



THE SOUTH FLORIDA GREEN

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ON OUR COVER

The Famous No. 3, Par 3, Hole at Bonaventure C. C., Ft. Lauderdale, Fla.

SOUTH FLORIDA GOLF COURSE SUPERINTENDENTS ASSOCIATION

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Membership

President's Message



The long awaited Florida Turfgrass Survey has been published and most interested parties now have copies. When the information contained in this document has been analyzed and properly compared with other Agribusiness in Florida, I believe it will be revealed that turfgrass is the number one industry in this state.

Because of its impact on the future well being of golf course superintendents in this state I am going to provide a little related history.

It was at our regular monthly meeting at the Fountains Golf and Country Club in June 1973 that Tom Mascaro, as speaker during our educational program, described the turfgrass survey done in the State of Pennsylvania and its benefits to golf course superintendents. Tom had been in complete charge of all operations involved with this effort and was able to provide us the complete picture on how it was done. Recognizing its importance President Carl McKinney appointed a committee that was to initiate action that would bring about a similar survey for Florida. Lou Oxnevad, Tom Mascaro, Charles Mascaro, Carl McKinney and myself served on this committee. The problem for the committee was determining the best agency or official of the State to approach. Our selection was Senator Bob Hector and we couldn't have done better. Various members of the committee had a series of meetings with Senator Hector who recognized immediately the vital need for the survey. It was mostly from the efforts of this accomplished legislator that money was funded from the State, a statistician and staff hired, the survey conducted and the results published.

My own role in this matter was very, very minor but it did place me in a position where I saw it conceived and could monitor its progress. My interest now is seeing that the information is utilized to our advantage. My interest is also directed to giving credit where it is due and that is to our Consulting Editor Tom Mascaro, in whose mind the whole project was conceived, and to Bob Hector, the State Senator who skillfully guided the project to its successful conclusion.

Mike Berger

THE TURFGRASS INDUSTRY IN FLORIDA

The Turfgrass Industry in Florida, totaling 523 million dollars is equivalent to 24 per cent of the 1974 cash receipts from the sale of ALL farm commodities in this state.

This survey did not take into consideration the total cash receipts from Golf fees (Greens fees and golf car rentals). If these figures were added to the total effect upon the economy of the state, the Turfgrass Industry would unquestionably surpass all agricultural crops in Florida.

The Florida Turfgrass Survey reveals that our industry is only 11% smaller than the 1974 cash re-

ceipts from all citrus, which has always been considered Florida's most important farm commodity group.

Turfgrass is 21% larger than farm income from oranges. It is 27% larger than cash receipts from all vegetables. Here is a condensation of the first Florida Turfgrass Survey.

A complete report can be obtained from:
Florida Crop Reporting Service
1222 Woodward Street
Orlando, Florida 32803

Florida Turfgrass Survey

SPECIAL REPORT
January 1976

TURF ACREAGE AND MAINTENANCE COSTS

Turfgrass maintained in Florida in 1974 totaled more than 911,000 acres, according to a survey conducted by the Florida Crop and Livestock Reporting Service. The cost of maintaining turf on this acreage during the 12 months ending June 30, 1974, was \$450 million. An additional \$73 million (including \$50 million for sod) was invested in the establishment of 31,000 acres of new turf during this period. Farm pastures not held for sod production was the major category of grass specifically excluded from the survey.

The combined cost of turf maintenance and establishment of new turf, amounting to \$523 million, is equivalent to 24 percent of the 1974 cash receipts from the sale of all farm commodities in Florida. It is only 11 percent smaller than 1974 cash receipts from all citrus, Florida's most important farm commodity group. It is 21 percent larger than farm income from oranges alone, and 27 percent larger than cash receipts from all vegetables. As an additional measure of significance, the combined cost of turf maintenance and new turf is equal to a third of the total 1974 production expenditures on Florida farms.

Equipment purchased, amounting to \$118 million, was the largest item among the specified maintenance expenditures. Other major items in order of importance were: The labor bill at \$111 million; service company fees, \$59 million; water purchased, \$38 million; and fertilizer, \$34 million.

Turf and irrigation equipment purchased prior to July 1, 1973, was currently valued at \$407 million and the estimated replacement cost was \$640 million. Adding equipment purchases made during the survey year of \$118 million to the inventory replacement cost of equipment gave a total equipment replacement value of \$758 million.

