

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,

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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.

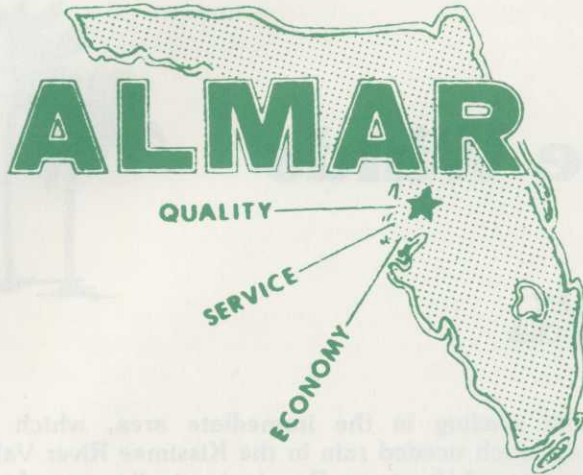
Since all elevation recordings are translated to above sea level, available soil moisture varies throughout Palm Beach county. The central areas of the county, near the perimeters of the Water Conservation Districts, are only a few feet above ground water level.

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

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Palm Beach Trade Winds

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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. ■

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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.

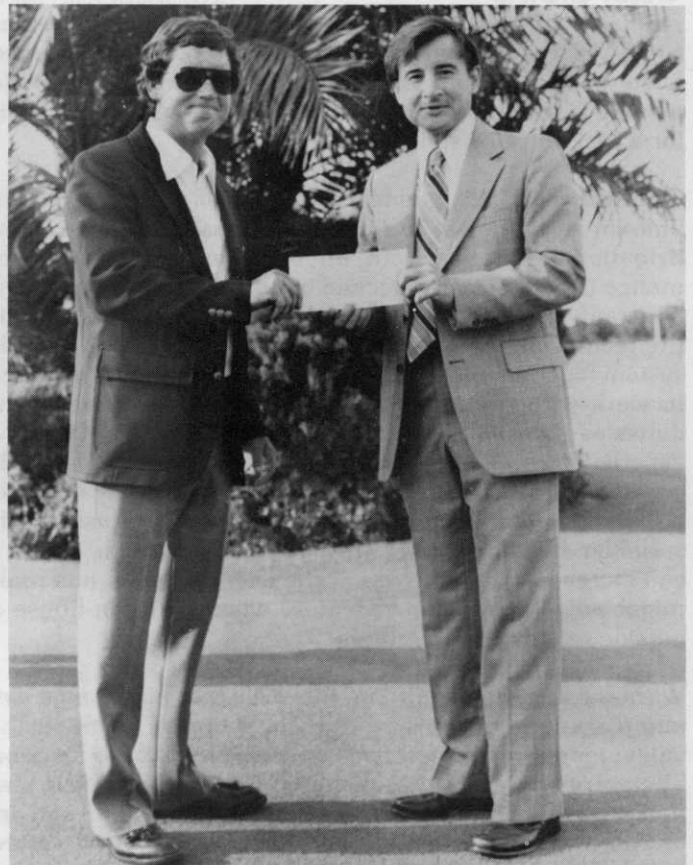
Larry Guest, *Orlando Sentinal Star* newspaper, won the commercial division with a calloway net 71.

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.



