Of ants, flies and other friendly pests

By MARK LESLIE

FAR HILLS, N.J. — Ants that devour the eggs and larvae of cutworms, grubs and other pest insects. Parasitic flies that kill mole crickets. The risks, or lack thereof, associated with golfer exposure to pesticides.

The U.S. Golf Association (USGA) Green Section will reveal the results of investigations into these and many other matters in a soon-to-be-released report on the latest USGA-funded research projects. The research covers a gamut of topics from course construction practices and integrated turfgrass management to biological controls, which are becoming more popular.

But key to the entire program are naturally occurring biological controls, which are becoming more popular.

Continued on page 16

Tests reveal good & bad of ultradwarfs

By A. OVERBECK

BELTSVILLE, Md. — As ultradwarf Bermudagrass continues to find its way onto golf course greens across the United States, independent research and on-site testing suggest that best management practices for these "super dwarfs" are radically different than for standard Bermudas.

In cooperation with the United States Golf Association and the Golf Course Superintendent’s Association of America, the National Turfgrass Evaluation Program (NTEP) is currently in the second year of a five-year ultradwarf test at eight courses across the United States.

Continued on page 17

Pebble Beach megasale being worked out

MONTEREY, Calif. — Pebble Beach has changed hands for the fourth time this decade. A group of investors that includes Arnold Palmer, former baseball commissioner Peter Ueberroth, actor Clint Eastwood, former United Airlines CEO Richard Ferris and General Electric Pensions agreed June 17 to purchase the Pebble Beach golf resort for $820 million.

Pebble Beach was bought for $841 million in 1990 by Japanese businessman Minoru Isutani, who turned around two years later and sold it to Taisho-kyo Club, Inc., a Tokyo-based resort company, for $1 billion.

Continued on page 25
"Penn A-4 enhances the game of golf. It is my personal feeling that Penn A-4 is one of a number of significant contributions to the game of golf by Dr. Joe Duich." "Awesome."

Cutler Robinson, CGCS, Supt.
Bayville GC, Virginia Beach, VA

"Simply stated, everyone who has played Bayville comments the greens are 'the best they have ever putted.' This grass allows our members to experience 'tour' quality putting and green speed without jeopardizing fairness and enjoyment. Properly managed, Penn A-4 is, in my opinion, the best grass to date and has set a new standard for excellence."

Dean Hurst, PGA Professional
Bayville GC, Virginia Beach, VA

"Even though summer temperatures can reach 115-120°, we've cut our Penn A-4 at 7/64" for more than a year with no problems."

Doug Anderson, CGCS, Supt.
The Vintage Club, Palm Desert, CA

"For me, the lower the cutting height, the better the management (Penn G-6)."

Pete Gerdon, Supt.
Grandfather Golf and CC, Linville, NC

"Because of the short season at our 7,500 ft. elevation, we sodded our rebuilt greens with 42" wide rolls of Penn A-4 from West Coast Turf in California.
There, we found a source for rootzone sand that closely matched our own, and the long, wide rolls minimized seams. We re-opened 5 weeks after sodding, and dense, fibrous roots reached 10-12" in a matter of months."

Kevin Ross, CGCS, Supt.
CC of the Rockies, Edwards, CO

"Quality of the Penn A-4 putting surfaces at The Estancia Club is beyond comparison. Ball roll and the pace of the greens are excellent. I would not hesitate using Penn A-4 again."

Carl Rygg, CGCS, Supt.
The Estancia Club, Scottsdale, AZ

"Penn A-4 Greens do not cost more. While they do need more topdressing and aeration, they require significantly less water, fertilizer, and pesticides."

Ted Hunker, Supt.
Tartan Fields GC, Dublin, OH

"We've overseeded Penn G-6 into our Poa/bentgrass greens after aerifying a total of five times. We fill the holes within 1/4 to 1/8" with sand, seed with one lb. per 1,000 sq. ft., then topdress. When the Poa stresses under heat pressure, Penn G-6 will re-populate that area."

John Lof, Supt.
Michelbook CC, McMinnville, OR

"Penn A-4 greens do not mean more work, more trouble, and do not cost more money to maintain. In fact, just the opposite may be true. We have found that they require fewer cultural practices such as vertical mowing and brushing.
In two years of managing Penn A-4, we have not observed any brown patch or dollar spot, and greens require limited amounts of fertilizer."

Kurt Thuemmel, CGCS, Supt.
Walnut Hills CC, East Lansing, MI

"I overseed our 18 old greens with 1/4 lb. per 1,000 sq. ft. of Penn A-4 each time we aerify. Now, with single cut and roll, our green speeds are consistently fast at 12 to 12-1/2'. Where ball marks tend to tear older bents, they just make dents in Penn A-4."

Pat Franklin, Supt.
Plum Creek CC, Fishers, IN

"We resodded high stress areas in our PennLinks fairways with Seaside II, and are very pleased with its performance. I selected Seaside II with improved dollar spot disease resistance and salt tolerance to address two major turf challenges; the coastal influence and potential sodium buildup from irrigation.
We find Seaside II a strong ally to our PennLinks fairways, and in the future, will slit seed with Seaside II where needed to enhance turf quality."