BAHIA AND ST. AUGUSTINE LEAD IN ACREAGE

Bahia was the dominant grass on 41 percent of the grassland excluding highways. St. Augustine was next in importance with 37

percent of the total. Third in importance was Centipede with 11 percent, leaving 11 percent for other types and unidentified grasses. On home lawns the proportions of Bahia and St. Augustine are reversed, with Bahia accounting for 36 percent and St. Augustine 46 percent.

TURF ACREAGE AND MAINTENANCE COSTS BY TYPE OF PROPERTY

Sheer numbers make individual homes the most important property segment in terms of both turfgrass area (593,000 acres) and turf maintenance costs (\$345 million). The grasses on Florida's golf courses, dominated by the Bermudas, require intensive care. The 512 courses in use during the survey year maintained 50,000 acres of turf at a cost of \$50 million.

Maintenance of the 5,700 acres of grass associated with hotels and motels cost \$2.1 million. Apartments and condominiums reported \$14 million to maintain 7,000 acres of grass. Parks had 16,800 acres of turf and spent \$5.6 million for maintenance. Schools, colleges, and universities maintained 35,000 acres of grass at a cost of \$7.2 million. The 26,800 acres of turf at airports were maintained at a cost of \$1.7 million. Care of 126,100 acres of turf associated with Florida's primary, secondary, interstate, and toll roads cost \$8.2 million. Maintenance costs for the 51,000 acres of turf on all other properties are estimated to have been \$17 million.

SODDING CHIEF METHOD OF NEW TURF PROPAGATION

Sod was used to propagate more than half of the new turf established during the survey year. Florida sod producers operating during that period held 44,000 acres for production of sod. They also reported production expenditures of \$15.6 million, and an inventory of turf and irrigation equipment with a replacement value of \$11.6 million.

Single copies of the complete report will be available on a limited basis upon request to the Florida Crop and Livestock Reporting Service.

TURF AREA AND ASSOCIATED MAINTENANCE COSTS, BY CLASS OF PROPERTY, FLORIDA, 1974

Class of property	Number of facilities	Turf area maintained	Expenditures 7/1/73 - 6/30/74			Replacement cost of turf and irrigation equipment ^{1/}
			For turf maintenance	For new turf	Total	
	Number	Acres	Thousand dollars			
User classes:						
Homes ^{2/}	2,494,452	592,802	344,883	52,683	397,566	600,700
Apts. & condominiums	30,670	7,044	13,964	4,573	18,537	5,495
Hotels & motels	6,498	5,698	2,064	27	2,091	3,356
Golf courses ^{3/}	512	50,370	50,417	8,615	59,032	85,638
Schools	2,394	28,437	4,373	624	4,997	23,183
Colleges & universities	83	6,250	2,857	148	3,005	3,467
Airports ^{4/}	281	26,787	1,655	143	1,798	2,207
Parks ^{5/}	1,190	16,847	5,601	158	5,759	5,728
Highways ^{6/}	--	126,055	8,170	5,285	13,455	6,612 ^{7/}
Other off-farm	--	51,085	16,604	504	17,108	21,930
Total	--	911,374	450,558	72,760	523,348	758,316
Sod farms ^{8/}:						
Cultivated sod	35	30,633	--	--	--	
Pasture held for sod	36	13,517	--	--	--	
Total	58	44,150	--	--	15,556 ^{9/}	11,648

- ^{1/} Estimated replacement cost of equipment bought prior to 7/1/73 plus cost of equipment purchased during year ending 6/30/74.
- ^{2/} Single family homes, including duplex units and row houses not operated as apartments or condominiums.
- ^{3/} Courses in service during year ending 6/30/74—18 additional courses were placed in service or were under construction during the last half of 1974.
- ^{4/} Excludes heliports and seaplane bases.
- ^{5/} National, state and local parks—omits scattered facilities with trivial turf area.
- ^{6/} Primary, secondary, interstate, and toll roads, and associated rest areas.
- ^{7/} Current value of turf equipment only multiplied by (replacement cost/current value) for all other user classes.
- ^{8/} Firms operating during year ending 6/30/74 - 13 reported both cultivated and pasture sod acreage.
- ^{9/} Sod production costs.

This public document was promulgated at a cost of 20 cents per copy to the State of Florida. It is published to inform users of facts pertinent to the important turfgrass industry.

