doesn't exist. It may be the solution for many turf managers with saline soils to work with. Adalayd will also be the choice of many turf managers or homeowners due to its other desirable qualities, and provided the grass is properly managed, it will undoubtedly live up to its advertising slogan "Sweet Adalayd." ■

For further information contact: *Interstol, 49730 Jefferson, Indio, Ca. 92201, (714) 564-3725.*

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Newly elected officers of South Florida Golf Course Superintendents Association are from left to right: Brad Kocher, Vice President, Inverrary C.C.; Al Weitzel, External Vice President, Metro-Dade County Golf Courses; Dick Lemmel, Past President, Doral C.C.; Neil Kalin, Director, Pembroke Lakes; David Court, Director, Colony West C.C.; Ken Nicholson, President, Woodlands C.C.; Les Brown, Secretary-Treasurer, La Gorce C.C.

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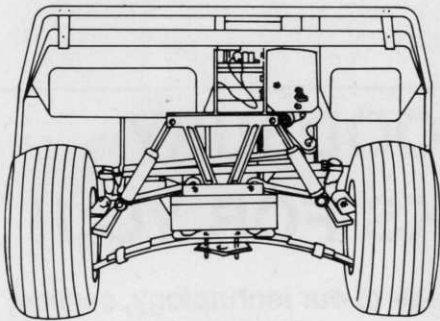
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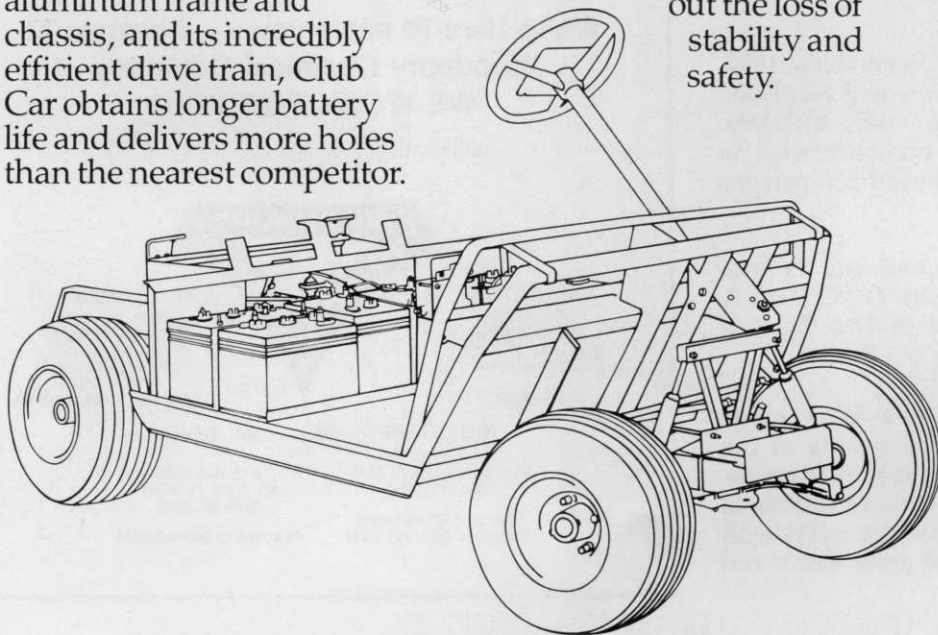
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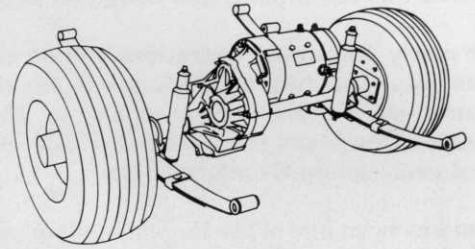
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Cantu Buys Zaun West

Sale of the St. Petersburg and Ft. Myers branch offices and parts and equipment distribution facilities of Zaun Equipment Inc. has been announced by Ben G. Reemelin, president and principal owner of the Jacksonville based outdoor power equipment distributing firm.

The West coast facilities have been purchased by Jack Cantu, formerly president of the Toro Company of Minneapolis, Minn., manufacturers of Toro lawn mowers, institutional turf equipment, and irrigation equipment.

The newly purchased operations will be known as Wesco-Zaun Inc. The two facilities serve an area from Citrus County on Florida's West coast to Naples. The two branches combined did a total of \$11.5 million business in fiscal year ending December 31st.

