

ion to keep costs under control and the course in good condition?

Superintendents should take the initiative to bring the idea of long-range planning and maintenance standards to the attention of the officials up their chain of command. Even if the officials decline to act immediately, at least you are on record as being aware and concerned for the financial and operational welfare of your club. You will also be documenting the actual costs to maintain the golf course to their demands and expectations. This documentation can be a great tool in demonstrating the cause-and-effect relationship when new committees want to make changes to the golf course or its maintenance practices.

As the old saying goes, "The best laid plans of mice and men often go astray." And in the research for this Hands On topic, my preconceived ideas of what long range plans and maintenance standards are and how they are administered were given a reality check. Check out how these topics are approached by your peers.

Long Range

What is long range? For Greg Maze, at the Twin Eagles G.C. in Naples, it is one year at a time. Twin Eagles opened in 1997, but had to reorganize under new management in 2000. Until the club accumulates more real estate and membership sales, its planning is limited to working with a fledgling budget that is growing slowly but surely. Maze says, "We have a list of prioritized projects we want

to accomplish. Right now we pick one and put it in the budget for next year, so we do have a plan. As the club grows we will be able to forecast farther into the future."

Clayton Estes, CGCS at the San Jose C.C. in Jacksonville said the club's board of directors requested in 2000 that the green committee prepare a long-range plan for golf course maintenance. Estes called on John Foy, director of the USGA Green Section Florida Region, for help and advice. Using a report-card concept of evaluating the golf course, a punch list of needed projects was produced.

Estes says, "In the long run the plan became primarily a budget tool for expanding existing line items annually to accomplish some of the improvements identified in the plan - a justification for raising the line item over its normal operating amount. With the current economic uncertainty, it has been tough to stick to the plan and put in those extra dollars to take care of those projects. We have done a little better with our five- to seven-year equipment-replacement plan. Each year the equipment up for replacement is given an A, B, or C priority. Like any plan, it is a living document and needs to be reviewed annually and changed as needed."

Peter Brooks, CGCS at The Everglades Club in Palm Beach said the club had a five-year course-improvement plan all mapped out to address the issues facing the historic Seth Raynor-designed golf course that opened nine holes in 1919 and the

full 18 in 1926. The course had been reworked and "modernized" a couple of times over the years, but there were still significant irrigation, drainage, fairway contouring and grassing issues to be faced including fairway off types and upgrading the Tifgreen 328 greens to TifEagle.

Brooks said, "We were proceeding with our plan in an orderly fashion when all of sudden we came to a decision-making crossroads. The South Florida Water Management District ruled that we had to improve our storm-water runoff-retention capacity, which meant we had to deepen and enlarge all of our lakes.

"Forced to tackle that project immediately created a chain reaction realization for the club. If we excavated the lakes we would generate fill needed to contour fairways. If we contoured the fairways we would need to install new drainage collection basin and drain lines to the lakes. If we tore up and redesigned the fairways we would need to redesign our irrigation coverage. If the course was going to be closed why not regress the course? All of a sudden our five-year plan became the 2002 Renovation Plan.

"While it will be a challenge to get everything done by our projected opening date of December 1, 2002, we will be gaining a new irrigation system, removal and relocation of all trees causing shade problems to greens. They will all be in full sun in the new layout. A complete tilling of the fairways with sand from the lakes will break up the

