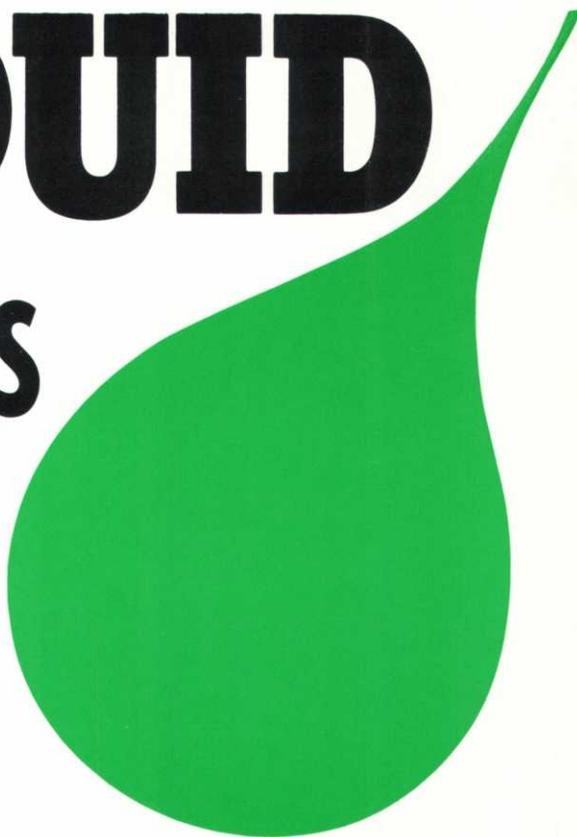


# **LIQUID** **AG**

## **SYSTEMS** **INC.**



- ★ Highest quality, prescription mixed CLEAR LIQUID FERTILIZERS.
- ★ Dependable flow sensing, metering and injection systems.
- ★ Proven nutritional programs.

### **TOTAL CONCEPT SERVICE**

Now Representing

**HELENA CHEMICAL COMPANY**  
Agricultural Chemicals  
Pompano Beach  
**(305) 971-0022**

**LYKES AGRI SALES**  
Specialty Dry Fertilizers  
Ft. Myers  
**(813) 332-5565**

**1-800-432-2249**

(cont. from page 20)

field, examples have shown that these wants have been forced into situations not conducive to dollar-value results.

**ANSWER:** *James Branstrom, CGCS, Palm Beach Polo & Country Club.* "Some of the very exclusive clubs can, but this is only 5% of the population. I do not know if these exclusive clubs can afford the superintendent's salary, because they should be paid well.

**ANSWER:** *George W. Cavanaugh, Golf Course Manager, Bear Lakes Country Club.* "Yes, but I do not think money can buy, year round, consistent bent greens.

**BREAKDOWN:** NO - 9; YES - 4; If specific clubs are willing to accept the expense - 1; Less than 30 clubs in state - 1

**QUESTION:** If a heat & humidity tolerant bentgrass is developed would you then be in favor of pure bentgrass greens in Florida?

**ANSWER:** *Daniel L. Hall, Jr., CGCS, Sunbelt Turf Management.* "Only if properly budgeted and members are informed and KEPT INFORMED.

**ANSWER:** *Cecil Johnson, Avila Golf & Country Club.* "Yes. If conditioning of golf courses had been totally acceptable 20 years ago, we would not have seen any improvement in the past 20 years.

**ANSWER:** *Carl McKinney, J.D.M. Country Club.* "I do not think we have a need for bentgrass in South Florida where bermudagrass does so well, at reasonable cost.

**BREAKDOWN:** NO - 2; YES - 5; Possible, wait and see attitude - 6; Stick to improving bermudagrass - 2

**QUESTION:** Do you feel the expense of overseeding in *SOUTH FLORIDA* is justified?

**ANSWER:** *Michael J. Perham, CGCS Project Agronomist, The Moorings Club.* "No, but in my situation, being associated with a real estate development, they do not want to take a chance on off color greens in the prime selling months,"

**ANSWER:** *David C. Holler, CGCS, Quail Ridge Country Club.* "Yes I do! With the type of membership I have (80% go north for the summer) they want to have green grass through the winter and I feel they are willing to pay for it."