Florida Department of Agriculture
and Consumer Services
Division of Marketing
Tallahassee, Florida 32304

Florida Crop and Livestock Reporting Service
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Orlando, Florida 32803

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FROM THE NATIONAL...



RICHARD W. MALPASS was elected president of the G.C.S.A. of A. at the Annual Membership Meeting, February 1976 at Minneapolis, Minn. Other officers elected were: Vice-President Theodore W. Woehrl, C.G.C.S. of Oakland Hills C.C., Troy, Michigan; David C. Holler, C.G.C.S. of Gulph Mills Golf Course, King of Prussia, Pennsylvania; Melvin B. Lucas, Jr. C.G.C.S. of Garden City Golf Course, Garden City, New York and Charles H. Tadge, C.G.C.S. of Mayfield Country Club, South Euclid, Ohio.

GCSAA Adds 503 Members Making 1975 A Record Year

A record number of new members joined GCSAA in 1975, bringing the Association's current strength to 4,060 — highest in the organization's fifty-year history. Increased services, prompt attention to requests and greater professional demands are credited for this growth.

Goals set for this calendar year include the signing of 1,000 new members. To attain this high goal, the assistance of every GCSAA member is needed. As a GCSAA Member you can either encourage an individual to join yourself, or contact the headquarters office and ask that informative literature be sent you or the individual.

GCSAA Membership Report January 1976

Classification	Number of Members	New Membership Dues
Class A Charter	1	\$ 90.00
Class AA	96	15.96
Class A	2569	90.00
Class B	501	90.00
Class C	31	*See Below
Class D	21	90.00
Class E	183	45.00
Class F	568	90.00
Class G	60	180.00
Total	4090	

*New Student Class S-1
*Senior Turf Student S-2

New membership dues start with new fiscal year beginning July 1, 1976.



STRAIGHT SHOTS

EPA Bans Use Of "New" Chlordane and Heptachlor

Effective December 24, 1975, you may no longer use either chlordane or heptachlor which was manufactured after July 29, 1975, according to the latest rulings of the Environmental Protection Agency (EPA).



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Presidents Barger and Woodliff discussing the day's activities at Port LaBelle. See story on next page.

Everglades Assn. Wins POA Classic at Oxbow

On Tuesday, March 2, Oxbow Golf Course at the Villages of Port LaBelle hosted the 1976 POA Annual Classic. The tournament was open to members of four Florida Superintendent Associations and numerous affiliates of the turf-grass industry.

The associations that participated were the South Florida, West Coast, Everglades and Central Florida groups.

The program for the day included an educational meeting, lunch and a fun-filled afternoon of golf. The educational program was conducted by Doctor Thomas of Woodbury Chemical Company, and his subject matter was plant nutrition.

A superb lunch was prepared by Doc Anderson of Scott, Palmer and Anderson. The group from Clewiston along with Walt and Chip Foote, were highly commended for the fine meal prepared.

The golf course then became the scene of action. The course was in excellent condition due to the hard work in the last few months by Superintendent Kevin Downing and the entire golf course maintenance staff. A total of 118 players set off to tackle the challenging layout.

When all the putts had been dropped, and all the scores tallied, the Everglades association emerged the group winner. This group edged out the defending champs, South Florida GCSA by one stroke with respective scores of 287 and 288.



THIS POA ANNUAL TROPHY will be presented to the Everglades Association as winners of the 1976 Classic held at Oxbow Golf Course on March 2. Shown from left are: Leroy Phillips, Sandpiper Bay; Woody Woodliff, president, Everglades, GCSA Lehigh Acres; Mike Barger, president South Florida GCSA; Kevin Downing, Oxbow greens superintendent; and Dal Walters, John's Island Country Club, Vero Beach.

The West Coast GCSA came in with a fine score of 292. The top four handicap scores were computed into the team scores.

The scoring was as follows: Everglades; L. Reid, GAC Properties, 71; C. Stewart, Naples Golf Club, 72; R. Vaughn, Golden Gate Country Club, 72; Wren, Lochmoor, 72; 287 Total.

South Florida: A. Bryant, Miami Shores, 72; D. Bailey JDM Country Club, 72; B. Whittaker, Lost Tree Country Club, 72; L. Philips, Sandpiper Country Club, 72; 288 Total.

West Coast: R. Naccarato, Mountain Lake, 71; Baugh, 73; D. Barnes, Cypresswood G.C., 74; Settle, 74; 292 Total.