David Major, CGCS, Supt.
Del Mar CC, Rancho Santa Fe, CA

"We have 36 putting greens and 4 practice greens that have been converted from Toronto C-15 to Penn A-4 Creeping bentgrass.
When the greens were placed in play the spring after conversion, comments from our golfing membership were very positive even though turf maturity had not been reached. Putting trueness and turf appearance were among the positive remarks most often mentioned. Now that the putting surfaces have additional development, comments are the greens are superior to anything they've played."

Bill Byers, CGCS, Supt.
Des Moines G & CC, West Des Moines, IA

"Comments from golfers have been extremely positive (Penn G-2)."

Jeff Hill, CGCS, Supt.
Pinehurst Resort and CC, No. 8, Pinehurst, NC

Penn A-1
Penn A-2
Penn A-4
Penn G-1
Penn G-2
Penn G-6
Seaside II
NuPenn Blend

Penn A-1
Penn A-2
Penn A-4
Penn G-1
Penn G-2
Penn G-6
Seaside II
NuPenn Blend

Penn A-4 14th hole, The Estancia Club, Scottsdale, AZ

©1998 Tee-2-Green Corp.
**BRIEFS**

**AUGUSTA, Ga.** — While the Big Three Golf Club is not trying to be the next Augusta National, it will bring together three of the biggest names in the golf industry. Jack Nicklaus, Arnold Palmer and Gary Player are teaming up to design a 27-hole course here among the tall Georgia pines. Nicklaus, Palmer and Player will each design nine holes of the course, which is situated on dramatically contoured land that borders the Savannah River. Several holes will be on a 220-acre island along the river. The club will feature 50 lodges, clubhouse and meeting facilities. Agreements between Nicklaus, Palmer and Player were signed in April and the course is currently in the planning stages.

**VIRGINIA BEACH, Va.** — After scrambling to recover from after effects of Hurricane Bonnie, the $15-million Pete Dye-designed Tournament Players Club of Virginia Beach held its official grand opening June 8. Curtis Strange, a Virginia Beach native, served as the PGA Tour player/consultant on the layout. The 7,442-yard, par-72 course is due to play host to its first tournament next spring when the Nike tour comes to town.

**NGF notes slight drop in golfers, rounds**

The number of U.S. golfers and rounds played remained steady in 1998, figures the National Golf Foundation (NGF) finds both reassuring and troubling. The total number of golfers in the United States reached 26.4 million in 1998, a slight drop from the 26.5 million the previous year. Likewise, the total number of rounds dipped slightly to 528.5 million, down from the record 547 million set a year earlier, but still representing the second-highest total ever.

But the NGF saw the slight decline as good news since the industry last year was able to hold the major gains in golfers (up 7.3 percent) and rounds (up 14.6 percent) it made in 1997. "We know from past experience that one year’s participation numbers are not indicative of much of anything," the report reads. "Back in 1990, the industry experienced significant growth. However, that growth proved to be a flash in the pan as golfer numbers receded by 11 percent the next year and stayed there until 1997. The reaffirming results of 1998 indicate that golf is indeed gaining in sustained popularity over the early years of this decade."

Yet, the lack of growth in players and rounds come at a time when the supply of golf courses is escalating at a near-record pace. The golf industry added 448 new courses in 1998, the second-highest total ever. "The report reinforces several of the messages delivered in the NGF’s recently released future of the game study *A Strategic Perspective on the Future of Golf,*" the report adds. "That study notes that, Continued on page 5

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Avid (25+ rounds/yr.)</td>
<td>5.1</td>
<td>5.5</td>
<td>5.3</td>
<td>5.6</td>
<td>5.4</td>
<td>-2.9%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Moderate (8-24 rounds/yr.)</td>
<td>6.1</td>
<td>6.1</td>
<td>6.1</td>
<td>7.9</td>
<td>8.4</td>
<td>6.8</td>
<td>8.6</td>
</tr>
<tr>
<td>Occasional (1-7 rounds/yr.)</td>
<td>11.4</td>
<td>11.5</td>
<td>11.6</td>
<td>10.6</td>
<td>10.4</td>
<td>-2.0</td>
<td>-2.4</td>
</tr>
<tr>
<td>Junior (Ages 12-17)</td>
<td>1.7</td>
<td>2.0</td>
<td>1.8</td>
<td>2.4</td>
<td>2.1</td>
<td>-8.9</td>
<td>5.9</td>
</tr>
<tr>
<td>All</td>
<td>24.3</td>
<td>25.0</td>
<td>24.7</td>
<td>26.5</td>
<td>26.4</td>
<td>-0.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Beginners</td>
<td>1.6</td>
<td>1.8</td>
<td>2.0</td>
<td>3.0</td>
<td>2.9</td>
<td>-3.5%</td>
<td>15.9%</td>
</tr>
</tbody>
</table>

*Source: National Golf Foundation*

Managing a golf course is no bed of roses. Especially when your pump station is sucking in more than it’s pumping out. Isn’t it time you thought about Flowtronex? Flowtronex has created more industry innovations and provides better, more advanced service than anyone in the industry. Flowtronex maintains over $2 million in parts to meet customer needs fast. And Flowtronex builds the best product on the market. So talk to us. We promise, you’ll always know where your money is going – and it won’t be down the drain.