**ANSWER:** *Scott Wahlin, Grounds Manager, Miami Lakes Inn, Athletic Club, Golf Resort.*

"Usually not (no). However, I have seen clubs in South Florida who, in my opinion, should overseed. These clubs had several contaminated greens, very low budgets, and some members with low expectations. The majority of their play occurs in the winter. They chose to redo their greens with low standards, (low bid, fudge on recommendations, etc.). Would it not be better to overseed with rye, generate some revenue, and rebuild properly when adequate funds are available? Overseeding should be viewed as a temporary measure — not an annual routine."

**BREAKDOWN:** NO - 6; YES - 7 (3 of the yes answers were directly related to developer sales competition for "greener greens"); Depends on geographical location - 2

---

## WHY DON'T NORTHERN GOLF COURSES PLANT PALM TREES?

---

"Next to the lottery, the biggest gamble in Florida is bentgrass," according to Reed LeFebvre, past president of The Florida Golf Course Superintendent's Association. Bentgrass has been used by a few courses in Florida for at least 10 years and from that experience Reed says, "the turf did not live up to expectations on a year-to-year basis. Courses that play only 25-50 rounds of golf per day can hardly prove that bentgrass is a viable alternative for Florida greens."

After attending the seminar on the use of bentgrass greens in Florida, reading up on the subject, writing this article based on first hand information from 15 of our fine Florida Golf Course Superintendents and having had some 24 years of "information by osmosis," as the wife of a superintendent, I have formed my own thoughts on this issue. Based in part on the following:

Would sitting in a chicken house all day make you a chicken? How about transporting a beautiful northern greener than green, bentgrass green from the cool, crisp region in which it was grown and placing it in our warm, heavy air? Would that give you a beautiful greener than green, bentgrass green in Florida?

Why don't northern courses plant palm trees? And why can't we have "Christmas trees" on our courses down here? When our northern visitors arrive, comments are always made which extol the beauty of our swaying palms and our symmetrical, state tree, the Sabal Palm (my favorite). And I always comment about the classical northern pine trees when we visit the north. The point I am getting at is: let us all enjoy, work with and be grateful for what Mother Nature, in Her wisdom of the ages, has given to us. And then let us all marvel at and enjoy what She has given others up in their special corner of the earth.

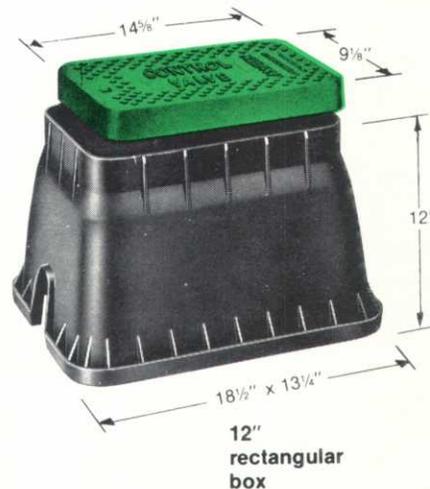
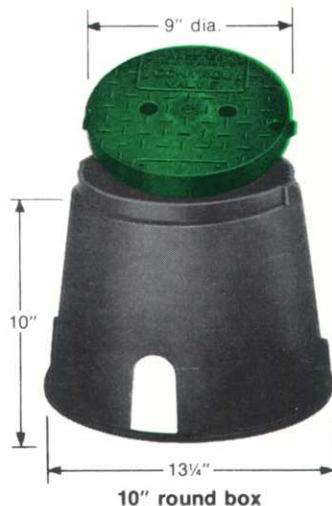
I vote for building snowmen up north where they can thrive; while we concentrate on building sandcastles in Florida that can match their beauty. ■

# Control boxes for **turf** irrigation systems

Plymouth irrigation boxes are made of a strong, tough thermoplastic material especially suitable for underground use. They're lighter in weight, easier to handle and less brittle than the cast iron or concrete boxes. And, the covers feature molded-in green color to blend-in-with rather than stick-out-of your turf. Rectangular boxes have snap locking covers; 10" round boxes have twist lock covers; and 6" round boxes have snap fitting covers. All boxes nest for simplified storage. AMETEK, Plymouth Products Division, 502 Indiana Avenue, Sheboygan, WI 53081. (414) 457-9435.

**AMETEK**  
PLYMOUTH PRODUCTS DIVISION

REPRESENTED IN FLORIDA BY:  
**RICHARD DUNN  
R&D ASSOCIATES**  
502 N.W. 7th Street  
Delray Beach, FL 33444  
(305) 278-5271



Boxes stocked in Tampa for immediate delivery throughout Florida.

