

\$4.44 Billion

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

Table 3.

Turfgrass varieties used by Florida golf courses, 2000.

Turfgrass Variety	Respondents		Mean		Standard Error		Share of Total		Expanded Total
	Number	Percent	Acres	Percent	Acres	Percent	Acres	Percent	
Bermudagrass	214	96.0%	102		5		92.5%		136,773
Bahiagrass	67	30.0%	4		2		3.5%		5,251
St. Augustinegrass	89	39.9%	3		1		2.7%		3,996
Mixed/other grasses	25	11.2%	1		1		0.9%		1,351
Zoysiagrass	25	11.2%	0		0		0.2%		257
Centipedegrass	6	2.7%	0		1		0.2%		299
Specific other type(s)	26	11.7%							
Total							100.0%		147,927

the list in second place was bahiagrass with 5,251 acres, representing 3.5 percent of the total, or 4 acres per course. Bahiagrass is typically limited to the golf course rough. St. Augustinegrass was the only other turf variety that was of significance, with 2.7 percent of the total acreage planted. Each of the remaining varieties constituted less than 1 percent, and are generally limited to the special tee and greens areas.

This study examined three aspects of water use by golf courses - sources of irrigation water, changes in water use per acre, changes in fertilizer use per acre, and whether or not the golf course had installed an automated irrigation control system. Total water use by Florida golf courses in 2000 was estimated at 172 billion gallons. Information related to water sources is shown in

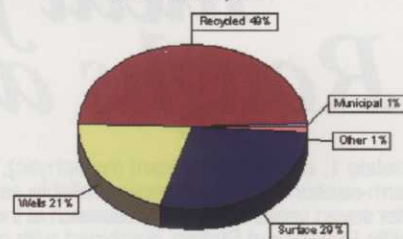
Figure 1. Nearly 85 billion gallons of water came from recycled water, compared to 49 billion for surface water, 35 billion from wells, and 1.5 billion from municipal sources.

Taking total irrigated acres and dividing it into the total amount consumed from all water sources, average consumption by Florida golf courses was 1.23 million gallons per acre, or 3.75 acre feet applied in 2000. The use of recycled water was the primary source for almost half of all golf facilities and has grown from 8 percent in 1974 to 21 percent in 1994 and to 49 percent in 2000. The second most common source was surface water such as canals and lakes (29 percent), followed by groundwater (21 percent) from wells. Use of surface water rose from 23 percent of golf courses in 1974 to 37 percent in 1994, but then declined to 29 percent in

2000. Groundwater as a source declined from 61 percent in 1974 to 41 percent in 1994, falling further to 21 percent in 2000. Clearly, much of the shift from surface and groundwater has been replaced by the dramatic growth in the use of recycled water to irrigate Florida's golf courses.

Survey data on changes in water and fertilizer use indicate that Florida golf courses have markedly reduced (60 percent) consumption of fertilizers and pesticides on a per-acre basis and were increasingly shifting sources of water from ground to recycled. From a water-policy and efficiency standpoint, perhaps even more important than total consumption per acre are changes in water-use patterns over time. To address this issue, golf course superintendents were asked whether irrigation water use per acre over the past five years had increased, decreased or

Figure 1
Irrigation Sources for Florida
Golf Courses, 2000



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Table 4.
Changes in Florida golf course consumption of water and fertilizer use, 2000.

Change Variable	Respondents	
	Number	Percent
Irrigation water use per acre over past 5 years		
Increased	20	9.0%
Decreased	94	42.2%
Remained same	93	41.7%
Amount increased	18	8.1%
Amount decreased	83	37.2%
Fertilizer use per acre over past 5 years		
Increased	64	28.7%
Decreased	39	17.5%
Remained same	104	46.6%
Amount increased	64	28.7%
Amount decreased	39	17.5%

remained the same (Table 4). If it increased or decreased, respondents were asked to specify how much it had changed. By a slim margin, the majority (42.2 percent) indicated that their water consumption had decreased and the reduction in water use by this group averaged 37 percent. Slightly fewer (41.7 percent) said per-acre use remained the same. Nine percent of respondents indicated water use increased over the past five years and that it increased by roughly 8 percent.