**Managing a golf course is no bed of roses. Especially when your pump station is sucking in more than it’s pumping out. Isn’t it time you thought about Flowtronex? Flowtronex has created more industry innovations and provides better, more advanced service than anyone in the industry. Flowtronex maintains over $2 million in parts to meet customer needs fast. And Flowtronex builds the best product on the market. So talk to us. We promise, you’ll always know where your money is going – and it won’t be down the drain.**

**If Pump Station Paranoia Is Draining The Life Out Of You, Here’s A Stopper.**

(800)786-7480 (214)357-1320

[www.flowtronex.com](http://www.flowtronex.com)

*CIRCLE #102*
submitter Ken Zuckerman, who has spent 15 years trying to turn the Ocean Trails concept into a reality. "This is nothing new, and everyone knows how to accomplish what must be done."

Zuckerman knew about the ancient landslide prior to construction and took the following measures to ensure that golf course irrigation would not affect the stability of the land. "We put down a three-foot layer of impermeable clay and six inches of sand and then a herringbone drainage system," said Zuckerman. "That fed into a sump pump, which pumped the water to an irrigation lake on the course." Unfortunately, the leaking sewer line was buried beneath the clay cap.

Dye, who was on his way to Ocean Trails the day of the slide to give the course his final stamp of approval, has already examined the damage.

"When I got there the next day it looked like the shoreline had been there for a million years, you could see the fairway, the bunkers and the green," said Dye. "I have been around for 73 years and I have never seen anything like it."

There are a couple of repair options available to the developers, according to Dye. "They can put the hole back where it was without a great deal of fight, or you could leave it out there," said Dye. "All you really have to do is clean out the valley, grass and build back up on top of that," said Zuckerman. "But there will be some shrinkage, so the level of the hole is going to go down about nine feet."

Zuckerman maintains that the routing of the course will not change. "We will remove the material that fell into the graben [ravine] and excavate to a stable level and pin everything into position," said Zuckerman. Once an agreement is reached with city and environmental officials, Zuckerman expects the work to take three to four months.

### CLARIFICATIONS

Recently, it has been reported in many golf course and grounds maintenance media that the manufacturing and marketing of the Cushman range of turf utility vehicles is now being handled by E-Z-GO Textron, a subsidiary company of the Textron Golf, Turf Care and Specialty Products Group. Please note that this integration of operations only affects the Cushman line of industrial vehicles — products that are sold to warehouses, manufacturing facilities, shipping and rail yards, etc. — NOT the vehicles sold to the turf maintenance industry. Sales and marketing of Cushman vehicles, such as the Turf-Trackster, Jr. Turf-Trackster, Hawk and White Truck, will continue to be the responsibility of Textron Turf Care and Specialty Products.

The autonomous mower story which ran on the front of the June issue should have been datelined Gainesville, the site of Ironwood Golf Course.

### How to make the perfect core

Whoever said consistency is boring never aerated a green. With the John Deere line of Aercore® Aeration, we've taken aerator to a new level of quality and quantity. A lot of the credit has to go to our unique "Flexi-Link" design. The Flexi-Link is attached to the rear of the tine leg and absorbs the forward motion of the aerator, allowing the tines to stay perpendicular while they are in the ground. As the tines come out of the ground, the Flexi-Link pushes the tine leg forward into position for the next downward stroke. The result is a very consistent, round hole with minimum tearing.

The Aercore 1500 can produce as many as 900,000 holes per hour in a coring swath of 57.5 inches.

**Official Golf Course Equipment Supplier**
### Participation

Continued from page 3

unless the industry works smarter to recruit and retain players, participation is not likely to grow any more than 1.5 percent per year for the foreseeable future.

"The industry has been favored by two successive years of high interest and trial. However, retention efforts have not been as successful as desired."

Specifically, the game attracted 2.9 million new players in 1998. But since the total number of golfers went down, that means slightly more than 2.9 million also abandoned golf last year. In other words, as many people are taking up the game as are giving it up.

"This churning effect has been inhibiting golf's growth for most of the 1990s," the report states.

The largest single group of new players (33.5 percent) in 1998 fell between the ages 18 to 29. This group has traditionally supplied the bulk of new players, although seniors (60-plus years of age) are taking up the game at a growing rate. Between 1996 to 1997, the number of beginning senior golfers grew substantially from 44,000 to 140,000. Seniors accounted for 142,000 of the 2.9 million Americans taking up the game in 1998.

By way of comparison, while seniors made up just 2.2 percent of beginning golfers in 1996, they accounted for 5 percent of beginners in 1998.

Females continue to make up about 20 percent of the golfing population and 40 percent of new golfers, numbers in line with past years and indicating that women are subject to the same churning effects as other groups in terms of entering and leaving the game.

Junior golfers, who grew by a whopping 34 percent in 1997, declined by 12.5 percent, or 300,000 golfers, last year. Juniors also made up 19 percent of new golfers in 1998, compared to 22 percent the year before.

Much of the 1997 growth was attributed to the attention paid Tiger Woods and other new golfers. According to the report: "This perhaps underscores something many have believed all along. And that is, while Tiger may have lit the fire among many youngsters, it falls primarily to everyone in the industry to keep that fire burning."

While thankfully the industry didn't have a decline in participation or rounds played to the magnitude of what happened in 1991, neither was there any movement forward in either category. And according to the Strategic Perspective report, lack of forward motion may eventually lead to the demand gap which is looming on the horizon.