# Watching Your Tees & Q's

By John H. Foy  
Southeastern Regional Agronomist



## — BENTGRASS IN FLORIDA — The USGA Green Section's View

Bentgrass, Bentgrass, Bentgrass — Without a doubt, this has certainly been the hot topic of the year in Florida. Even mole crickets, nematodes and goosegrass have had to take a back seat to this visitor from the north. Because bentgrass greens have historically provided superior playability to bermudagrass greens, the use of this cool season turf variety has been pushed further and further south. But, a review of growth factors and/or requirements for bermuda and bent shows that bentgrasses are about as adapted to year round survival in Florida as an orange tree is to surviving in Wisconsin.

We are all aware of a few isolated cases of "pure" bentgrass greens being maintained in Florida, but this proposition is definitely not the way to go for 99% of the courses in the state. The USGA has and will continue to fund turfgrass research with the prime objective of realizing reductions in water usage and management cost. Growing bentgrass in Florida (in the summertime) is obviously a move in the opposite direction. Thus, "for the good of the game," the Green Section's position for the present is that year round bentgrass is not a justifiable undertaking.

However, because the primary play season in Florida occurs during the fall, winter and spring months when environmental conditions are not favorable for active bermuda-grass growth (and for the Northern 2/3rds of the state a period of total dormancy), winter overseeding is a necessary practice. The basic reasons for overseeding are to provide a green color, protection to the base bermuda, and in some cases to improve the playability of the putting surfaces. In the pursuit of superior surfaces, bentgrass overseeding has become more and more popular. But, there are a number of factors that must be taken into consideration as to whether even overseeding with bentgrass is the right way to go for most Florida courses. The primary considerations are:

1) *Rate of establishment* — The bentgrasses are much slower than the perennial ryegrasses, typically two to four weeks more time is required for a mature surface to be developed. Thus, establishment must be initi-

ated earlier when environmental conditions are not as favorable and there is a longer period of player inconvenience.

- 2) *Greens Construction* — Bentgrasses do not tolerate high organic (muck) and/or poorly drained soils very well at all. Also, a good irrigation system is a must.
- 3) *Wear tolerance* — Even on large greens, if 200 to 250 rounds a day are played, it is quite difficult to maintain a consistent surface from a bentgrass base.
- 4) *Shade and air circulation* — While bentgrasses are much more tolerant to shade than bermudagrasses, some thinning of the turf can be experienced in areas where heavy shade persists. Also, if the greens have restricted air circulation, the potential for disease activity is greatly increased.
- 5) *Spring transition* — With the improved heat tolerance that has been bred into both bent and ryegrasses, transition back to the base bermuda is more difficult than in the past. But, transition with the rye's is still much easier, earlier and more uniform. Thus, again less player inconvenience is experienced.

The one big advantage to the use of bentgrasses for overseeding is that they do provide faster putting speeds. However, strides are continuing to be made with ryegrass overseeding. Using varieties with finer leaf blade development and less aggressive growth, mixes with other cool season varieties, reduced seeding rates and more intensive management practices have helped improve the acceptability of ryegrass overseeding for general membership play.

For South Florida, it is quite debatable as to whether overseeding is necessary at all for a lot of courses. I have had the opportunity to observe some truly outstanding non-overseeded greens where the membership has been educated that while the greens may go "off color" occasionally during the winter, color does not affect playability. But, for the majority of the courses through the state,

(cont. on page 28)

For stability and performance, this vehicle is ...

# KING OF THE HILLS

The Hahn Multi-Pro 44 is built to master any ground, from slopes to flat terrain. Its four wheel-design and unique low center of gravity help prevent tipping, even on steep hills.

This heavy-duty work vehicle has all the features you need to enhance and maintain turf quality. It's a fast precision sprayer for liquid fertilizers, insecticides, herbicides, fungicides, and other protective agents. For the ultimate in convenience and

accuracy, add the optional PRO-CONTROL computerized spray system. Just set the application rate and the PRO-CONTROL automatically



calibrates and maintains that rate on every acre to be sprayed,



*Converts in minutes to a spreader or utility vehicle*

regardless of vehicle speed or terrain.