The individual winners were: low gross, Sunny Smith, 74; low net, tie, L. Reid, 71 and R. Naccarato, 71; shortest drive, B. Jeffrey; longest drive, Tom Wells; and highest score, Ernest Alexander.

The tournament was held at Oxbow for the second consecutive year, and has been named the permanent site.

The Poa Annual trophy, donated by General Development, will be presented to the Everglades Association at the regular monthly meeting.

"A fine turnout of ISS added a spice of life to the event. A great deal of thanks to each attending association, and all the individuals connected with the tournament."

THERE ARE TWO KINDS OF MEMBERS

Some keep their organization strong,
While others join, just to belong.
Some volunteer and do their share,
While others rest and never care.
On meeting days, some always show,
While some there are who never go.
Some always pay their dues ahead;
Some get behind for months, instead.
Some do their best; some build, some make.
Some never do — just sit and take.
Some lag behind, just let things go,
And never help their group to grow.
Some drag, some pull. Some don't, some do.
Consider, Which of these is YOU?

—Greater Houston Builders Association "Reporter"

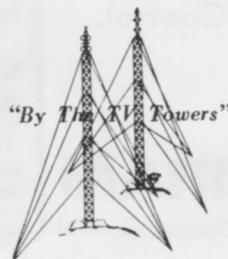
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CAN YOU TOP THIS? . . .



A Golf Course In Florida

Answer on page twelve

RECOMMENDED READING

A good list of books and pamphlets are available this month from the Superintendent of Documents,, Washington, D.C. 20402.

Bulletin 9M. Titled: "Jobs for

Veterans With Disabilities" consists of 45 pages. Price \$1.05.

Bulletin 13M. Titled: "How OSHA (Occupational Safety and Health Administration) Monitors State Plans" consists of 8 pages. Price 40c.

Bulletin 15M. Titled "Equal Pay" explains key provisions and background of Equal Pay Act of 1963. Price 45c.

Bulletin 16M. Titled: "Handy Reference Guide to the Fair Labor Standards Act" consists of 16 pages; illustrations. Price 65c.

Student manuals are also available with general information on jobs in the construction field. Those that would apply in golf course work are:

Bulletin 101M. Titled "Masonry" Consists of 66 pages with illustrations. Price 90c.

Bulletin 102M. Titled: "Electricity" consists of 53 pages with illustrations. Price 85c.

Bulletin 103M. Titled: "Wood" consist of 82 pages with illustrations. Price \$1.15.

Bulletin 104M. Titled: "Metal" consists of 120 pages with illustrations. Price \$1.55.

Bulletin 113M. Titled: "Hazardous Wastes". This booklet discusses all the aspects of hazardous wastes in the environment. 24 pages and illustrations. Price 85c.

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THE MODERN SUPERINTENDENT

By DAN JONES

Late one afternoon while sitting at my desk reflect in on the events that had taken place that day on the golf course, the door to my office opened and in walked a man with a briefcase. This is what transpired.

Salesman — I am looking for Mr. Smith.

Smith — I am John Smith.

Salesman I am John Doe from the ABC Chemical Company. I have some products that can really help you (he hands me a lucite paperweight with 5 coins embedded in it and starts opening his briefcase).

Smith — I am not interested (I hand the paperweight back to the salesman).

Salesman — May I ask why?

Smith — Because your products are over priced for what you get.

Salesman — I am a new salesman with the company. The old salesman didn't treat you right. Let me prove that I can save you money. What products do you need?

Smith — I am just starting my weed program. How much is 2,4-D?

Salesman — What quantity?

Smith — 30 gallon drum.

Salesman — These prices are not for you. No sir. You get a real special price (he starts writing a lot of figures on a piece of paper). How does \$6.48 a gallon sound.

Smith — Good, I am paying \$7.15 a gallon from XYZ Company.

I am going to stop the conversation here to illustrate a point. Which company would you buy from? ABC? Sounds logical doesn't it. The cost per gallon is 10% less. That will really help you control your budget (the manager has been on your tail lately about costs) which is running considerably over. Should a superintendent place an order at this point? Let's listen to the rest of the conversation to find out.

Salesman — How many drums should I send out?

Smith — How many pounds of 2,4-D are in a gallon?

Salesman — Ah — Let's see — It will cover 10,000 square feet.

Smith — I don't care about your recommended rate. How many pounds of active ingredient per gallon?