A similar set of questions was asked about per-acre fertilizer use patterns over the past five years. Nearly half (46 percent) of all respondents stated that fertilizer use remained the same.

Table 5.
Geographic origin of golfers playing golf in Florida, 2000.

Geographic Origin	Respondent		Mean Rounds	Standard Error	Share of Total Percent	Expanded Total Million Rounds
	Number	Percent				
Local (county) residents	184	82.5%	20,372	1,315	53.7%	31.47
International visitors	133	59.6%	2,049	347	5.4%	3.16
US residents outside Florida	175	78.5%	10,277	980	27.1%	15.88
Non-local Florida residents	146	65.5%	5,209	663	13.7%	8.05
Total					100.0%	58.56

More than a quarter (29 percent) indicated that it had increased and that the average percentage increase was 28 percent. Almost a fifth (18 percent) stated fertilizer use had declined, with the magnitude of reduction a similar percentage (18).

Finally, respondents were asked whether the golf course had automated irrigation systems installed, and whether they were original or retrofitted from a manual system. Nearly all (94 percent) stated that their course had an automated system and more than half (53 percent) indicated it was installed at the time of original construction.

Visitor Originations

Florida is well known for its large influx of winter visitors from many northern states as well as international locations, particularly Europe and South America. The geographic origin of golfers in general tends to be associated with distance to the course. At 54 percent or 31.4

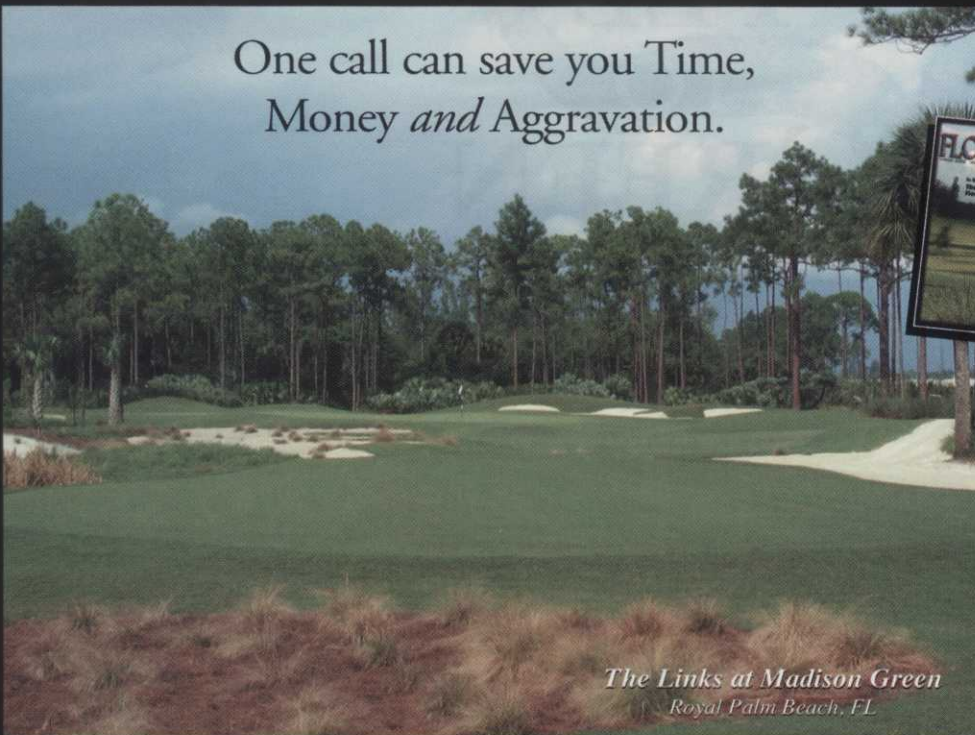
million rounds, local county residents were the group most frequently playing golf (Table 5). The second-most-common group comprised U.S. residents from outside Florida, representing 27 percent of total rounds played. Nonlocal Florida residents were the third-ranked group with 14 percent or 8 million rounds, followed finally by international visitors who accounted for just over 5 percent or 3.2 million rounds of golf. A total of over 19 million rounds (32%) were played by out-of-state visitors to Florida.