---

### Number of rounds in the U.S.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Avid (25+ rounds/yr.)</td>
<td>322.5</td>
<td>340.3</td>
<td>330.3</td>
<td>369.2</td>
<td>348.8</td>
<td>-5.5%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Moderate (8-24 rounds/yr.)</td>
<td>84.8</td>
<td>85.2</td>
<td>85.4</td>
<td>114.0</td>
<td>116.7</td>
<td>2.4</td>
<td>8.3</td>
</tr>
<tr>
<td>Occasional (1-7 rounds/yr.)</td>
<td>36.7</td>
<td>36.8</td>
<td>37.1</td>
<td>34.0</td>
<td>33.5</td>
<td>-1.5</td>
<td>-2.3</td>
</tr>
<tr>
<td>Junior (Ages 12-17)</td>
<td>20.9</td>
<td>27.9</td>
<td>24.6</td>
<td>30.0</td>
<td>29.5</td>
<td>-1.7</td>
<td>9.0</td>
</tr>
<tr>
<td>All</td>
<td>464.8</td>
<td>490.2</td>
<td>477.4</td>
<td>547.2</td>
<td>528.5</td>
<td>-3.4</td>
<td>3.3</td>
</tr>
</tbody>
</table>


Source: National Golf Foundation

---

900,000 times an hour.

Powered by an 18-hp Kohler engine, the Aercore 800 can punch up to 582,400 holes an hour in a coring swath of 31.5 inches.

The Aercore 1000 can produce up to 600,000 holes per hour in a coring swath of 37.5 inches.

---

on the hole top. This is accomplished by the speed at which the tine rams operate and the Flexi-Link design.

There is much more to the Aercore line than meets the eye. A quick look inside reveals the simple logic of the Aercore design. Easily accessible belts, instead of chains, power the systems. Making them quieter and more durable in high-shock conditions like hard-pan or rocky terrain.

And since the belts are made out of Kevlar, they live a long life with minimal adjustments.

Whether it's the tractor-mounted 1500 and 1000, or the walk-behind 800, a John Deere Aercore Aerator will have you coring like never before. For more information, call us toll-free at 1-800-537-8233. www.deere.com

---

Nothing Runs Like a Deere®
Stick to News.
When readership is what you’re buying with your advertising dollars, Golf Course News delivers. Cover-to-cover, Golf Course News has the news your customers need to know. To deliver your message, call Charles von Brecht, publisher.

(207) 846-0600
Fax (207) 846-0657

United Publications, Inc.
A new opportunity to grow GCN

There are only a few times in life when an opportunity appears that is just too good to pass up. I was recently presented one, and as you can tell by the tenor of this lead, I did not let it slip away.

At the beginning of this month I hung up my editor’s hat to become the Western Territory Manager for Golf Course News (GCN). The editorial helm is being placed in the more-than-capable hands of Mark Leslie, while Peter Blais — who just happens to be one of the best business news writers I’ve ever worked with — will be filling the role of managing editor.

Mark and Pete will remain the dominant news-writing team in the industry, just as they have been for the past 10 years. Filling the third slot as associate editor will be Andrew Overbeck, a young man who impressed me at first contact. Two years ago I received an e-mail out of the blue from Andrew that detailed an 18-month journey he was about to undertake throughout Asia, with stops at nearly every current golf course development project in the region. His well-written, first-hand dispatches became a running column in GCN and Golf Course News International, for close to two years. In that time he helped give the industry a firmer understanding of this hectic, sometimes chaotic, business arena.

Andrew will be picking up my beat, Supplier Business, and will continue to work on his massive database of Asian golf development and maintenance contacts as he works hand-in-hand with International Bureau Chief Trevor Ledger. We’re lucky to have Andrew on board.

I’ve been a reporter and editor for more than 13 years and I believe I understand the ingredients of a sound news story as well as the artistic production of a reliable, readable, trustworthy newspaper. I’m about to round-off my publishing knowledge and take my career to a new level. Working with Publisher Charlie von Brecht, I’ll be hitting the road, meeting new faces and maintaining old friendships in an effort to build on GCN’s existing position as the best news source in the golf course industry. I’m sure our paths will cross soon.

I spent my last week as editor (June 14-18) in North Carolina visiting the Turt-Seed Inc./Pure Seed Testing Inc. field day in Rolesville — which just happens to be about an hour and half from Pinehurst, where I managed to secure a U.S. Open practice day pass for Wednesday. Walking back toward the clubhouse from the 5th hole, I...

Continued on page 34

Change — It’s what it’s all about, what makes life interesting

Here at Golf Course News, Mike and I have been fortunate enough to work with and learn from Mark for the past decade. I treasure both our friendship and his Rolodex, which would bring more than Mark McGwire’s 70 home run ball if it were ever put on the golf industry auction block.

I’ll be moving up to managing editor, which means I’ll be approving checks for freelancers, trying my best to return photos to those of you kind enough to provide them, getting more involved in the maintenance and development sections of GCN (Mark’s domain) and continuing to concentrate on the course management part of the golf industry.

My move created an associate editor's opening for Andy Overbeck, whose time and writing skills we had previously been sharing with our sister publications — Home Medical Equipment News and Security Systems News. As I write this, Mike is lustily passing on his golfing skills to young Mr. Overbeck, an apt pupil whose knowledge of the Asian golf market, where he first cut his editorial teeth with us as a Watson fellow, is the envy of our competitors.