Salesman — (Looking at sample label) 10,000 square feet sure is a lot for one gallon.

Smith — There it is at the bottom of the label: $\frac{1}{4}$ pound of 2,4-D per gallon. The product I am buying from XYZ Company has 4 pounds per gallon. That means your product costs 16 times more. (See figure I.)

Salesman — How about liquid fertilizer. I can let you have it in 55 gallon lots for \$6.50 a gallon.

Smith — I use liquid fertilizer on my golf course and I'm paying 50c a gallon for it. Now if you will excuse me I am very busy.

Salesman — But my product covers 25,000 square feet.

Smith — I said I am very busy. Good day.

Has this ever happened to you? Sure it has, we have all experienced this situation. How do you stand up to these salesmen? How can you be sure which salesman to buy from?

First, do not accept "free" gifts from salesmen. Do not deal with any company that will not give you a catalog. Do know how to read a label (both chemical and fertilizer) and insist on seeing the label before purchasing. **Do not purchase** if the concentration of active ingredient is not listed on the label. Compare prices of 2 or 3 companies before purchasing.

Lastly, always consider service and reputation of the supplier. Deal with good reputable companies that belong to the South Florida Golf Course Superintendents Association. They support our organization financially, we should support them with our business.

During these troubled times, management is looking to the golf course superintendent to give him the best golf course for least dollar. Can we fill the role?

I would like to leave you with this one thought. Are you ashamed to have other superintendents look in your chemical room?

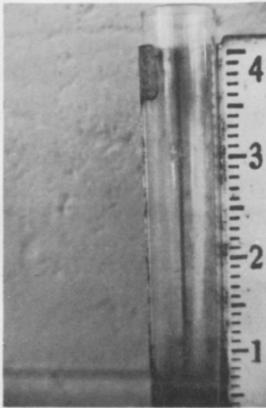
ANALYSIS OF CHEMICAL PRODUCTS

	2,4-D	
	Company XYZ	Company ABC
Pounds Material/Gallon	4.0	0.25
Cost Per Gallon	\$7.15	\$ 6.48
Cost/Pound Active Ing.	\$1.79	\$25.92
Cost/Acre ($\frac{1}{2}$ pound)	\$.89	\$12.96
Difference Cost/Acre	—	1600%

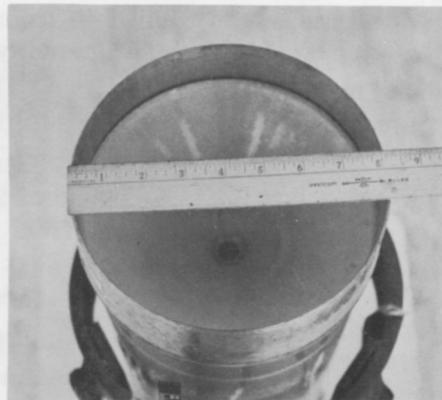
DOES YOUR RAIN GAUGE LIE?

By DAVID BAILEY

During the past two year period I have been measuring rainfall for the U.S. Weather Bureau. The information is recorded daily, and monthly forwarded to the center at the Palm Beach Airport. Many readings in the county are being taken to get more information on a county basis instead of just one reading at the airport.



The most interesting finding over this period of time is the inaccurate reading of the small gauge I used previously, one used by most golf courses. The two gauges being compared are a small glass cylinder type with measurements on the outside frame. This



type measures in either tenths or fifths of an inch. The glass cylinder is one inch in diameter. The U.S. Weather Bureau gauge by contrast has an eight inch diameter, thus collecting more rain and limiting the margin of error. A dip stick measured to 1/100 of an inch is then dropped into the cylinder. The small hardware store style gauge is from twenty-five to forty percent incorrect. A heavy fast rain will show the most error.

Do you know the amount of rain to expect in Palm Beach County? Based on official records for the 1941-1970 period, the annual norm is 62.06 inches. The following is a monthly breakdown.

January....	2.60	July.....	6.52
February	2.60	August....	6.91
March.....	3.32	September	9.85
April.....	3.51	October....	8.75
May.....	5.71	November	2.48
June.....	8.14	December	2.21

While on the subject of meteorological data, check these facts. The all time Palm Beach County record rainfall in a twenty-four hour period is a whopping 15.23 inches in 1942. The record high temperature is 99°F. in April of 1971 with a record low temperature of 29°F. in January of 1970. There is also a snowfall chart on the record books but don't expect to fight snow mold in the future since none has ever been recorded.