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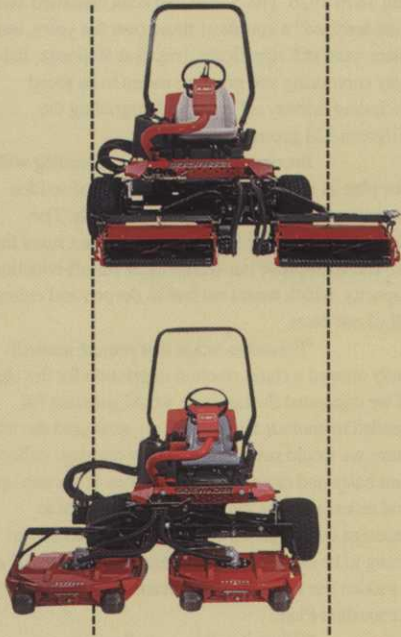
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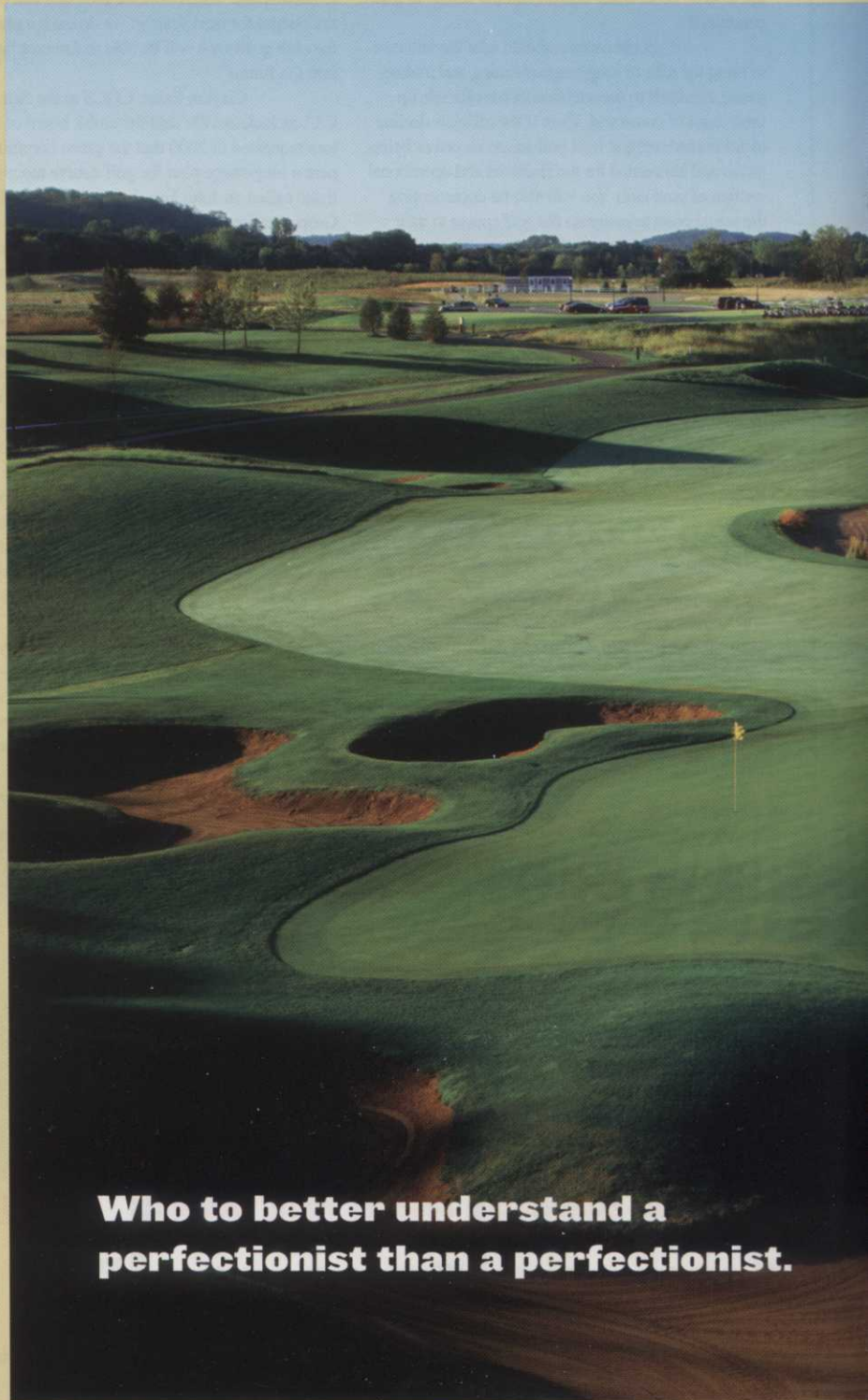
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organic layers built up over the past 70-80 years. So we're still operating with a plan in mind. It's just on an accelerated track."