The Multi-Pro 44 can be equipped with a foam marker kit too ... an accessory that helps to eliminate chemical overlaps and "misses" for consistent coverage every application.

Sturdy, dependable, and hard-working, the Hahn Multi-Pro 44 has what it takes for the best turf care possible. For a free demonstration call your nearest distributor or:

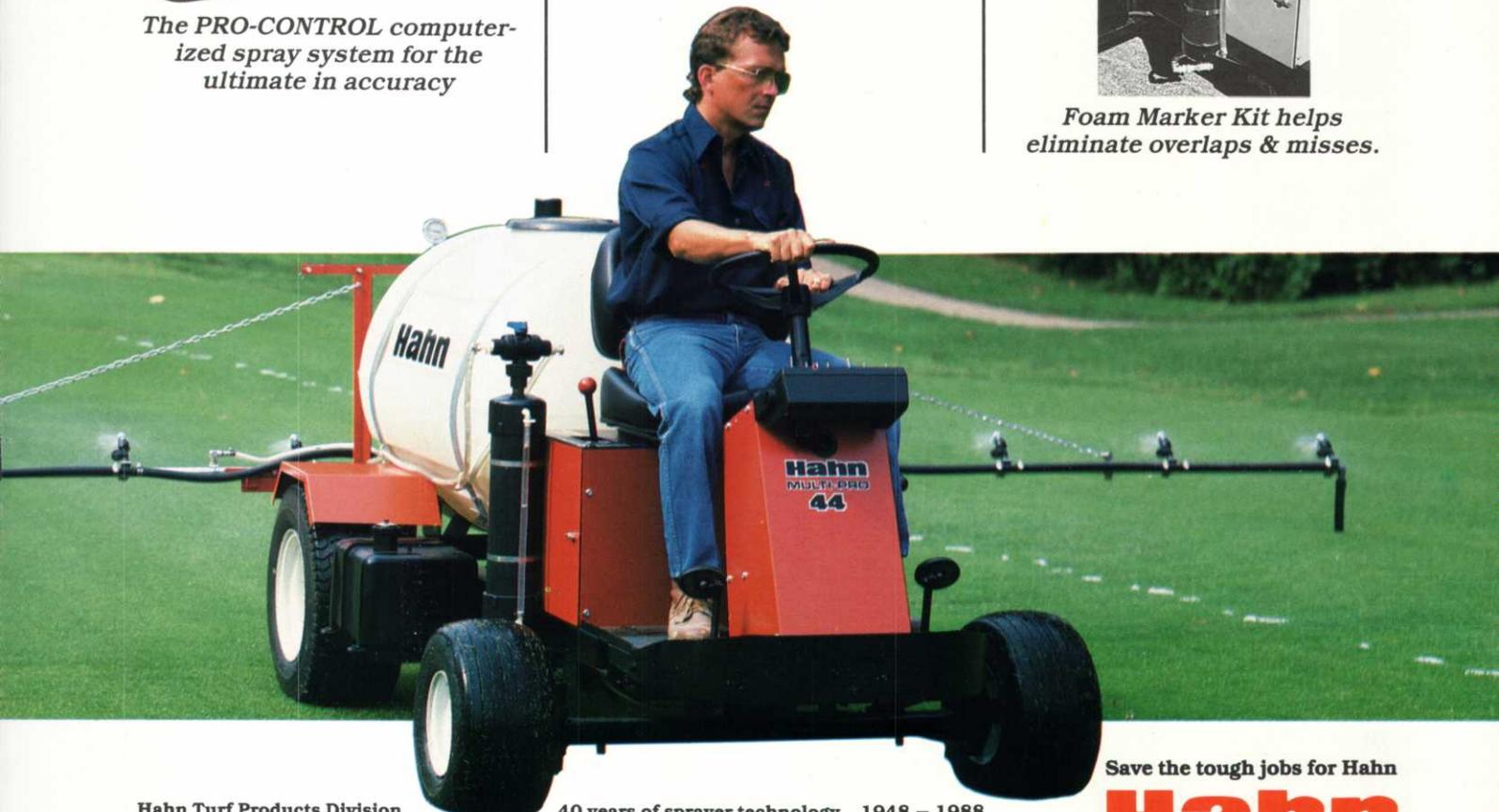
1-800-457-HAHN



*Foam Marker Kit helps eliminate overlaps & misses.*



*The PRO-CONTROL computerized spray system for the ultimate in accuracy*

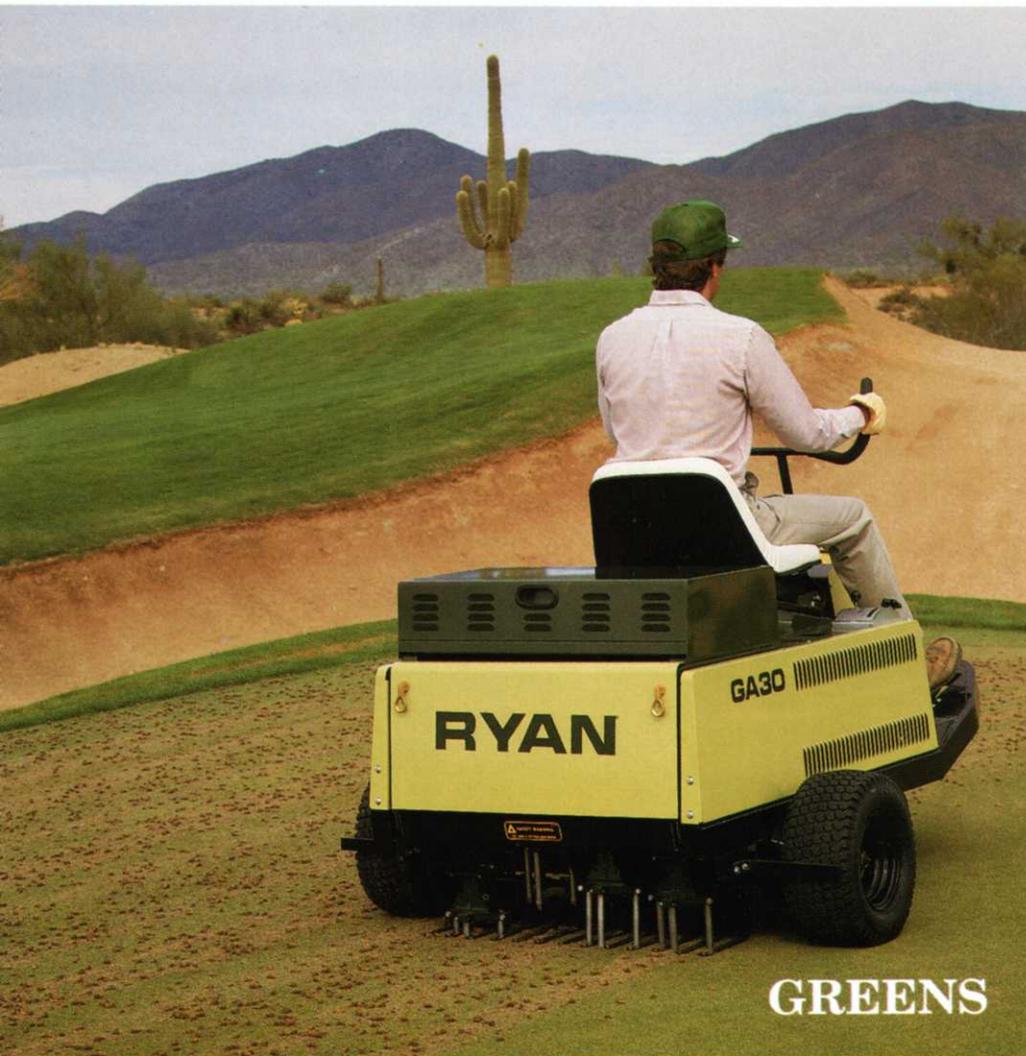


Hahn Turf Products Division 40 years of sprayer technology 1948 - 1988  
 1625 N. Garvin Street Evansville, IN 47711-4596 In Indiana call: (812) 428-2025 Telex: 27-8429

Save the tough jobs for Hahn

# Hahn

# Introducing the first full-course aerator.



**GREENS**

## Ryan's new GA™ 30 aerates on the greens and in between.

Now you can deliver green-quality aeration to your entire course with a single piece of equipment. From tee to green, fence to fence. The new GA 30 aerator combines the versatility of variable core spacing, the speed of a riding machine, and the precise coring of

Ryan's unique crank and return mechanism.

It's the beginning of a revolutionary era in aeration.