Florida Golf Visitors and Expenditure Impacts

One of the objectives of this research was to estimate the total economic impact of golf visitors to the state of Florida. The tourism industry publishes information regarding the impact of tourism to the state, but estimates of the impact of golf-related recreation specifically have not been made. Information was obtained from the National Golf Foundation on golf traveler characteristics in

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the United States, such as the average number of rounds played per day and per year, the number of days spent annually in golf-related travel, the average number of golf trips per year, and average expenditures per trip.

The typical U.S. golf traveler makes 6.6 golf-related trips per year with an average of 3.95 days per trip, or a total of 26 days each year in golf-related travel, and spends an average of \$1,114 per trip or \$282 per day on lodging, local transportation, food, entertainment, golf lessons, gifts, and miscellaneous other expenses, but excluding transportation to the destination (Table 6).

This study assumed that U.S. average golf travel data are representative of golf travelers to Florida since this state is the largest golf travel market in the United States. The U.S. travel data were used together with the survey data on total rounds of golf played in Florida by out-of-state visitors (19,046,060) to estimate a total of 3.12 million golf-playing visitors to Florida in 2000, who made 20.6 million golf-related trips and spent a total of 81.5 million visitor days in Florida.

Based on the U.S. average golf-travel expenses per day and the estimated number of golf-visitor days in Florida, total golf-travel expenditures

by Florida visitors amounted to nearly \$23 billion (Table 6). Based on the number of travel days and number of rounds of golf played, we estimate that 23.4 percent of the total trip expenditures, or \$5.4Bn, may be attributed to golf.

As noted earlier, visitors to Florida impact the economy at three levels - directly on expenditures such as food, recreation, lodging and entertainment, indirectly by the receiving industries of those dollars as they in turn spend money to purchase goods and services to operate their businesses, and induced impacts from personal consumption expenditures by the employees of these companies and their allied suppliers.

The cross-section of industries influenced by tourist dollars, for the major sectors of the Florida economy, and the three levels of economic impact are shown in Table 7. These impacts (direct, indirect and induced) are extrapolated and classified into three types of impacts - output, value added, and employment.

• **Output impact** is a gross figure that represents total revenues generated from the three levels of economic activity.

• **Total value-added impact** is a net figure that removes all purchased inputs used by the respective industry to generate their goods and services. This is similar to net income after cost of goods sold (COGS) have been subtracted from total income.

• Finally, the **employment impact** represents the jobs that are generated from all the activity across

Table 6.
Travel expenditures by Florida golf visitors, 2000.

Type of Expenditure	Average Per Trip (1)	Average Per Day (2)	Estimated Total Expenses (3)	Estimated Expenses Attributable to Golf (4)
Type of Expenditure	\$		\$ Million	
Lodging	403	102	8,303	1,941
Transportation	87	22	1,793	419
Food	203	51	4,183	978
Entertainment	113	29	2,328	544
Golf lessons	106	27	2,184	510
Gifts	87	22	1,793	419
Other	115	29	2,369	554
Total expenses (5)	1,114	282	22,953	5,364

1 National Golf Foundation, 1999, *The U.S. Golf Travel Market, 1998 Edition*, Publication 99MR002.

2 Average per trip divided by average number travel days per trip.

3 Average expenditure per day multiplied by estimated number of traveler-days.

4 Share of trip expenses attributable to golf (23%).

5 Excludes transportation expenses to destination of \$227 per trip.



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the economy due to golf.

The output impact from golf tourism spending totaled \$12.86Bn. It was dominated by three sectors - services, which accounted for \$5.06Bn, or 39 percent of the total; trade with \$3.05Bn, or 24 percent of the total; and finance, insurance and real estate, which comprised 10 percent or \$1.36Bn. Combined, these three sectors represented more than four-fifths of the total output impact.