Zaun has been one of the largest outdoor power equipment, and irrigation equipment distributors in the Southeast. And, one of the oldest, having been established as a Toro distributorship in 1932. Its corporate headquarters and a branch office are located at 1741 Hamilton St. in Jacksonville. The firm will continue to operate here and from branch offices in Orlando and Tallahassee. Reemelin, himself a former Toro executive, said this about the sale: "Jack Cantu has the integrity, the personality, and the background to build Zaun further. We will continue to progress together."

Cantu said that all Zaun employees in the two purchased branches will be retained. J. C. Higgins, a former associate of Cantu's, has joined Wesco-Zaun as operations manager.

In addition to Toro products, Zaun and Wesco-Zaun together distribute some 30 lines of consumer and institutional turf equipment as well as being one of the nation's largest irrigation equipment suppliers to wholesalers and contractors.

The original company was purchased by Reemelin in 1954. The firm consisted of a Jacksonville office and employed eight persons. 1954 sales were approximately \$150,000. Last years combined sales of the five branches were in excess of \$20 million, and the firm employed 110 persons throughout Florida.

Cantu is no newcomer to the distribution business. Prior to his tenure with Toro he spent 31 years with O.M. Scott & Sons Company, most recently as head of The Pro-Turf Division.

Cantu said his decision to purchase the West coast operation of Zaun was prompted by: "the quality of the people in this organization and the enormous growth potential of the market over here. I am looking forward eagerly to establishing my home in the area and working again with retailers, golf course superintendents, and professional turf managers." ■

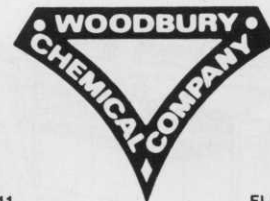


Jack Cantu, left and Ben C. Reemelin are shown following signing of purchase equipment for Zaun Equipment, Inc. St. Petersburg and Ft. Myers operations by Cantu, formerly president of the Toro Company of Minneapolis.

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The Gator Growls

By DAN HALL, JR.
Imperial Golf Club
Everglades Chapter



Irrigation Maintenance at Imperial Golf Club, Inc.
For scheduling maintenance procedures, our systems for the 36 holes are placed in one of three main sections:

- Section I Pump Stations
 - A - Pump & Power Controls
 - B - Water Supply & Pumps
 - C - Pressure & Flow Controls
 - D - Pump House

- Section I Master Controls
 - A - Power Supply In & Out
 - B - Varitime Panels
 - C - Gauge Panels
 - D - Power & Pressure Signals

- Section III Points of Distribution
 - A - Field Satellites
 - B - Sprinkler Heads
 - C - Valves & Piping

Routine maintenance is performed as follows:

I - Pump Stations

Pump Controls and power supply panels are equipped with phase monitors on each unit — high or low voltage or amperage will shut down all or any units and a relay switch on a separate 120V circuit turns on a red light mounted on the pump house roof. Each of the four pump motors are also monitored at their circuit breakers. Failure of any unit will light the same light.

Each circuit breaker has adjustable amperage to the motor it controls. These are set at minimum load as specified in the operator manual. Low in-coming power or internal motor or pump problems requiring more power will shut down the circuit and again the red light comes on.

To insure that circuit breakers work properly, all breakers are deenergized and then re-energized at least once per month. They are lubricated with a recommended spray quarterly. All in and out power connections are checked for torque on an annual basis along with all control panel connections on time delay circuits. These are all sprayed once annually.

The panels are kept free of dust and dirt both inside and out. The panels themselves are cooled by a 135 CFM 1750 RPM

110 V cage fan that runs constantly. Panels are waxed twice annually. We specify that all panels, even though installed inside, meet NEMA requirements for outside installation.

Water source signal lights are checked daily, more often when levels are critical. The screens on incoming water are washed and cleaned weekly.

Pumps are checked daily under load and packing is adjusted or replaced when required. Pump motor bearings are lightly lubed monthly as per the manual and turbine oil is drained and replaced twice annually. Power supply terminals are un-wrapped, re-torqued, sprayed with a corrosion resistant lube and re-wrapped. The junction box then is resealed. All pumps and motors are painted annually, waxed twice annually and wiped down monthly.

The up-stream Cla-Valve pressure is checked daily to insure pumps and motors are working properly. All of our motors are 480V 1750 RPM with moisture prevent strips installed.

The entire pump station is monitored weekly at both load and no load power requirements. When adjustments are required on the Cla-Valves, they are adjusted by the use of an amp probe for accuracy in both flow and pressure. We have gone over three years with adjustments of any kind on the CRD side. Leaking riser O-rings are either adjusted or replaced as soon as a leak is observed. Cla-Valve 100 mesh screens are cleaned weekly, more often during low water availability.