The changes here at GCN are simply a reflection of the industry we cover. Witness a few of this month’s stories:

• Golf participation rates have changed gears again. According to the latest National Golf Foundation figures (see story page 3), the fifth-gear growth in golfers and rounds we enjoyed in 1997 has slowed to first, maybe even reverse, considering the slight decline in those numbers in 1998.

• Bandon Dunes superintendent Troy Russell (see story page 11) recently changed course owners, giving up the farmer’s life of an Oregon vineyard owner for the course management duties at the heralded seaside links that opened recently along his native Southern Oregon coast.

• Developers of Forest Dunes (see story page 27), a private golf community featuring a Tom Fazio-designed course that opened recently at the gateway to Northern Michigan’s golf resorts, is trying to change the perception of this golf Mecca as a strictly daily-fee golf course hotbed.

• MorningStar Golf (see story page 27) has changed its name (formerly Masters Golf) and direction as it seeks to grow from a minor operator of two courses in the Scottsdale, Ariz., market to a major management firm with courses nationwide.

Change. It’s good. It’s inevitable. It’s golf.

— Peter Blais, associate editor

Witteveen retired? Naw!

Toronto Board of Trade superintendent Gordon Witteveen, a founding member of the Canadian Golf Superintendents Association (CGCSA) and Ontario Golf Course Superintendents Association (OGCSA), has retired. Then again, he has not really retired; he has simply stepped back to let his golf course or their work and never truly retire; that is, leave the golf course or their work and never return to it. The Mel Lucases and Richie Valentines remain in the golf of one in fashion or another.

And this is true of Witteveen who, with partner Michael Bavier, has traveled the world presenting The Magic of Greenkeeping seminars for superintendents. Who, with Bavier, wrote the hot-selling "Practical Golf Course Maintenance"? Who is continuing with the Board of Trade for two months as a consultant? Who, with brother Harry is overseeing their nine-hole Pleasant View Golf Course in Brant Ford, Ontario... Who, in his spare time, is writing a history of the OGCSA as well as a history of greenkeeping in Canada?

I can’t imagine Witteveen and Bavier, a former president of the Golf Course Superintendents Association of America (GCSSA), will stop their travels now. They’ve spoken to thousands of golfers in big cities and small towns. And I have never heard of, presenting mix of basic know-how and comic relief in a most entertaining way.

Does Gordon miss early-morning wakeups and work on the golf course?

"I don’t miss unhappy golfers," he said. "And I’m catching up on a lot of work I had left undone. But it’s a weird feeling."

Working at Pleasant View, he said is "a real culture shock. I’ve gone from a golf course with a $1 million budget to a course with no budget."

“When I see a foursome come in 1, there are 10 bags of fertilizer."*

I’d say we’ll miss Gordon Witteveen’s smiling face at the national GCN golf conference. Although he has retired, he has not stopped working. According to Publisher Charlie von Brecht, I’ll be hitting the road, meeting new faces and maintaining old friendships in an effort to build on GCN’s existing position as the best news source in the golf course industry. I’m sure our paths will cross soon.

Speaking of retirement, the guy in the column to the left is retiring in another way. He’s leaving journalism for sales. My world of journalism will be worse off for this move, but Mike remains unmoved by my persuasive powers — which apparently are diminishing. No, he says, his mind is made up.

But I must say this: Mike Levans jumped into the golf arena and grasped its many nuances — as well gaining acquaintances from North America to Singapore — more quickly than anyone I have seen. He will be missed here, and not just for his long drives in Virginia Rules events.

Does Gordon miss early-morning wakeups and work on the golf course?

— Mike McConkey, managing editor

*Editor’s note: Gordon Witteveen is not truly retired; that is, leave the golf course or their work and never truly retire; that is, leave the golf course or their work and never return to it. The Mel Lucases and Richie Valentines remain in the golf of one in fashion or another.
GUEST COMMENTARY: A GOLF HISTORY LESSON

Golf course maintenance and the first 50 years of American golf

By ROBERT WILLIAMS

To get to the heart of changes in golf course maintenance, we have to go back to the first 50 years in American golf (1895-1945). During that era, courses were characterized by weeds, worm casts, insects, fungi, bacteria, inferior strains of grasses, lack of mechanical equipment to ease the burden of difficult hand labor, and the use of horses for the heaviest work.

In those first 50 years, fairways and greens were covered with dandelions as well as plantain, clover and other troublesome weeds. We hand-weeded greens with knives or used hypodermic needles to inject gasoline into each plant. Worm casts from angleworms were gathered from putting surfaces with special rakes prior to mowing.

Roughs were mowed by horse-drawn sickle bars and fairways with three-gang, horse-drawn mowers (later by 3-, 5- and 7-gang tractor mowers). Greens and tees were mowed by hand-pushed mowers. To say the least, every aspect of maintenance called for hand labor.

The principle fairway fertilizer in the early days was simply horse manure, because it was readily available. Sulfate of ammonia was the usual material for greens and tees.

The problems with weeds, insects and plant disease began to decrease with the development of research and education previously mentioned. The U.S. Department of Agriculture, United States Golf Association (USGA) Green Section, universities, hands-on green superintendents and commercial manufacturers together began to solve the myriad problems impeding golf course conditioning.