## No other aerator is as versatile.

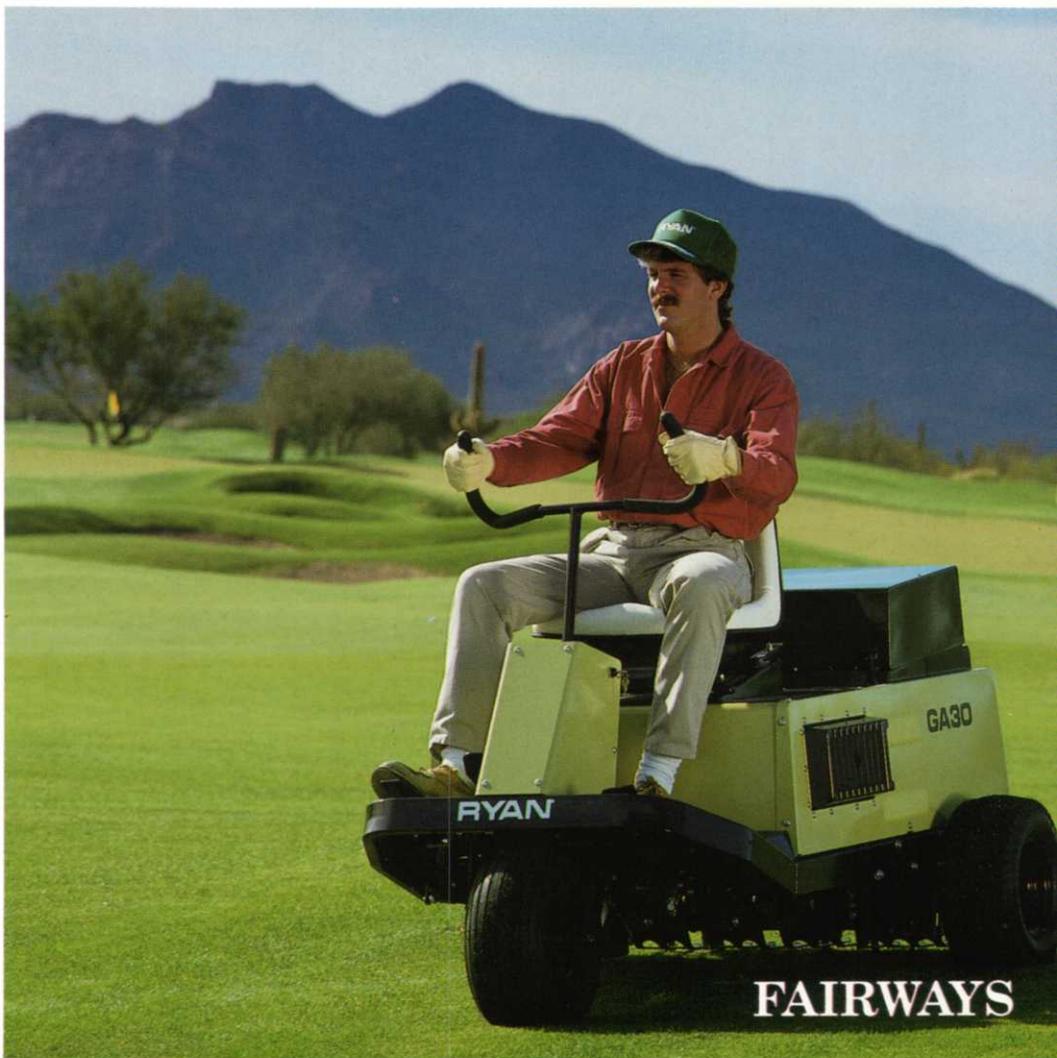
Variable core spacing makes the GA 30 aerator as good on fairways as it is on greens. Simply move the spacing adjustment control to the desired setting, lock it in

place, and you're ready to go without leaving your seat. And just look at how the GA 30 aerator produces.

SPACING 2.50 in. x ( ) in.	PRODUCTION sq. ft. per hr.	YIELD holes/sq. ft.
1.00	5,625	57.6
1.50	8,440	38.4
2.00	11,250	28.8
2.25	12,660	25.6
2.50	14,060	23.0
2.75	15,470	20.9
3.00	16,875	19.2
3.50	19,690	16.5
4.00	22,500	14.4
4.50	25,310	12.8
5.00	28,125	11.5



**TEES**



**FAIRWAYS**

**No other aerator is as fast.**

The GA 30 aerator not only helps you aerate in less time, it also helps you get on and off the course more quickly. Its 18 hp engine produces a six mph transport speed that's two-three times faster than other aerators. So why waste time walking when you can ride to work?