The pump house itself is kept clean and is repainted in and out annually.

The heart of any system is the pump station. These come in variations, custom and pre-fab. Pump choices can be turbine or centrifical type with turbine having the edge on most golf courses. My only fault with most pre-fab units is that they are usually specified by the architect with cost at time of installation being the prime concern. When this occurs the buyer is usually the loser in the end with the superintendent getting the flack because of faulty maintenance or operation.

A 3600 RPM unit will just wear out faster than a 1750 RPM unit; a 120V or 220V system will require more amperage starting and running than a 440V or 480V system. True,

(Continued on Page 32)

Gator Growls

(Continued from Page 31)

higher voltage systems and lower RPM units cost more originally than the others but usually within three years operation costs well pay out the increase due to lower energy requirements.

Another fault I find in pre-fab units is that most usually require only one flow and pressure regulating valve. If this valve fails, there you sit with two, three or more pumps idle while with a valve controlling each pump, water could still be pumped and turf maintained.

The debate concerning pump types will probably go on forever. Generally speaking, for golf course use, the turbine will prove to be far more dependable. Our highly mineralized water along with fine sands usually causes seals, bearings, and impellers in centrifugal pumps to fail on a frequent basis. When we replaced our old turbine pumps in the fall of '80, they had been in full service for eight years without having been pulled due to pump failure. I have never had a centrifugal operate for more than three years without either a seal, bearing, or impeller go bad. Centrifugal pumps will only lift water 34' at sea level. At the time of installation, column and shafting can be placed on a turbine at a depth to insure the availability of a water source regardless of drawdown. Sure, it costs more, but the advantage of having water against no water is well worth the price. The lack of water in either case will cause pump damage but this is less likely to happen when turbines are properly installed.

Let me repeat, these are my own observations and there are probably those who are just as adamant about pre-fabs and centrifugal as I am about custom and turbine units.

Regardless of choice, all of them perform no better than the regular preventative maintenance given them by their operators.

II - Master Controls

Our Varitime Controllers are located in the pump houses opposite the pump control panels and gauge panels. I have only had one system where the Varitime was in the maintenance building and it was a pain running back and forth when adjustments were necessary. Generally speaking, when Varitime is not in the pump house, you can be assured the pump house never gets checked until there is a malfunction. This could be costly.

The Varitimers are checked daily for proper operation and we have two spares, one for each course. We have a complete set of test equipment for the Varitimers and Satellites and all units are checked regularly for proper operation. Spare parts, one each of power board, syringe units, rectifier, transformer assembly, and rain switch assembly are maintained in inventory as well as six spare field satellites with decoders and motors for the field units.

Below our Varitimer is a master gauge panel with gauges for each pump, hydraulic supply and auxiliary supply, main-line pressure, city pressure in and out, air pressure, up and down stream gauges at the large four Cartridge Cuno filter. When pressure below the Cuno filter is 15 PSI less than the up side, the filters are changed. When this is done — about three times annually with city water and seven to nine times with existing water — the screens in the

field satellites are washed and cleaned. Once annually the in-line filter supplied with the satellites are back washed and checked. If a restriction is indicated, it is replaced.

Main line pressure is maintained at 125 PSI. If pressure falls to 80 PSI a blue signal light on the roof is actuated. If pressure falls to 75#, the entire system is shut down and cannot be set in the auto mode until pressure is brought back to 125 PSI. This prevents damage to not only pumps and motors but also to the course in the event of a pipe break. Energy and water waste is prevented by this feature also.

III - Distribution

We have 54 Toro Field Satellites on one course and 30 on another. These were briefly discussed in Section II. Additional maintenance mainly concerns timing of individual stations, done quarterly or whenever a unit is put on the test stand. All units are kept clean, waxed and locked. The tubing section is checked monthly for leaks and individual stations are gauge monitored quarterly and valves replaced when so indicated. Since both systems are relatively new, one three years and the other less than one year, we have had only two tubes go bad and these were promptly replaced by the installer, who in our case is Wadsworth Golf Construction Co.

The satellites are all color coded on each course to correspond with the number selections in the Varitimers. For example, green and tee units are all green, numbers 1 and 2 on the Varitimer for front or back nines, etc. through 6. Each satellite has its own 10 foot ground rod as well as the Joslyn lightning protectors; each bank of satellites is additionally protected by a General Electric lightning protector as well as all incoming lines at the pump houses. We have had direct hits on both houses since 1978 with a very minimum of damage. Both pump houses have U.L. type lightning protection installed on the roof.