The post-World War II years brought miracle chemicals and equipment along with educational programs to get the research information to the ultimate clientele — golf course superintendents. 2,4-D eliminated broadleaf weeds. Chlor dane eliminated most of the insects. Mercury and more-advanced chemicals began to give control over the most troublesome diseases.

Self-propelled, mechanical soil aerifiers were being used by 1946, representing a new approach to turfgrass maintenance. In fact, the post-World War II years brought a revolution in all aspects of course maintenance.

Fescues were the primary grasses in U.S. golf's early years. Fescues required little or no irrigation, which was the norm in Scotland and the United States in the early 1900s. Perhaps the biggest change over the past 100 years has been cutting heights. In the early 1900s, roughs were 6 to 8 inches; fairways and tees 1 1/4 to 1 1/2 inches; and greens 5/16 to 3/8 inches. Today roughs range from 1 3/4 to 6 inches; fairways and 3/8 to 5/8 inch; tees 3/16 to 3/16 inch; and greens 1/8 to 3/16 inch. So, some of the 300-plus-yard drives of today's Tour pros can be partially attributed to the close cut and the fast-rolling, improved strains of grass on Tour facilities.

The following have led to the revolution in cutting heights:
- more sophisticated mowing equipment;
- the ability to catch clippings, except in the rough;
- the influence of the Stimpmeter to measure green speed;
- the televising of The Masters and other professional golfing events;
- the ever-increasing demands of green committees and golfers for faster speeds;
- the increased knowledge of green committees and golfers for faster speeds;
- the increased knowledge Continued on page 34

By ROBERT WILLIAMS

Fescues were the primary grasses in U.S. golf's early years. Fescues required little or no irrigation, which was the norm in Scotland and the United States in the early 1900s. Perhaps the biggest change over the past 100 years has been cutting heights. In the early 1900s, roughs were 6 to 8 inches; fairways and tees 1 1/4 to 1 1/2 inches; and greens 5/16 to 3/8 inches. Today roughs range from 1 3/4 to 6 inches; fairways and 3/8 to 5/8 inch; tees 3/16 to 3/16 inch; and greens 1/8 to 3/16 inch. So, some of the 300-plus-yard drives of today's Tour pros can be partially attributed to the close cut and the fast-rolling, improved strains of grass on Tour facilities.

The following have led to the revolution in cutting heights:
- more sophisticated mowing equipment;
- the ability to catch clippings, except in the rough;
- the influence of the Stimpmeter to measure green speed;
- the televising of The Masters and other professional golfing events;
- the ever-increasing demands of green committees and golfers for faster speeds;
- the increased knowledge Continued on page 34

Bob Williams was among the key members of the Golf Course Superintendents Association of America in the first half of the 20th century and served as the association's president in 1958. He is retired and living in Illinois.

GOLF COURSE NEWS

Like a luxury automobile, UHS Signature Brand Fertilizers™ are a symbol of excellence and quality.

We've staked our reputation and name on these products, adopting higher quality control standards that ensure our customers solid, long-lasting performance and value.

We stand behind that promise, which makes Signature a brand you can respect and depend on every time you open a bag.

Contact your local United Horticultural Supply rep for more information.

www.uhsonline.com
800-847-6417

UHS Signature Brand Fertilizers are a product of United Horticultural Supply

CIRCLE #105
OF COURSE
IT LOOKS FAMILIAR.
YOU DESIGNED IT.

Customer input is essential to the design of every Toro product. And considering that half the riding greens mowers in use today are Greensmaster® mowers, we've had plenty of feedback. Literally thousands of professionals have helped us refine the Greensmaster over a span of more than 27 years. The result is a line of greens mowers with all the advantages: precise cutting, low compaction, easy servicing, a comfortable ride and more. We build the best by listening to the best, year after year. Contact your Toro distributor, call 800-803-8676, or see the Greensmaster at www.toro.com/golf.
Johnny Walker as superintendent of the Golf Course Superintendents Association of America (GCSAA) has donated $10,000 to the American Junior Golf Association (AJGA) in support of its 1999 qualifying and tournament sites. The funds will be directed for supplies used in marking golf courses for competition. “The golf course superintendent has a strong affinity for junior golf initiatives,” said GCSAA President Dave Fearis of Blue Hills Country Club in Kansas City, Mo. “A vast majority chose the profession because of positive experiences with the game and golf course in their childhood.”

Russell discovers: Yes, you can go home again

By Mark Leslie

FAIR HILLS, N.J. — Buoyed by progress in “genetic transformation” of turfgrasses, discoveries on the environmental impact of golf and various other projects, the U.S. Golf Association (USGA) Green Section is preparing for another round of research funding. Having poured $17 million into research in the last 17 years, the Green Section Research Committee sent out a call for proposals in late May and expects to make final decisions on projects in November, according to Green Section National Director Jim Snow.

The USGA doubled the research budget in 1990 when it added environmental projects to the mix. With many of those environmental questions now answered, the USGA will re-concentrate its efforts on “working with a lot of different grasses — including some native types that haven’t been traditionally used on golf courses — and developing the grasses for the future that will require less pesticide and water use,” Snow said. “Also, we’re spending a fair amount of money on genetic transformation.”