A similar dominance by these sectors occurred for total value-added impact, with services accounting for \$3.27Bn (39 percent), trade for

\$2.14Bn (25 percent), and finance, insurance and real estate comprising \$984M (12 percent) of the \$8.46Bn total. Value-added impacts also included an impact on labor income of \$5.58Bn and impact on indirect business taxes paid to local, state, and federal governments of \$792M.

Finally, the number of jobs generated by golf tourism, measured as an employment impact, was 215,873 in 2000. The component responsible for the majority of employment was the service sector with 96,000 jobs, followed by trade with 72,000 jobs, and third was the government, which accounted for nearly 17,000 jobs.

Table 7.

Total economic impacts of golf visitor expenditures in Florida, by industry sector, 2000.

Industry Sector	Total Output Impact (\$million)	Total Value Added Impact (\$million)	Total Employment Impact (jobs)
Services	5,060	3,268	95,641
Trade	3,049	2,144	71,574
Finance, Insurance, Real Estate	1,355	984	7,092
Transportation, Communication, Public Utilities	1,031	649	11,229
Government	971	886	17,109
Construction	779	282	7,509
Manufacturing	534	192	3,321
Agriculture	63	36	1,385
Other	11	11	958
Mining	6	3	55
Total	12,860	8,455	215,873

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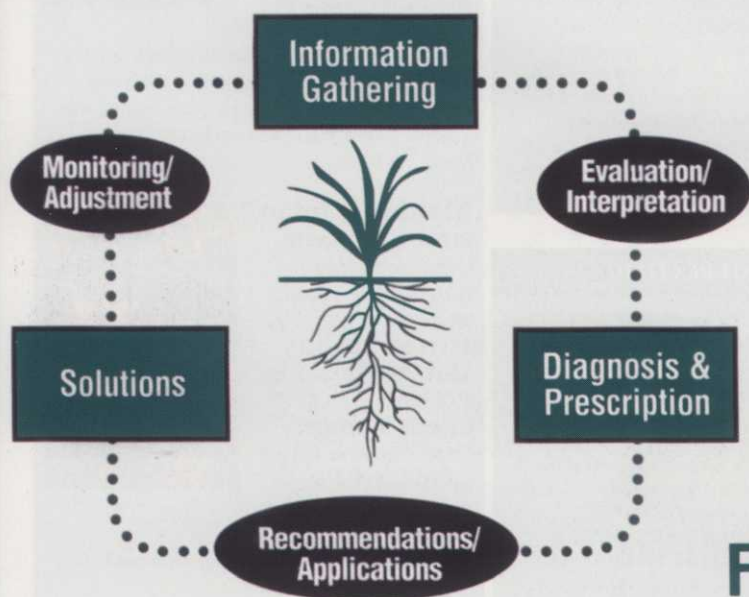
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Table 8.

Employment by Florida golf courses, 2000.

Employee Type	Respondents		Mean	Standard Error	Expanded Total
	Number	Percent			
Golf course maintenance, full-time	221	99%	16	1	21,205
Golf course maintenance, part-time/seasonal	156	70%	3	0	2,396
Clubhouse/other, full-time	190	85%	27	3	30,170
Clubhouse/other, part-time/seasonal	167	75%	19	2	18,268
Total Employment	222	100%	56	4	72,038

Golf Course Employment

Employment is a vital indicator of an industry's contribution to a local, regional, or national economy. Wages stimulate an economy when they are spent locally in the purchase of other goods and services. In 2000, Florida's golf-course industry employed a total of 72,038 people, including 51,375 full-time workers and 20,663 part-time workers (Table 8). Almost one-third (32.7 percent) of these full- and part-time employees worked on golf course maintenance activities, while the remaining two-thirds (67.3 percent) worked for the golf course clubhouse and/or related food service or recreational concerns.

The average golf course employed 16 full-time and three part-time people for its highly intensive maintenance work, which includes both the care of the course and the equipment used to maintain the turf-grass. On a per-acre basis, this translates into roughly one person for every 5 acres of maintained grass.