**No other aerator delivers Ryan quality.**

No matter what the spacing, the GA 30 aerator's coring tines penetrate straight in — at a depth of up to 3¾ inches. And then Ryan's proven crank and cam action pulls the cores straight out to better protect your turf from damage.

Better penetration. Higher quality cores. Exactly what you'd expect from Ryan.

**Test drive the GA 30 aerator today.**

For a feel of the most cost-efficient, turf-effective aerator money can buy, contact the Ryan dealer nearest you for a free demonstration and test drive. Or call toll free:

**1-800-228-4444.**

**RYAN®**

**BUILT TO LAST**

A CUSHMAN Product Group  
6168-Ryan, P.O. Box 82409, Lincoln, NE 68501

(cont. from page 24)

winter overseeding will continue to be necessary.

As to what is the best overseeding material for a particular course, only after a thorough analysis of all of the perimeters can an intelligent decision be made. The last

reason in the world for deciding what to overseed with is because a neighboring course is going a particular route. The objective should be to try to provide the best possible course conditioning at all times for the majority of the golfers from the available resources. ■

Some comparisons of growth factors and/or requirements of bermudagrass and creeping bentgrass for golf greens in the South.

Prepared by Dr. Jeff Krans, Agronomist

Growth factors or requirements	Bermudagrass	Creeping bentgrass
Optimum soil temperature for shoot growth	80-95°F	60-75°F
Optimum soil temperature for root growth	75-95°F	50-65°F
Growth limiting soil temperature	100-110°F	80-95°F
Lethal soil temperature (direct high temperature kill)	120°F	100-110°F
Optimum response to nitrogen fertilization	April-September	March-May and again in September-November
Detrimented response to nitrogen fertilization	November-March	June-August
Acceptable pH range	5.0-7.0	6.0-6.5
Acceptable phosphorus levels	low to high	low to medium (excess phosphorus influences Poa annua competition)
Optimum potassium levels	medium to high (low temperature survival)	medium to high (high temperature survival)
Acceptable soil texture	loam or sand	sand
Irrigation capacity	conventional irrigation adequate	automatic syringing and irrigation required
Air Circulation	not critical	required
Cultivation practices	May to September	April and May
Fertilizer application	granular	granular and liquid
Pesticide tolerance	very good	poor (especially under high temperature)
Disease susceptibility	low	high

# ABOUT FACE!

## 'General' Changes His Mind on Bentgrass

by Larry Kieffer

A leading general in the Florida bentgrass war has switched sides.

Arnold Palmer, long seen as a proponent of growing bentgrass on Sunbelt greens year around, has decided to give up the practice at one of his most visible projects, Isleworth CC, an exclusive community just north of Orlando in central Florida.

"There are several reasons for the decision," said Ed Bignon, director of operations for Arnold Palmer Golf Management Company, which manages Isleworth for Palmer, who owns it.

"Basically, it was a business decision."

"Arnold is very sensitive to the needs of the superintendents and, after four years, he decided bentgrass greens at Isleworth in the summertime are not worth the strain it puts on the superintendent and his staff."

Bentgrass, the superfine-bladed turf used on greens in northern climes, is generally regarded by top players to provide a putting surface superior to bermudagrass, the turf commonly used in tropical climates.

Bermudagrass lies with a "grain," which affects speed and accuracy of the roll, and it goes dormant — turns brown — in winter, a condition most golfers find esthetically unacceptable even if the actual effect of dormancy on roll is minimal.

To combat the problem of dormancy, bermudagrass

greens usually are overseeded in autumn with cool-season grasses such as bentgrass or rye. Those grasses take over as the bermudagrass goes dormant, and then die in spring — sometimes with the help of the superintendent — when the bermudagrass resumes growing.

But golf course owners have been tempted to try to grow bentgrass year around for more than 40 years, according to several experts who spoke at a "Bentgrass in Florida" seminar at JDM Country Club in Palm Beach Gardens last month. Year-around bentgrass would eliminate the effort and problems associated with overseeding while gaining what is perceived to be a superior putting surface in summer.