Annually we check all wire connections in the field units and twice annually polish and wax both inside the face plate and the pedestal. Insects and dirt are cleaned from inside the pedestal each time it is opened for any type of repair or inspection.

Sprinkler heads are checked weekly for rotation and distribution and repairs are made when indicated.

All water supply valves are opened and closed quarterly to insure proper operation. All valves, when fully opened are then backed down one-quarter to one-half turn to insure against seizing. All zones can be isolated by closing two or three valves. The entire system is 100% looped assuring us 115 PSI at our farthest point under maximum output. Valve box covers are color coded:

Main-line Water Supply - White
Hydraulic Water Supply - White w/Yellow
Electric Splice - White w/Red.

When a zone is isolated we have a system that works fine — the valvebox cover is placed edgewise in the box — this way it becomes routine for the technician to properly pressurize the area and in the event he fails to do so the entire staff is trained to notify supervisors of say, "a valve lid is open at the rear of No. 1 tee." It can then be properly positioned. These valve boxes in addition to all snap-valves are



Palm Beach Trade Winds



By MICHAEL BAILEY
Boca Greens Country Club

There is a sad, dark cloud hovering over South Florida threatening all golf course superintendents. The most fearful aspect of this cloud is that the water reserves we once believed endless are being depleted at a rate far faster than we want to realize. All the myths of a dry future have come to an instant reality. We are all in the same boat; and if we are not careful, we will find ourselves high and dry.

During the past record dry winter and spring, almost all superintendents found themselves altering their management programs to cope with the drought. Thankfully, summer storm patterns have relieved the water situation for the present time. The South Florida Water Management District (S.F.W.M.D.) has lifted watering restrictions, since water reserves are adequate. Bruce Adams of the S.F.W.M.D. explains that a new method of evaluating the water crisis will be based on the Reserve Storage Volume Percentage (R.S.V.P.), measuring the amount of water contained within Lake Okeechobee and the Water Conservation Districts. This will be based on the 3.3 million acre feet of water that would be available.

As of the beginning of September, the R.S.V.P. was just over 50%. The percentage of the R.S.V.P. will be tabulated and released to the media at the beginning of each month. This will be a valuable tool for knowing a reserve potential during the dry season. Bruce Adams feels the R.S.V.P. can best be stated as "being similar to a bank account. We can estimate our monthly bills for the total year. If we have enough total yearly earnings from the wet season, we know we can make it through the dry season". If we do not have a good enough R.S.V.P., obviously, the S.F.W.M.D. will have to impose restrictions in order for South Florida to survive.

This past year almost everyone, from homeowners to golf course superintendents, were puzzled by the restrictions imposed by the S.F.W.M.D. Because of the variety of restrictions based on gallonage use or the variety from county to municipalities, it was often difficult to understand.

The system of restrictions will be better organized in 1982. The S.F.W.M.D. will be given legislative authority from Tallahassee next spring, if passed by the House of Representatives, the Senate and then signed by the Governor. This will allow the S.F.W.M.D. to examine the water levels of the R.S.V.P., and to carefully regulate restrictions to maintain our water reserves.

Lake Okeechobee's water level, fortunately, has been aided

by cloud seeding in the immediate area, which has provided much needed rain in the Kissimee River Valley. The once feared Hurricane Dennis, ironically, proved to be a blessing for the Water Conservation Districts and Lake Okeechobee is not necessarily 11.4 feet above sea level. This is a point that must be understood. All water levels are recorded in relation to the height above sea level. The depth or water column in Lake Okeechobee is not necessarily 11.4 feet because most of the lake's bottom surface is actually above sea level. The profile of the lake's floor looks much like a saucer, as the edges are shallow and only the middle would be the deepest, only a few feet deep. The surrounding lake bank edges average 20 feet above sea level, meaning from the shore's edge, the lake is still several feet below normal. A desired water level of approximately 16 feet would translate to an adequate supply, but not necessarily a 16-foot deep lake.

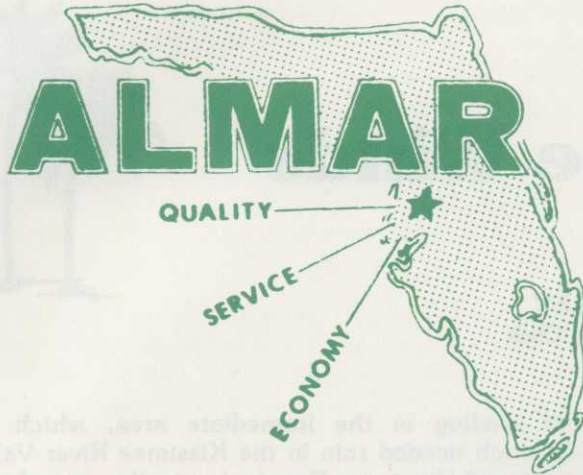
Since all elevation recordings are translated to above sea level, available soil moisture varies throughout Palm Beach county. The central areas of the county, near the perimeters of the Water Conservation Districts, are only a few feet above ground water level.