Brooks also has a five-year capital-equipment-replacement plan in place, which will have to be tweaked to include a whole new fleet of flex greens mowers to accommodate the new TifEagle turf on the new Brian Silva layout which will bring back some of the original Raynor design features.

Brooks says, "Our long range equipment plan allows the club to know the capital costs each year. It discourages procrastination in budgeting for some needed items because they can't be deferred too long before the bill keeps getting bigger to pay for the replacement items. Of course any good plan is adaptable and never in concrete. In fact in most cases by using GCS maintenance-record-keeping software and sticking to manufacturers' recommendations, we have improved our equipment's life span and our five-year plan is really more like a seven-year plan."

Three long-range plans

Meanwhile back on the west coast, Matt

Taylor at the Royal Poinciana G.C. inherited a long-range plan already in place. Taylor brought along some ideas he had learned working with Tim Hiers at Colliers Reserve and Mark Black at Bonita Bay East. Working with the Royal Poinciana committee and board members, they modified the plans. In fact there are actually three long-range plans Taylor is involved with: Course Operations (5 years), Capital Equipment (10 years), and Course Improvements (5 years). Each plan is re-evaluated every spring and receives final approval in the fall.

Taylor said, "Each year we look at the issue and determine the priority of what needs to be done from the major course improvement projects down to providing amenities and adjust as needed and submit to the board for approval. Having these plans in place and in writing gives me a certain comfort level with my duties and responsibilities. There should be no surprises for me or the club about what is expected or what we are going to do. It provides a stable business-like atmosphere for the growth and development of the club.

"We also have a set of maintenance

standards to guide our employees in the performance of their duties. These standards are built into our training program for each employee and cover the basic safety and performance requirements for each job and piece of equipment. There is a binder containing the standards and procedures for every job and equipment and as each person masters each job he is signed off and certified for that equipment or operation."

Maintenance Standards

I learned that creating maintenance standards for golf course operations had just as many different applications as did long range plans. However, they did have common threads like safety, training, consistent performance and quality. Because intimate knowledge of the tasks and desired results is required, most maintenance standards are written by the superintendent. It is important, however, for the club to recognize what goes into achieving those standards and that for every action there is a consequence in time and money.

Chip Fowkes at the Fountains G.C. in

Golf Course Morning Duties

FOUNTAINS COUNTRY CLUB

This is a brief description of the tasks that are performed every morning on the golf course before play begins.

Manager in Charge

This is assigned to the Director, Superintendent, or Asst. Supt.

- Check answering machine.
- Check weather computer for threatening weather.
- Check irrigation computer for last night's report.
- Morning line-up with crew before deployment.
- Check main and supply irrigation pumps.
- Inspect driving range and practice areas.
- Report cart rules and check tee sheets with pro shop staff.
- Ride and inspect both courses.
- Discuss next day's requirements with mechanics.

Course Setup

This is usually assigned to an Asst. Supt. or key employee that is familiar with the basic rules of golf and how the game is played.

First tee start- One employee, 4 hours

First and ten- Two employees, 3 hours

8:30 Shotgun- Three employee hours, plus one employee, 1 hr.

Changing of the cups, or pin locations and tee markers. This is done daily according to a charted system that ensures that a variety of positions are covered and wear is distributed evenly throughout the greens and tees.

Move cart control ropes and check ball washer areas for all golfer amenities.

Empty trash containers and check to see that all water and ice machines are functioning properly.

Check scorecard and tee holders.

Walk Mow Greens

This is the preferred method of mowing. Each mower is 22" wide and gives a more even and tighter cut than a ride on machine.