At two-thirds of the total, the clubhouse component of the golf facility utilizes the larger share of total employment, due primarily to the larger number of separate business activities. For example, depending on the size of the facility, services may include hotel operations, restaurant management and service, and recreational services such as golf and tennis instruction. The average golf course employed 27 full-time people and 19 part-time or seasonal labor for clubhouse-related activities.

On average, total facility employment translates into one employee for every \$150,000 of financial assets - land, vehicles and equipment, irrigation systems, and golf-owned buildings and installations.

These figures attest to the substantial employment impact Florida's golf course industry has on the state's economy. Put in different perspective, golf course industry employment was close to the 80,000 people that work for all the theme and amusement parks in the state and greatly exceeded the 50,000 wage and salaried employees in agriculture (Florida Statistical Abstract 2000).

Summary

Economic impacts of the Florida golf industry were estimated for year 2000 based upon a survey of golf courses, together with other published data and regional economic models. Respondent golf courses were classified as private (50%), semi-private (27%), public (14%), municipal (9%), resort (5%), and military (1%).

Total annual revenues amounted to \$4.44 billion (Bn), including membership and initiation fees (38%), playing fees (27%), food and beverage services (18%), retail sales (6%), lodging (4%), and miscellaneous other activities (9%). The revenues for year

2000 were 49 percent higher than a previous estimate of \$3.0Bn in 1991-92, representing an average annual growth rate of 5 percent in nominal dollar terms.

Total industry employment was 73,000 persons, including clubhouse personnel (68%), and golf course maintenance personnel (32%), with 71 percent as full-time and 29 percent as part-time, temporary or seasonal employees.

Water used for irrigation amounted to 173 billion gallons, of which surface waters were the dominant source (90%), with lesser amounts from recycled water sources (7%) and wells (3%). Compared to 5 years ago, water use per acre was increased by 9 percent of firms, decreased by 42 percent, and remained the same for 42 percent. Fertilizer use per acre was increased by 29 percent of firms, decreased by 18 percent, and remained the same for 47 percent. The irrigation control system was automated by 94 percent of courses.

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PLANTS OF THE YEAR FOR 2002 - PART 3

Editor's Note: This program, sponsored by the Woody Division of the FNGA, introduces purchasers to under-utilized, but proven Florida plant material. Selected each year by a panel of horticulturists, nurserymen, educators, landscape architects and other professional members of the horticulture industry, these plants have attributes which attract wildlife or have minimal maintenance impact on the environment.

Robin Holly

BOTANICAL NAME:

Ilex x 'Robin' (tm) 9486

HARDINESS: Zones 7-9

MATURE HEIGHT

AND SPREAD: 10'-15' tall, 6'-8' wide

CLASSIFICATION:

Evergreen shrub

LANDSCAPE USE:

Specimen shrub, small tree or hedge

CHARACTERISTICS: large, dark green spiny leaves have a reddish-maroon foliage when new growth emerges.

The glossy foliage shows off the red berries of this improved plant.



Hidden Ginger

BOTANICAL NAME:

Curcuma zedoaria

HARDINESS: Zones 8-11

MATURE HEIGHT

AND SPREAD: 4'-5' tall

CLASSIFICATION:

Perennial

LANDSCAPE USE:

Specimen or ground cover for shade

CHARACTERISTICS: Maroon colored inflorescence with yellow flowers appears in the spring before the foliage. Leaves are tropical looking with a purple midrib. The bloom can be cut for a long-lasting cut flower.



Mammy Croton

BOTANICAL NAME:

Codiaeum 'Mommy'

HARDINESS: Zones 9B-11

MATURE HEIGHT

AND SPREAD: 3'-5' tall, 2'-3' wide

CLASSIFICATION:

Colorful shrub for full sun

LANDSCAPE USE:

Accent, hedge or specimen

INTERIORSCAPE USE: Color specimen in very high light

CHARACTERISTICS: Leaves are a fiery orangish-red with variegation of green and yellow. The narrow leaves form a slight twist to give this plant a different look from the ordinary croton.