HOOKS AND SLICES

A good supervisor, someone once said, is a guy who can step on your toes without messing up your shine.

I have yet to be bored by someone paying me a compliment.

If you wish to make a man your enemy, tell him simply, "You are wrong." This method works every-time.

If life hands you a lemon, make lemonade.

Nothing great was ever achieved without enthusiasm.

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IT IS MORE THAN JUST A TOURNAMENT

By DAVID BAILEY

Spring in South Florida brings the professional golf tour into our area. This puts extra emphasis on the host club management and specifically the golf course superintendent. The following article is an interview with three local superintendents that have been responsible for preparing a course for a tournament.

What Tournament Are You Involved With?

RUDY GEIGER—The Doral Eastern Open at the Doral Country Club, Miami, Florida.

LARRY WEBER—The Jackie Gleason Classic at the Inverrary Country Club, Lauderhill Florida. This year the event was the Tournament Players Championship.

CARL McKINNEY—The 1971 PGA Championship and the 1971 World Cup. The site was the PGA National Golf Club in Palm Beach Gardens. The Club is now known as the J. D. M. Country Club.

What Is Your Greens Cutting Program For A Tournament?

RUDY GEIGER—We cut the week of the event at $\frac{1}{8}$ of an inch. The greens are single cut with hand walk mowers.

LARRY WEBER—This year we cut with hand walk mowers. We did this one month in advance to train employees and for quality. We rented the machines since we had never used walk mowers during the past four years. We started cutting at $\frac{3}{16}$ of an inch and went to a tight $\frac{5}{32}$ of an inch.

CARL McKINNEY—The PGA Championship was in February which makes it difficult. We used hand mowers all that winter because of overseed. We double cut daily for three weeks starting at a height of $\frac{3}{16}$ of an inch and got to an $\frac{1}{8}$ of an inch the week of the tourney. It is important to have the course the same on Monday for practice as the finals on Sunday.

Does Your Club Feel The Expense and Effort Worth While?

RUDY GEIGER—Yes, the advertising overshadows the cost since we are a hotel complex.

LARRY WEBER—Yes, our company has a verbal agreement to host a tournament through 1980. It has helped us sell apartments.

CARL McKINNEY—In 1971 probably yes. In 1976 I would say no. The Club has changed its structure and now as a private club, it would not be a benefit.

How Far In Advance Do You Prepare For A Tournament?

RUDY GEIGER—The long term projects of chemicals and fertilizers change very little. About two weeks in advance is the main change. That's when the greens go down, traps are fine raked, topdressing applied.

LARRY WEBER—We start planning and having meetings in October for late February. When you host an annual event, you start preparing for the next when you recover from the past tournament.

CARL McKINNEY—We had two in one year which made it easier for the second tournament. We really started about two years in advance since the PGA is a major tournament. We planted seven hundred trees, design changes in traps were made and some greens replanted.

Each Of You Have Encountered Rain. What Is The Biggest Problem?

RUDY GEIGER—One week before the tournament is the worst time. Then the heavy equipment from the TV Networks can hurt you. Rain hurts your mowing practices near tournament time.

LARRY WEBER—At our club the fairways drain very well. Our main problem is with draining greens to get a good cut. We had to pump some sand traps dry.

CARL McKINNEY—During the World Cup we went five days without mowing fairways the week prior to the event. When you get lush for a tourney and can not cut, you get scalped. You lose the texture of your greens.

Each of You have at least Three Course at your Club. Is the Size of Your Organization an Advantage?

RUDY GEIGER—Yes, since we have more machinery and manpower. We cut fairways twice a day, ahead of and behind play. All fairways can be cut in less than hour and half. When cutting greens we have ten mowers out.

LARRY WEBER—Yes. I do not know how an eighteen hole layout can make it. We will use as many as thirty seven employees on the course.

CARL McKINNEY—Yes. During the PGA we closed the other two courses and had the luxury of unlimited manpower and equipment.

What Is the One Single Thing You Have Learned About Hosting A Tour Tournament?

RUDY GIEGER—Never get pushed into anything contrary to your own better judgment.

LARRY WEBER—Go to a tournament before you have yours. My company sent me to the Masters and Disney World for a week prior and during their events.

CARL McKINNEY—Learn to organize your staff, it is a team effort. The time of the year is very critical for your preparation.