The western and central areas possess the water reserves for lower lying coastal regions. Because of the low sea level and low reserve capacity, localized coastal thunderstorms can result in flooding. Runoffs must overflow the locks and pour into the intracoastal. Possibilities of back pumping from east to western reserves must be evaluated. The possibility of droughts in the tropical rainy state of Florida can be comprehended if carefully studied.

Of all the golf courses in Palm Beach county, Seminole Golf Club had the most maintenance difficulties to overcome. Certified Golf Course Superintendent, Bill Whitaker, has endured many hardships, but still manages to provide one of the most superlative championship golf courses.

Whitaker's water source is from wells. However, by order of the S.F.W.M.D., the water usage is limited to 5.3 million gallons of water per month, which translates to approximately 181,000 gallons/night. The pumping system is monitored by a totalizer, which meters the number of gallons pumped into the golf course system. Since every gallon is measured, his extremely efficient procedure is one we must all eventually examine for the future. Whitaker's theory of irrigation practices is best stated as "you must grease the squeakiest wheel first, which translates to the

(Continued on Page 34)



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Palm Beach Trade Winds

(Continued from Page 33)

greens." Irrigation of the green tops is the highest priority, with tees appropriately needing second priority. Irrigation of the fairways is reduced to only the landing areas, and quite often the rough is totally eliminated.

Whitaker is irrigating with a low volume of water on terrain possessing elevations up to 28 feet above sea level and a water table of one and a half feet above sea level. The evapotranspiration rate is high enough to cause nightmares for any horticulturist. Dr. Bruce Augustine, of the Ft. Lauderdale Extension of the University of Florida, states ".3 of an inch of water can be lost through the evapotranspiration rate per day that would need to be replenished under the worst of conditions on very sandy soil along the coastal regions of Palm Beach County". To replenish this E.T. Rate would take 8,000 gallons of water/acre. It is important to note that to irrigate one acre foot of water takes 43,560 feet/acre x 7.5 gal/cubic foot of 326,700 gallons. Even to irrigate one inch of acre water would take 27,225 gallons, 1/12 of that amount.

Whitaker finds the coastal region does not receive as much rainfall as many other inland regions. He has been keeping records of coastal rainfall for the past nine years from either Lost Tree Village Country Club or Seminole Golf Club. In comparison to the U.S. Weather Bureau reporting center at the Palm Beach International Airport, Whitaker's readings have been consistently 10 to 15 inches less.

Whitaker finds his cultural practices to be rather harsh in comparison to most courses. Because of the fact that he does not have the availability to irrigate excessively, his course has extremely healthy turf, although to a layman the turf does not possess a rich green color. Whitaker maintains that an excessively succulent turfgrass plant with a shallow root system will wilt much faster than a turfgrass plant that has been hardened off. "Just turn off the water and you will see just how healthy your turf really is".

Golf course superintendents are supposed to be able to cope with almost any problem that arises on the job. One of our biggest problems of the future will be the inevitable water crises. We will have to learn to do the very best with whatever water we are given. The highest priority for irrigation will be areas with the highest intensity of play — greens, tees and landing areas. Reduced irrigation of fairways will be necessary and irrigation in the rough may have to be eliminated completely. Wall to wall irrigation could become only a fond memory. Conservation could be achieved by rotating the two speed heads to irrigate faster on the slopes and slower on the greens with the clock time turned down to only replenish the E.T. Rate.

Culturally, we can raise the mowing height to cope for stress, fertilize with less nitrogen and apply equal or higher amounts of potassium to initiate deeper, healthier roots with a greater storage of reserve carbohydrates. The use of lower salt index fertilizers can increase the efficiency of nutrient uptake. Culturally, the theories and practices are endless.

In the future, superintendents may find golf courses to actually have the appearance of lesser quality, not because of management practices, but because of the deficiency of the most primary element for life — water. ■

Gator Grows

(Continued from Page 32)

regularly sprayed with Round-Up and the lids painted. Snap-Valves are marked with a piece of 6" pipe backed filled with rock, both valve lid and rocks are sprayed twice annually. It is money wasted to have people pitch-forking for a lost valve or splice box.