Unfortunately, bentgrass is not biologically suited to a hot, humid climate. In order to keep it alive in summer, it must be hand-watered several times daily. The excessive watering leaves the plant susceptible to fungus infections which, in turn, require the use of fungicides at higher levels than many agronomists and environmentalists consider desirable.

"Arnold just decided it wasn't worth it," Bignon said. "After four years, it has become obvious that it is not a good idea to try to grow bentgrass at this course in the summertime."

Maintaining bentgrass through the summer is a very expensive proposition, calling for a total annual maintenance budget of \$700,000 or more, Bignon said.

"But money was not the issue," he added quickly. "Arnold is too sensitive to his people to put them through it for another summer. It has been weighing very heavily



Bentgrass will not be growing on the 18th green, above, at Arnold Palmer's Isleworth CC near Orlando next summer.



ARNOLD PALMER

**Arnold is too sensitive to his people to put them through it for another summer. It has been weighing very heavily on his mind all summer and Arnold Palmer doesn't need to be worrying about 19 greens with all he has on his mind.**

**ED BIGNON, Director of Operations  
Arnold Palmer Golf Management Co.**

on his mind all summer and Arnold Palmer doesn't need to be worrying about 19 greens with all he has on his mind."

The greens at Isleworth will be replanted with bermuda this spring and overseeded next autumn, "probably with bent," Bignon said.

"We really began looking seriously at using Tifdwarf (a strain of bermudagrass) early this summer," Bignon said. "We have Tifdwarf at one of our other properties in central Florida — MetroWest (also near Orlando) — and, believe, me, the ball will flat roll. It's not nearly as grainy (as other strains of bermuda) and we are very impressed. We know the membership will be, too."

Two other factors weighed in the decision — traffic at Isleworth and Palmer's unique position in the golf world.

Traffic is one of the critical factors in the viability of bentgrass during the long, hot, humid Florida summer. Walking on the grass is very stressful to the plant, particularly when it is growing out of its natural environment. Even the strongest advocates of year-round bentgrass have conceded that it can be done only on courses that don't get a lot of play in summer.

"The demographics at Isleworth didn't turn out to be what we thought they would be," Bignon said. "Four years ago, in the planning stages, we felt that 20-30 players would be a busy day in summer.

"We are not anywhere near buildout and we already have

a lot of days when we get 40-50, even 60 players a day in summer. Most of our members are turning out to be year-around residents."

With traffic at Isleworth already higher than expected and everything indicating it will steadily increase, the club no longer fits the profile of a good candidate for experimenting with bentgrass.

"You understand, if we had been right, we would have been hailed as pioneers," Bignon said with a chuckle.

Weighing even more heavily was Palmer's awareness of his position as one of the two most influential men in golf (the other being Jack Nicklaus, who also is growing bentgrass at some of his courses in South Florida).

"Right from the very beginning, Arnold was a little concerned that other people would try to copy him," Bignon said. "But he never dreamed so many people would see what he was doing and then go back to their own clubs and say, 'If Arnold Palmer can do it so can we.'

"He didn't want that to happen, but unfortunately, it did. And Arnold Palmer is actually aware of the problems this (pressure to grow bentgrass in summer) has caused superintendents all over the state.

Coming at the heels of his alliance with the Florida Turf-grass Foundation's effort to raise a \$5 million endowment for turf research, Palmer's decision on Isleworth is likely to enhance his leadership position in the golf course construction and maintenance industry.

Furthermore, his tacit admission that it is not yet possible to grow what is perceived to be the "ideal" putting surface in Florida's summer climate can only emphasize to golfers, most of whom understand little about agronomy, the need for more turf research.

Bignon said he and Palmer both think, "from what we have seen," that the answer to the current drawbacks of bermudagrass lies in developing a cool-tolerant strain of that plant as opposed to finding a heat-and-humidity-tolerant strain of bentgrass.

He also said the Isleworth decision did not necessarily apply to other Florida courses in the Palmer stable.

"Each situation must be handled individually," he said. "We can only tell an owner what we recommend. If he said, 'I absolutely insist on bentgrass,' then we have to give him what he wants.

"If his pockets are deep enough and he is ready for the headaches associated with bentgrass, then we have to give it to him.

"But the bottom line is to create the best possible putting surface for the members and I don't think today's bentgrass is the answer." ■

*Reprinted from Golfweek 11-19-87.*