First tee start- Three employees, 3 hours

First and Ten and Shotgun- Four employees, 2.5 hours

Triplex Greens- This is a machine with three 22" mowers mounted on a small tractor. The main disadvantage to tri-plexing greens is the potential for tire wear when circling the perimeter of the greens. It is also more difficult to set and balance three independent cutting units to mow evenly when set at heights of .135 and lower. The advantage of the tri-plex mower is the savings in manpower and speed of operation.

Tri-plex mowers are also used as a "double cut" mower, following the walk mowers to provide a tighter cut and faster green. When greens are verti-cut they are usually followed by a tri-plex to clean up the clippings.

First tee start- One employee, 3.5 hours

First and ten and shotgun- two employees, two hours

The frequency of "double cutting" and, rolling and mowing, is one of the most important aspects of faster, smoother greens without reducing mowing height. This is possible when there is a maintenance staff large enough to fill these positions.

Rake Bunkers

Most golf courses today use small riding bunker rakes with hand raking saved for major tournaments

and events. It provides a much smoother and even surface if a second worker can be sent along with the machine operator in order to hand rake rough spot, pull weeds and rake the bunker edges.

First tee start- One machine, 4 hours, with optional hand worker, 3 hours

First and ten- Two machines, 2.5 hours, with two optional hand workers, 2 hours.

Less Than Daily

The following tasks are performed at different intervals depending on the desired level of maintenance and supporting budget. The majority of golf courses mow these areas three times per week on Monday, Wednesday, and Friday. There is a movement at the finer clubs to go to a more frequent mowing schedule of every other day including weekends. The higher frequency of cut results in less scalping, tighter lies and more definition.

Tees, Collars & Approaches

The intermediate cut circling the green and the short cut area between the fairway and green. Mowed with the same style triplex mower as is used on the greens but set at a height between .350 and .5 inches

First tee start- 2 mowers, 3 hours.

First and ten - 2 mowers, 4 hours.

8:30 Shotgun- 4 mowers, 2 hours.

Every other day- 3 mowers, 2.5 hours.

Fairways

Whether fairways are striped by mowing each line in the same direction every cut, or mowed in different directions like a putting green, more frequent mowing schedule produces a tighter turf stand.

First tee start- 2 mowers, 3 hours.

First and ten- 2 mowers, 5 hours.

Every other day- 3 mowers, 2 hours.

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Upright Leaf Blade Orientation

TifSport's leaf blade orientation and stiffness is being touted by many golf course superintendents. They feel TifSport gives a better ball lie in cut fairways and roughs.

Impressive Leaf Texture

TifSport has a similar leaf texture to Tifway, and a finer leaf texture than most other grasses used on fairways and tees. This also helps promote good footing on athletic fields.

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TifSport has a dark emerald green color versus the somewhat lighter green of Tifway and Quickstand.

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Long Range Planning Process

JOHN'S ISLAND CLUB

By Greg Pheneger

The Mission Statement of John's Island Club includes the phrase: "Maintain, improve and add club facilities and equipment as needed, keeping them in first class up-to-date working condition at all times". To accomplish this goal, the club instituted a long range planning committee in 1999. Prior to 1999, planning at John's Island tended to be episodic, depending upon specific issues, projects and needs. The strategic plan listed goals and instructed the club to work on a five-year plan so that the club's direction would be managed.

A five-year plan including corresponding costs is compiled by each department head. The plans are then looked at by the appropriate committees and then forwarded to the long-range planning committee, usually after a few modifica-

tions. The long-range planning committee then ranks each and every item in the plans for presentation and recommendations to the board. This procedure is accomplished in conjunction with the finance committee to ensure the appropriate funding is available.

I was very fortunate when I arrived at John's Island because there was already a very good equipment replacement program in place. The equipment plan optimized useful life with trade-in values so that the club got the most for their money. Equipment maintenance programs must be a very high priority to enhance trade-in values. Tweaking to the equipment plan has been done to accommodate the full course overseed programs on the beach courses.