Summary — This sounds like a lot of work but for this amount of work on 36 holes, it is easily handled by an irrigation technician with an occasional helper. Performance is periodically checked by the superintendent or his assistant. We usually require the course foreman to assist the technician so that he or she become familiar with the system functions. I also require the assistant superintendent to work with the technician until he can perform all his duties as this is generally their weakest area due to lack of experience either in school or on the job training. The superintendent should likewise be knowledgeable of all the phases of auto irrigation from the pump house to the sprinkler head. Working with electricians when called in can increase his awareness of the energy system and make minor adjustments and recognize when either in-house or outside repairs are required.

With most systems hitting the \$200,000 plus range and pump stations nearly half that, it is foolish to think this valuable tool requires service only when it fails to function. There are courses with equipment inventories of less than half the cost of irrigation with a full time mechanic and one or two shop men but the only time the irrigation system gets checked or the pump house looked into is when one or the other has a failure. Even then, outsiders are called in who lack the necessary expertise or the proper parts along with the usual delays and results.

Routine maintenance of the entire system scheduled on a regular basis makes for peace of mind, a better functioning system and consequently a better looking golf course. ■

Dan Hall, Jr. is superintendent of Golf Courses for Imperial Golf Club, Naples, Fla. He has been an active superintendent in Florida since 1955 and is a member of the Quarter Century Club of the GCSAA, E.G.C.S.A. and Fla. W.C.G.C.S.A.

Bay Hill Hosts 5th Crowfoot Open

A record turnout of superintendents and commercial members helped make this year's annual Crowfoot Open the most successful on record. Alan Stoffell, Fernandiana Beach Golf Club, won the medalist honors with his playoff victory over Ron Hill, CGCS, Amelia Island Plantation. Both members of the North Florida chapter and from neighboring courses of the exclusive resort area north of Jacksonville, carded 74's over the PGA Tour site in Orlando. Stoffell, a Lake City College graduate, birdied the first hole with a thirty-foot putt to defeat Hill. Three golfers missed the playoff by a single stroke.

Palm Beach chapter won both the team events thus winning the Crowfoot Open Trophy. Their gross score was seven strokes better than North Florida. The Palm Beachers four low gross scores were Bill Whitaker, Seminole, 75; Kevin Downing, Atlantis Golf Club, 75; Glen Klauk, Delray Dunes, 75; and Fred Klauk, Pine Tree, 76. The Open title is decided on a Calloway scoring system. Palm Beach won that by one stroke over North Florida. Both teams had four net 72's, so the tie breaker was the fifth man score which again was a 72 for Palm Beach. This victory gave Palm Beach a sweep of both statewide tournaments this year since they won the Poa Annuu Classic in April.

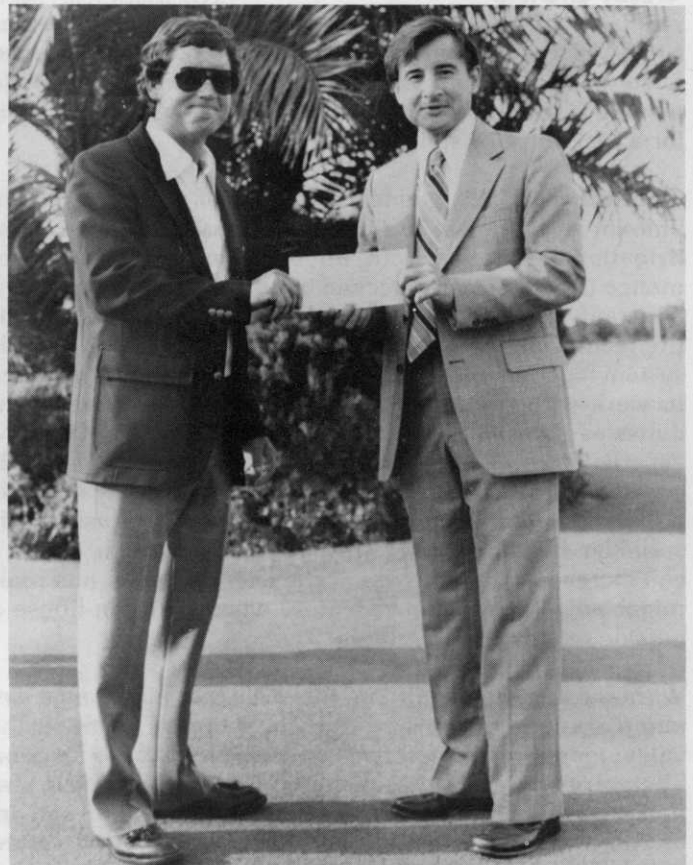
Larry Guest, *Orlando Sentinal Star* newspaper, won the commercial division with a calloway net 71.