This past year Jack Nicklaus won at Inverrary with a course record score. Hubert Green won at Doral this season also with a record score. This proves the level of golf is constantly improving and one of the reasons is because of quality turf. We all benefit from the fine work done by these three leading superintendents and their entire staffs who have been in the spotlight.

Golf Course Superintendent's History

CHARLES C. WORTHINGTON

Charles Campbell Worthington died at his winter home, 2101 Connecticut Avenue, Washington, D.C. on October 21, 1944. He was in his ninety-first year.

Worthington won many honors at Expositions, among which the Grand Prix and Gold Medals at Chicago in 1892 and 1900 were awarded to his firm. But his greatest achievement was during the Egyptian Sudan Insurrection when the British Army were faced with the loss of their cause unless water could be delivered to them across a 200 mile desert. Considered a hopeless task, Worthington successfully engineered this Herculean problem for which he was cited for knighthood.

To retire at the age of forty-six from the activities of business was not in Mr. Worthington's make-up. The automobile age was then in its infancy and his vision later justified the belief in its eventual acceptance. He designed and built several steam automobiles which showed considerable promise. However, the simplicity of gasoline engines produced sufficient interest for him to organize the Worthington Automobile Company, which built and introduced several types of domestic and foreign pleasure cars.

The call of the "outdoors" was too much of a magnet for a sportsman like Worthington — the recipient of many trophies as a great shot with rifle or shot gun, a fisherman of considerable ability —

any metropolis failed to attract him for long. Buckwood Park, near Shawnee-on-Delaware, Pennsylvania became his home. Its charms of beautiful scenery and virgin forest could not be surpassed anywhere in the immediate borders of the Eastern States. He brought deer to his 5,000 acre enclosure as part of the estate sanctuary and many other forms of wild life benefited from the protection the park offered — a veritable Paradise which Worthington wished to have others enjoy.

To meet this desire of his, he designed and built Buckwood Inn as a summer resort. Surrounding it he constructed, according to his plans, the Shawnee Country Club with its famous golf course. It has been the host of the principal amateur and professional golfers in this and foreign countries.

Worthington knew golf — long before the ancient game was known in this country he played in Scotland when the old feather ball was then in use, and brought some back to this country. On his estate at Irvington-on-Hudson he built six holes and collaborated in the organization of one of the first golf clubs on these shores at St. Andrews, Mt. Hope, New York, after he helped develop the Ardsley Golf Club at Ardsley, New York.

About this time Worthington took the game of golf to Delaware Water Gap, near his mountain retreat of Buckwood Park. He supervised the design and construction

of nine holes for the Caldono Golf Club and followed this hobby by laying out nine holes on his private grounds at Shawnee. His last contribution to the game was his championship course for the Shawnee Country Club.

The matter of maintenance of these golf courses was ever uppermost in his mind. Originally on his private course he used sheep. A Scotsman with his herd and dogs, was imported for this purpose. The test was not the answer to this problem so he turned his ideas toward mechanical methods, which brought about the first commercially successful gang mower, a grouping of 3, 5, 7, or 9 lawn units. They met with immediate response and these machines which he started pioneering in 1914 are now to be found all over the world where large acreage of lawn and golf fairways exist. He founded the Shawnee Mower Company which later became the Worthington Mower Company.

Mr. Worthington's interest in the game of golf was further manifested by being the first to bring together and organize the Professional Golfers' Association. In 1912 he asked a group of professionals to be his guests at Buckwood Inn, and the results of this meeting produced a strong organization as it is known today.

Among some other hobbies, he established one of the few private bird sanctuaries where studies in the habits of birds were available for ornithologists.

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A NEW FERTILIZER FOR FLORIDA

A south Florida fertilizer company has just received one of the first three domestic shipments of a revolutionary new fertilizer from the Tennessee Valley Authority's National Fertilizer Development Center at Muscle Shoals, Alabama.

The Atlantic Fertilizer & Chemical Company with headquarters at Homestead, will soon be applying the new fertilizer — sulfur coated urea (SCU)—to crops in Palm Beach, Dade, and Broward counties. According to John M. Fredrick, Atlantic's president, the SCU will be used on vegetables such as tomatoes, potatoes, sweet corn, beans, and squash, as well as tropical fruits. It will also be applied to turf and ornamentals.