Capital projects such as green rebuilds, bunkers, fairway, etc. needed to be plotted. I took the plan a step further by producing a ten-year plan. The ten-year plan is required for capital projects since most of the items we are replacing last much longer than 10 years and the ten-year plan simplified this task. I consulted with John Foy of the USGA Green Section, architects,

contractors and fellow superintendents for information regarding their replacement schedules. The timing differed on most items; however, armed with this information, I was able to formulate conclusions that worked for John's Island. I then gathered costs for each item, adding inflation costs at 3% each year, plus a 10% contingency. Architect or engineering costs were incorporated one year prior to the actual job start-up date.

The plan allows the club to clearly visualize future spending. Large projects are not a surprise to the membership, and through the vision of this plan, they can formulate a clear decision on these projects. Always keep in mind that the plan must be updated each year and projects will move within the long range plan and items will be added and/or deleted.

Do not be discouraged or think that the club will not spend the money for the items needed most because items may be re-prioritized. A well-thought-out long range plan will allow the club to discover ways to obtain money to accomplish the necessary projects to conform to its mission statement.

Lake Worth is a big believer in maintenance standards. Fowkes said, "I drafted my first set of standards while working at Frenchman's Creek. There were four things I wanted to accomplish by having a set of standards approved by the club: accomplish the mission of the golf maintenance department;

address players' expectations for a well-groomed golf course; define performance guidelines for our employees; and address our environmental and financial responsibilities to the club."

I asked Chip if he developed the standards in conjunction with the green committee and

he said he didn't think that was very practical.

He said, "Committees are made up of players all skill levels. We would get bogged down in 12 different discussions on playing conditions and never get a document written. It is much easier to go back and tweak a couple of sentences than to argue

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over the whole document line by line. I write the standards and then submit them to the committee annually for approval. Committees can change each year so it's important to do that.

"My first source for the standards was crew input for the obvious reason - they do the work every day. Another reason is that I wanted to establish grassroots belief in our goals to get buy-in and ownership of the responsibility for achieving the standards. These standards are then part of our training program for every employee to help each one succeed at his or her job and to provide a good quality for our members. By defining all our jobs, we also provide valuable documentation for budget preparation. When asked why you need X dollars for labor or equipment, it's pretty easy to open up

the binder and show them in black and white."

Kenyon Kyle at the 54-hole Shadow Wood C.C. in Naples said he was motivated to develop maintenance standards for his own peace of mind. Kyle said, "I watched Mark Black's responsibilities grow from a single 18-hole golf course to a 90-hole, multi-site operation with Bonita Bay. Obviously, his time spent on the golf course had to go down as he got involved in company meetings and planning sessions. The first week at Shadow Wood I knew I would need to create a set of standards like Mark did at Bonita Bay. I wanted guidelines in place that would help me meet my expectations as the person ultimately responsible."

"In conjunction with the general manager and head golf professional, we have a running list of

projects on the docket. Since we are owned by the developer we don't have a typical green committee, but rather an advisory committee made up of members that provides monthly feedback on issues and concerns. I also make it a point to be in the cart staging area near the pro shop on Men's Day to meet new members and chat about our plans and operations.

"Shadow Wood is a 54-hole complex. I knew supervising the grow-in of the new Preserve course was going to take a lot of my time. As director of golf operations I want to make sure my superintendents and the staff had all the resources they needed to provide a consistent quality experience on all the courses. By establishing and training the crew with a common set of standards we should be able to accomplish that goal."

SUPER TIPS



A custom built cabinet organizes irrigation control and communication components allowing for quick visual inspection and providing protection against unwanted tampering or mishandling. Photo by Darren Davis.

Oak Hill Irrigation Upgrade Provides Lots of Easy Tips

On a recent visit to Oak Hill Country Club in Rochester, NY, golf course superintendent Paul B. Latshaw was kind enough to show us several "Super Tips" that may benefit many Florida golf course superintendents.

Oak Hill will serve as host for the 2003 PGA Championship, one of golf's four major championships. The Club, founded in 1901 boasts a Donald Ross-designed golf course and is no stranger to major golf tournaments, having hosted three US Opens, the 1980 PGA Championship and the 1995 Ryder Cup Matches. The golf course is also ranked in the top 25 on most Top 100 lists.