Jim Ellison was the host superintendent and tournament director. Every detail from the golf course to the inn was superb. Our thanks to the entire Bay Hill staff for a job EXTREMELY well done. ■





Top: FTGA President Jim Carter (center) accepts a check for \$1,000.00 from Lonnie Stubbs (left), superintendent of Port Charlotte Country Club. The money was donated by General Development for research on mole crickets and nematodes. General Development has a big stake in the future of golf courses in Florida with seven golf complexes.



Top: Jim Ellison (left), superintendent of Bay Hill Club and host of the fifth annual Crowfoot Open, presents a scholarship check for \$500.00 to Jerry Cheesemen, Director of Golf Operations, Lake City Community College. Bottom: Jim presents a check for \$500.00 to Make Bavier, president of GCSAA for the Scholarship and Research Fund. The donations were made possible by the great support of the gold and diamond sponsors of the Crowfoot Open.



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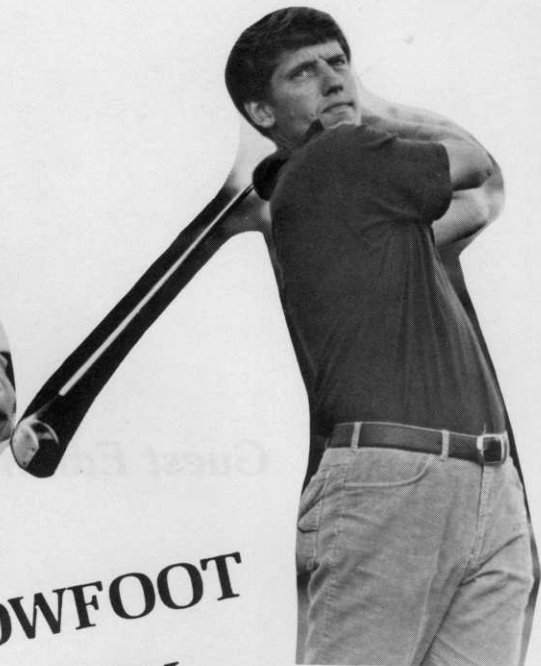
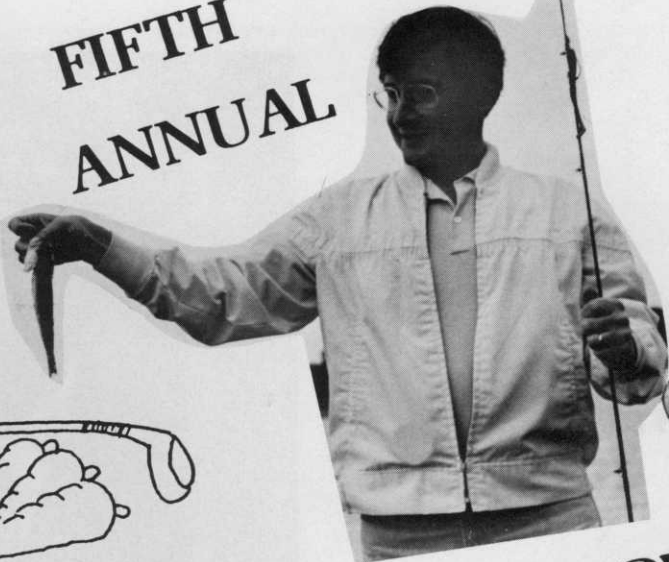
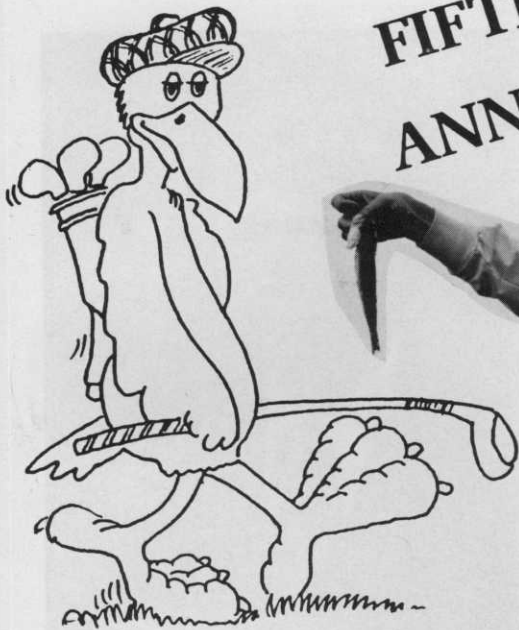
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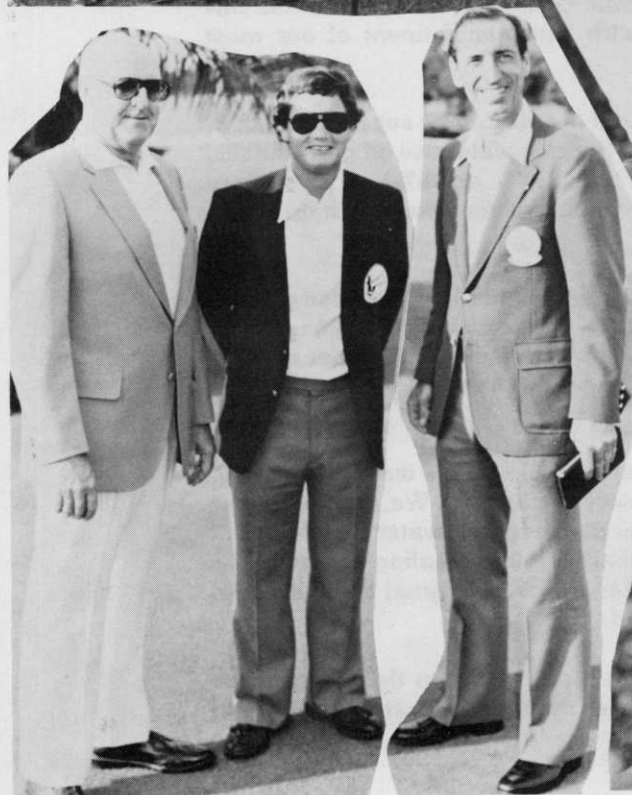
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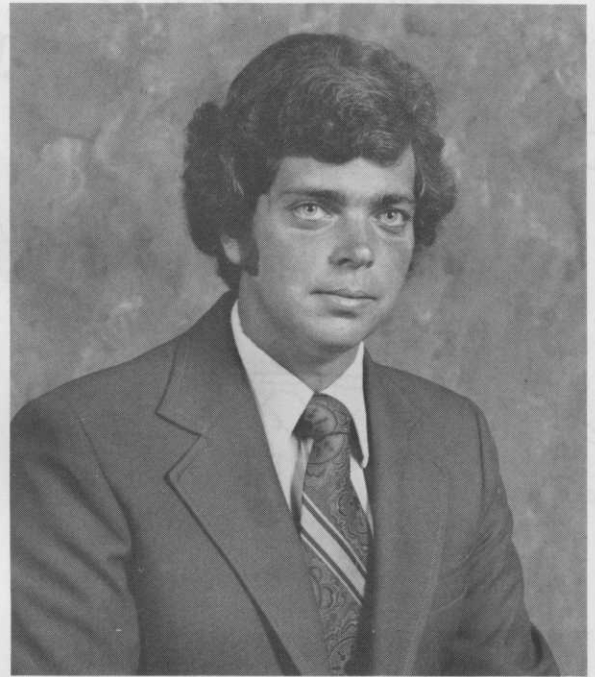
FIFTH ANNUAL