The new funding will be a little different than in the past because the Research Committee will select projects for two- or three-year periods.

There is $200,000 per year in the budget for projects that will begin next year, but more than $500,000 per year for those starting in 2001, Snow said. Some of those studies will be renewed if necessary.

Continued on page 16

USGA extends research into 21st century

By Peter Blais

BANDON, Ore. — Troy Russell grew up on a dairy farm in the neighboring town of Coquille, four miles from Bandon Dunes. In fact, as a teenager, Russell raced motorcycles on the eventual course site, which was then called The Circus. “Lo and behold, now I work here,” said the 40-year-old head superintendent of Bandon Dunes, the southern Oregon links-style course hard on the Pacific Ocean. The Gleneagles Development Corp. layout opened this spring to rave reviews and is expected to be among the finalists for top new course in various media polls. Golfweek already voted Bandon Dunes among its top resort courses and among the top 10 courses overall to open in the past 40 years.

“I’d be lying if I said I didn’t feel a little pressure [to keep the course maintained in line with the accolades],” Russell added. “We just try to go out and do what we do. As long as they [management] allow us to keep doing our job, we’re perfectly happy.”

Russell knew at a young age he didn’t want to be a dairy farmer and eventually gave up motocross (“An ambulance ride ended my motorcycle career,” he said.). But while he left the dairy farm and bike racing behind, he never lost his attraction to the southern Oregon coast.

“I love it here,” said Russell, whose parents still live on the nearby farm where he grew up. “But when I was 18, I didn’t want to farm and the only other thing here was the timber economy. I didn’t want to work in the woods or mill, so I went off to pursue other things.”

Continued on page 12

Flying high

Birdwatching Open looks good for golf

By Jean Mackay

Do golf courses provide suitable habitat for a diversity of bird species? The results of Audubon International’s 1999 North American Birdwatching Open suggest that a great variety of birds can indeed be found on courses. A total of 319 different bird species were sighted in this year’s one-day bird count, held May 8 to coincide with International Migratory Bird Day.

Forty-eight courses in the United States and Canada participated in the event. Because all participating courses are Certified Audubon Cooperative Sanctuaries or Audubon Signature Sanctuaries, the North American Golf Course Bird Watching Open generated valuable data about the types of species found on courses that are managed with wildlife and the environment in mind.

For the second year in a row, The Club at Seabrook Island in South Carolina soared to the top of the list of participants,
Focus on Russell

Continued from page 11 had a window of opportunity to go back to school when I first got married. I did it and the payoff was pretty quick."

Russell did his internship at Illahee Country Club in Salem and worked briefly as the second assistant during construction of the Oregon Golf Association's course in Woodburn. He also worked briefly as the second assistant during construction of the Oregon Golf Association's course in Woodburn. He also

which led him to Glenelg. While he was still with Simplot, Bandon Dunes contracted him to put in test plots. A year later, September 1997, he was hired as assistant superintendent. Mark Shepherd, now of Aspen Lakes in Sisters, was the head superintendent at the time.

Construction started immediately. The back nine was completed by December and the front nine by mid-June 1998. The shaper was Jim Haley, who had worked with Rees Jones and Pete Dye, and is now on his own. "It was a good fit," Russell said. "We have built things differently here," Russell said. "We don't have USGA greens. They are sand on sand. The sand for tees and greens we mined from a dune on site. There is no under-drainage, just 18 inches of uniform sand source. There is a big network of under-drainage, but not under the greens. The whole course drains very well."

"The construction crew basi-
cally maintained the course pretty lean. A bunch of local guys who had never seen a golf course are our crew. They are doing a good job. We brought in a shaper and irrigation contractor. We installed everything else, including drainage."

The course, which is planted in a mixture of 20 percent colonial bentgrass and the remaining 80 percent a blend of three fine fescues, had almost a year to grow in before opening May 1. "It has a mature look you don't see on most new courses," Russell said. "The mixture does not produce a lot of thatch, which was one of our major criteria."

Weekends have been booked solid since the course opened. Rounds are capped at 160 per day to protect it from overuse.

The course was originally budgeted to handle 12,000 rounds this year, although 14,000 have already been booked through Oct. 31. "We could do more, but it's nice that it's capped at 160 rounds a day," Russell said. "We run the course pretty lean. It's links-style and with this mix of grasses, it doesn't heal real readily."

The course sits on a 90-foot plateau overlooking the Pacific Ocean. "We sample everything and go out in a pretty light-handed manner," Russell said. "The last time we fertilized was last fall. We sponge-feed tees, greens and fairways. We're a little off color. But we're supposed to be, we're a links course."

Fertilizer use is also minimal. "We live in a part of the world where there are few pests," said Russell, who has taken courses in Integrated Pest Management to become specialized in environmental management practices by the Golf Course Superintendents Association of America. "It's a great area to grow grass. We use some pesticides, but as little as possible. We spot spray when we need to."

Water is supplied from wells that empty into an irrigation lake, the only body of water on the course. "But you'd have to hit two truly horrendous shots on the 11th hole to get into it," Russell said. "Lakes were thought to be unnatural on a course like this, and I'd have to agree."

Watering through the course's four-row irrigation system is kept to a minimum to keep the links feel and look to the grasses. A large, 2,300-gallon-per-minute pump station was required because of the occasionally strong winds that limit the size of the irrigation window.