Latshaw and his staff have spent the last several years preparing for the upcoming PGA championship by revitalizing the conditioning of the



Easy and affordable to construct, this portable 1-1/2-inch PVC base is stable and delivers extra irrigation where needed at optimum pressure. Photo by Darren Davis.

golf course to meet and exceed expectations of the PGA for hosting the upcoming championship. Included in this revitalization was a major irrigation renovation and the following two "Super Tips" relate to that irrigation project.

Command Center

The first tip was found in the new computerized irrigation system "command center." Adjacent to the computer that runs the irrigation program, is the additional hardware needed by the Rain Bird control system to send and receive the data necessary for the smooth operation of the state of the art irrigation system. At other facilities that I have visited, depending on one's house-keeping practices, I have seen the various components placed in tight quarters and often in disarray. This can be a little scary especially when we rely so heavily on our irrigation systems for accurate and dependable water distribution. At Oak Hill, a custom-built cabinet was used to organize the additional components in a manner that allows for

quick visual inspection and provides protection against unwanted tampering or mishandling.

Transportable Head

The second item I found intriguing is a transportable irrigation head that can be used to spot irrigate areas that are either not receiving adequate coverage from the system or in need of special attention. 1-1/2-inch PVC was used to construct the base of the unit with a Rain Bird 900 series irrigation head attached to the threaded fitting in the center of the base. During the initial use, Latshaw determined that operating the unit with a standard 1-inch hose, resulted in a loss of approximately 40 psi, severely decreasing the efficiency of the irrigation head and the desired irrigated radius. A 1-1/2-inch hose was then purchased from a local fire hose distributor and the spot watering device is now functioning very well.

Darren Davis

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Contribution of Florida's Golf Course Industry to the State's Economy

By John J. Haydu, Ph.D. and Alan W. Hodges, Ph.D.

Golf is a highly popular recreational activity in the United States. In 2000, there were over 15,000 golf facilities in the country (NGF 2001). Florida has more than 1,300 public and private golf courses, more than any other state. Numerous acclaimed golf courses in Florida are host to prestigious tournaments, including several on the PGA Tour, which is headquartered in the state. Golf courses in the Ft. Myers, Naples, and Ft. Pierce/St. Lucie areas of Florida are among the top five specific golf destinations in the U.S. Florida's warm climate allows golf play throughout the year, and golf is a primary activity for many of the millions of tourists who visit the state each year.

A decade ago, an economic study (Hodges et al, 1994) examined the value of the golf course industry to Florida's economy. The present study updates this information for year 2000 to reflect the growth in the industry and to assess the impact of golf tourism to Florida. Because out-of-state visitors bring new money into the Florida economy, their impact on the golf industry and tourism sector is associated with an economic multiplier effect. This involves three levels of economic activity:

- **direct** expenditures by tourists,
- **indirect** expenditures by golf facilities on inputs used in operations and maintenance, and
- **induced** impacts resulting from personal consumption expenditures by industry employees and allied suppliers.

Water use for landscape irrigation is a critical and growing issue in Florida. Many golf course superintendents are aware of the increasing political pressures to reduce consumption or switch to alternative water sources, such as reclaimed water. Mounting urban populations are placing unprecedented pressures on the natural resource base in many regions of the United States. At the same time, heightened environmental awareness by the public is focusing attention on heavy consumers of water, fertilizers, and pesticides (Haydu et al, 1997).

These pressures are being felt increasingly by agricultural interests and commercial users of these inputs. Golf courses, which are generally located close to or within urban centers, are particularly prone to public scrutiny of resource-use practices. With more golf courses than any other state, and with a rapidly expanding urban population, the Florida golf course industry is often in the spot light with regard to water consumption practices. This is particularly true during periods of drought, which Florida has experienced in recent years. This study

examines water use patterns by golf courses to document irrigation and consumption-related issues.