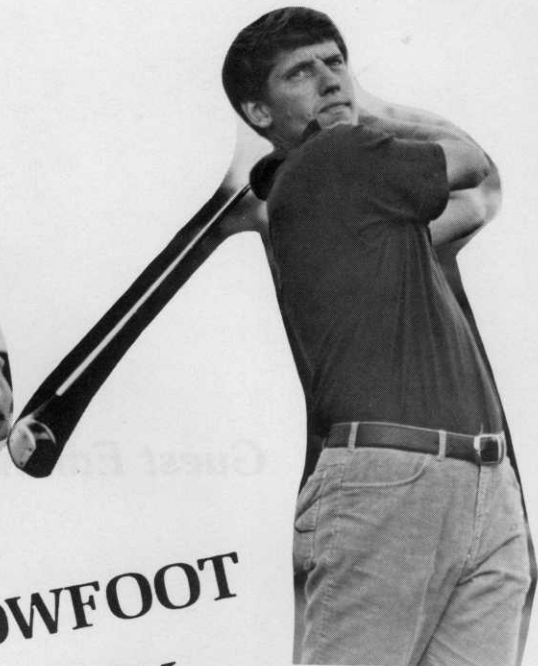
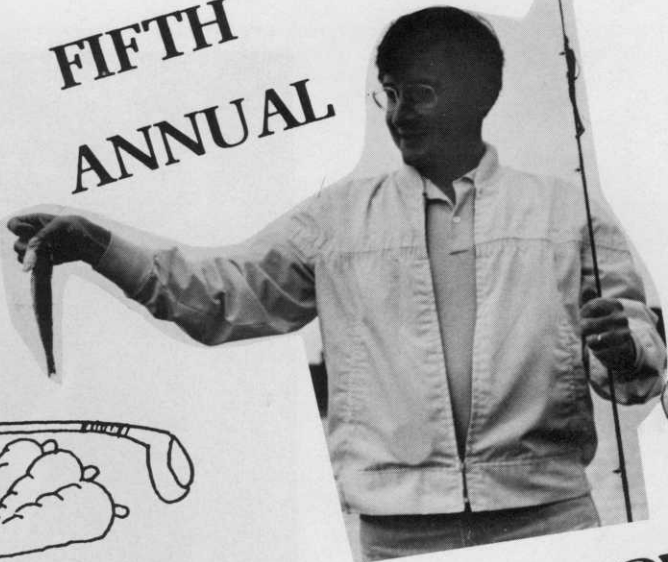
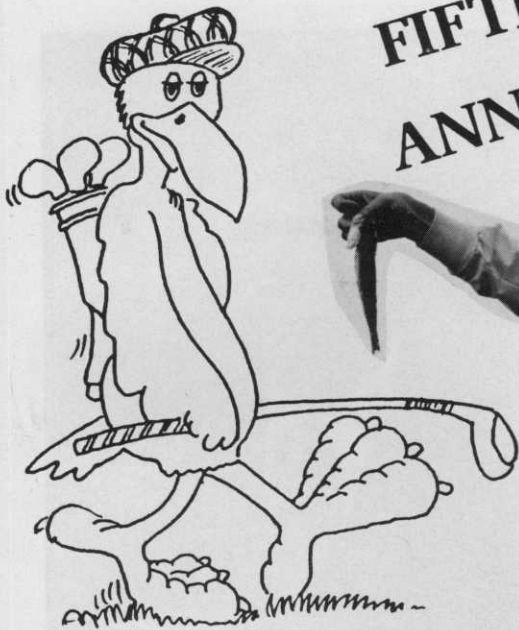
Top: Jim Ellison (left), superintendent of Bay Hill Club and host of the fifth annual Crowfoot Open, presents a scholarship check for \$500.00 to Jerry Cheesemen, Director of Golf Operations, Lake City Community College. Bottom: Jim presents a check for \$500.00 to Make Bavier, president of GCSAA for 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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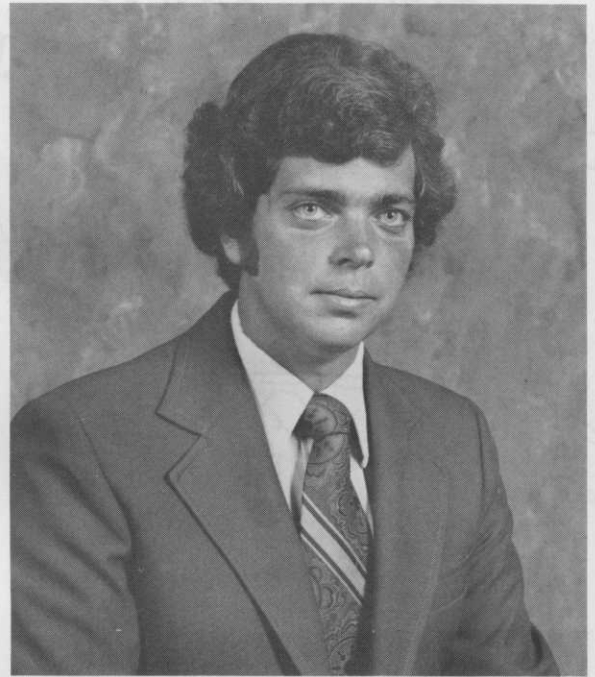
FIFTH ANNUAL



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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