Most of the soils in south Florida are sandy and rocky. Fertilizer leaches from them very quickly. SCU is ideal for use under such soil conditions because SCU granules release nitrogen over a much longer period of time than conventional nitrogen fertilizers. The sulfur coating delays the rate at which the urea granule dissolves.

Besides being ideal for soils where fertilizer leaching is a problem SCU has two other big advantages. It reduces damage to seedlings and foliage which can occur with conventional nitrogen fertilizers. And it can reduce the number of fertilizer applications to a crop; this saves both labor and energy.

TVA has been working toward a successful controlled release nitrogen fertilizer for more than 20 years. Many types of coatings were tried. But sulfur proved superior because it is relatively

cheaper than other coatings and it is itself a plant nutrient. Many soils requiring fertilization with nitrogen also need sulfur.

The process of making SCU is simple in concept. The pre-heated urea granules are sprayed with molten sulfur in a rotating drum. A wax coating is then applied to seal pinholes or cracks which would affect the release of the urea. Then a microbiocide is added to prevent soil bacteria from attacking the wax. Finally, the SCU is cooled and a conditioner is applied to prevent caking.

Leon Padgett, vice-president in charge of fertilizer formulation and agronomy at Atlantic, says that their receiving the SCU is the latest in a long series of events since they became a co-operator in TVA's national fertilizer research and introduction program. Since 1965, they have used many TVA fertilizers and services which have helped upgrade the quality of fertilizers used by American farmers.

Dr. Paul Orth of the University of Florida Agricultural Research & Education Center at Homestead has been experimenting with sulfur coated urea for the past 5 years on south Florida soils and growing conditions. He has found SCU resists leaching, releases residual nitrogen over a long period of time and should be useful on a wide variety of crops with good results.

In the fertilizer industry natural organic sources for nitrogen have become more difficult to obtain due to ecological restrictions and high production costs. SCU can replace these materials at no greater cost.

Dethatching Materials - A Preliminary Trial

ROBERT E. BURNS

Georgia Experiment Station

Recently two or more materials have been put on the market that contain various microorganisms and compounds to prevent thatch buildup and to reduce the thatch present.

One of these compounds was tested this year at the Georgia Experiment Station in Griffin. We applied the material at the recommended rate or higher and watered well to get it into the thatch. When it did not rain following application the plots were watered to provide more favorable conditions for the microorganisms. Herbicides or chemicals, other than fertilizer, were not used on the plots until after evaluation of the effectiveness of the biological dethatching material.

The first evaluation was on Tifdwarf bermudagrass with a relatively high fertility rate and mowed at a height equal to a bench setting of $\frac{1}{4}$ inch on a greens mower. Four separate plots were treated. A portion of each plot had not been detached for two years while the rest had been verticut and cored regularly. It was cored once during the trial period. Care was taken not to transfer any material from the treated to the untreated areas. The whole area had been top-dressed liberally with sand at the time of winter overseeding preceding the test. The dethatching material was applied on April 28 and the thatch measurements were made on August 20. Paired comparisons were made between thatch on cores removed from the treated strips and from equivalent locations in an untreated strip at least 3 feet from the treated areas. There was no difference between treatments in any of the replications.

The product was also applied on June 17 to Tifdwarf and Tifway (419) bermudagrasses, Emerald zoysiagrass, and centipedegrass maintained at lawn and fairway levels of fertility and mowing. The recommended rate was used on each grass and an additional treatment of twice the recommended rate was used on Tifdwarf. There was no difference in thatch between any treated

areas and equivalent untreated areas on September 29.

Other researchers in the Southeast have had similar results. This would indicate that, in our region and on turf in which natural microorganisms are present, the biological detaching agent is not effective. However, there may be conditions under which they would be beneficial. These would include areas in which certain insecticides, fungicides or nematodes might have reduced the microflora or on relatively new grass growing on a sterilized substrate on which microflora may not have built up. We did not try the product under these conditions.

Until further controlled research is conducted, it may be advisable to test the products on small areas before going to the expense of applying them to all your greens. Since mechanical dethatching has beneficial results other than the removal of the thatch, an effective biological agent would supplement, not replace, mechanical dethatching.

GRACE

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EDITOR'S NOTE: Our thanks to DAN JONES, Superintendent at Aventura Country Club for his fine article in the January 1976 issue titled "THE SUPERFISH". This will correct our error of omission. We inadvertently left out his byline.

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