Methodology

Information to be collected from Florida golf courses and issues of concern to the golf industry were determined based on comments received in two focus group sessions with golf course owners and managers at Apopka and Naples, Florida in July, 2001. These sessions included a total of 12 industry professionals, representing industry associations, individual golf course owners, managers, and superintendents. Based on their recommendations, a mail survey approach was employed rather than a telephone survey, since typically several people in each organization would be required to provide different types of information. Information collected in this survey was for year 2000 and included two major categories:

1. Financial Information

- Business revenues
- Financial expenditures
- Employment
- Value of assets managed

2. Descriptive, Operational and Cultural Information

- Type of golf course
- Number of golf rounds played
- Geographic origin of golfers
- Number and value of associated residential developments
- Golf course area managed
- Types of turfgrass maintained
- Volume and source of irrigation water consumption.

Survey questionnaires were mailed to a list of golf courses that was compiled from three different sources:

- 1) the membership of the Florida Golf Course Superintendents Association,
- 2) the subscribers to *Florida Golf News* magazine, and
- 3) Florida firms listed in the Reference USA data base under Standard Industrial Code 7992 (public golf courses) and 7997 (private membership sports clubs).

These lists were combined, sorted and checked to eliminate duplicates, resulting in a list of 1,334 firms. Surveys were mailed to the listed firms two times, in October and November 2001, with a follow-up reminder postcard mailed one week later. Completed survey questionnaires were received from 223 firms, representing a 17 percent response rate. Results for survey respondents were extrapolated to estimate values for the entire population using expansion factors computed as the population divided by the number of respondents for each major type of variable. For certain types of data that are applicable to only some respondents, an overall expansion factor of 5.8 was used.

Results

Golf Course Characteristics

Florida golf courses fall into eight main categories, but are dominated by three major types - private, semi-private and public (Table 1). From the survey sample, half (50 percent) of the golf courses were privately owned, an additional quarter (27 percent) were semi-private, and 14 percent were public facilities. The remainder was comprised of municipal, residential development, resort and "other". These percentages differ moderately from estimates in the 1991 study that showed 60 percent of courses were classified as private, 17 percent semi-private, and 12 percent were classified as resort.

The decline in the percent of courses that are private is consistent with the findings of the National Golf Foundation. Their 2000 study showed that fully 87 percent of all new openings nationwide were public access facilities, and they expect this trend to continue in the coming years.

Table 1.
Ownership patterns of Florida golf courses, 2000.

Course Type	Number Respondents	Percent Respondents
Private	112	50.2%
Semi-Private	61	27.4%
Resort	12	5.4%
Public	31	13.9%
Military	2	0.9%
Residential		
Development	17	7.6%
Municipal	20	9.0%
Other	1	0.4%

Note: percent does not sum to 100 because some respondents checked more than one category.

Golf Course Area, Turf Varieties and Water Use

Total acreage devoted to Florida golf facilities in year 2000 was 207,582 acres, of which 147,927 acres (95%) were maintained turfgrass playing areas, and 140,274 acres (70%) were irrigated (Table 2). The maintained turf area (fertilized, sprayed and mowed) was up from 131,300 acres in 1991, a 13 percent increase for the 10 years. The average area per course was 108 acres irrigated and 114 acres maintained turf. The average area of maintained turf per course has decreased from 125 acres in 1991.

Table 2.
Golf course area in Florida, 2000.

	Respondents (Number)	Mean (Acres)	Standard Error (Acres)	Expanded Total (Acres)
Land owned	214	160	11	207,582
Turf area maintained	217	114	5	147,927
Area irrigated	217	108	5	140,274

Although more than half a dozen varieties of turfgrass are used on Florida golf courses, by far the predominant was bermudagrass (Table 3). Roughly 92 percent of the 147,927 acres of maintained turf area was planted in bermudagrass, or 102 acres per course. This grass is preferred in Florida for its drought resistance, tolerance to heavy traffic, and utility in either the fairways or rough. Far down