CROWFOOT OPEN



Guest Editorial



JAMES P. CALLAGHAN
Riomar Country Club

Drought of '81 — Where Do We Go From Here?

By JAMES P. CALLAGHAN
Riomar Country Club, Vero Beach
Treasure Coast Chapter

Minimal rainfall during the last four months and for some us for the past 12 months has made all of us much more conscientious in dealing with the management of our most precious resource — WATER.

Some municipalities such as Hobe Sound where Bob Hurst is golf course superintendent at the Jupiter Island Club and Boca Raton further south are limiting water use on golf courses. Other areas have asked for either voluntary or some type (15% or 25%) of mandatory cutback in water use. Golf courses in Florida are falling victim and may soon be a target for wasting water.

In the near future, we may be monitored in a more scrutinous manner by the regional water management districts because of our large thirst for water. In fact, at the last meeting at Sandpiper Bay, Joe Snook stated that South Florida Water Management District officials politely demanded that a water meter be placed on his irrigation pump. It seems that "Big Brother" is lurking in our shadows.

With the ever increasing population placing more demands on Florida's water, its use for recreational facilities such as golf courses may soon be severely limited. We, as golf course superintendents, need to sit down and examine all facets connected to water management and come up with effective means to produce quality, healthy and appealing turf with less water. We have a responsibility and, sad to say, it takes a crises of great magnitude to prompt us to give more attention to the problem at hand.

In closing, remember, as each day passes we are one more day closer to the day that the rains will arrive. But when that day comes, don't put water management at the bottom of your priority list.



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