The 21-person crew walks tees and greens. The putting surfaces average 8,300 square feet.

Russell uses greens triplexes for trim mowers. He sends them out in tandem, sometimes three abreast, creating wide bands on fairways rather than a checked pattern. "It's a look that fits well on this golf course," he said.

Only Turf-Seed's got the Best of the Blues and they're available from your distributor now!

No matter what other companies may claim about their varieties, nobody beats Best of the Blues Kentucky bluegrasses for year-in-year-out chart topping, eye-popping performance. Look at the facts. Look at the NTEP results for the past two decades, then order your Midnight, Unique or Blacksburg for fall delivery while supplies last.

Actual NTEP Turfgrass Quality Rankings of Kentucky Bluegrass Cultivars by Year Under Medium-High Maintenance at All Participating Locations in the U.S. and Canada, 1 = Best.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Midnight</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Blacksburg</td>
<td>NO PRODUCTION</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unique</td>
<td>NO PRODUCTION</td>
<td>2</td>
<td>10</td>
<td>15</td>
<td>10</td>
<td>24</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Empt*
Collier's Reserve: Clean, clean, clean — and very well organized

By TERRY BUCHEN

APLES, Fla. — "Clean and organized" is a rule at Collier's Reserve Country Club that transcends the Natural Resource Management Center, or maintenance complex, and it covers the entire golf course, according to Golf Course Manager Tim Hiers.

"We impose trust in our employees," Hiers said. "Keeping things clean and organized is a rule, and it sets the standard for everything else we do out on the course."

To accomplish this goal, a parking space marked with a distinctive yellow line is set aside for each medium and large piece of equipment. Each yellow line is either marked with a four-wheeled aerosol can-type instrument that is literally pushed anywhere Hiers wants it applied, or a masking tape-type material is laid down and each line is painted with a brush.

"We have spent a lot of quality time planning and organizing, trying to use every bit of space properly and efficiently so every square foot is not gone to waste," Hiers said.

Time/motion studies were also used extensively to plan the fastest way possible to enter and exit through each parking space and corresponding garage door opening. The idea was to get in and out of the building as quickly and efficiently as possible.

Each garage door is 10 feet wide and 12 feet high. Ceiling fans help circulate the air.

Ceiling-mounted air hoses on retractable hose reels are used regularly. Wall-mounted, retractable drop cords, with lights, are available for the staff as well.

The equipment storage area is well lit with fluorescent lighting throughout, along with translucent side panels for additional lighting which makes a staff person feel like they are outdoors.

An ice machine is conveniently located for employees to fill their personal water coolers or the ice can be used out on the course.

"We have also painted the entire equipment technician’s shop floor an industrial gray color, suitable for use on smooth concrete surfaces, for ‘the look’ we want to project of a clean and efficiently organized Natural Resource Management Center work environment," Hiers said.

Collier's Reserve's equipment storage area.

Ben Meadows Company

Ben Meadows Company is your source for thousands of quality products. We have specialty items for soil sampling, weather monitoring and environmental testing in addition to standard, everyday supplies.

You can count on Ben Meadows for outstanding customer service and top-notch technical support. We’ve assisted thousands of superintendents and other professionals with their equipment needs since 1956.

Give us a try! See how easy it is to order products by phone and have them delivered directly to your course.

Satisfaction guaranteed.

Contact Us Today For Your Free Catalog!

1-800-241-6401

www.benmeadows.com

RUTGERS OFFERS SESSIONS

NEW BRUNSWICK, N.J. — Rutgers University has announced the 1999/2000 Rutgers Professional Golf Turf Management School, which will be presented in two 10-week sessions over two years.

The fall session will be held Oct. 4 to Dec. 10, and the winter session from Jan. 3 to March 10, 2000. Classes are held daily, Mondays through Fridays on the Cook Campus of Rutgers University here.

Application for the fall session are due by July 15, and for the winter session by Aug. 15. Students will learn the technical skills required for superintendents such as turfgrass establishment, maintenance of greens and tee, plant pathology, entomology, and weed identification.

For more information contact Continuing Professional Education, Cook College, Rutgers, The State University of New Jersey, New Brunswick, N.J. 08901; 732-932-9271.

We're Big Fans of the Perfect Green

Every golf course has a green that can be troublesome during hot, humid periods. Disease can result with the loss of the green. Now more golf course superintendents are turning to Tempest to keep their greens perfect and playable.

- More air movement - 7 blade performance
- Better reach - Exclusive Turbo 2000 should throws air further
- Quieter - Players can "silence" the fans
- Quality - Built to deliver years of service
- 18 electric and gas models

For more information call: 1-800-346-2143

TEMPEST TECHNOLOGY CORP.
4645 N. Bendal Ave.
Fresno, CA 93722 / Fax (209) 277-7579
If you think you’ve maximized your potential with your current IPM program, let Eco Soil provide you with a new approach. University and government laboratories are developing the solutions to today’s tough turf and pest problems. And Eco Soil has developed the technology to bring these powerful biological treatments to your course. Extending your current IPM program. And taking your turf to new levels of quality and playability. Now that’s something both you and your members can appreciate for years to come. For your own in-depth consultation, call Eco Soil Systems at 1-800-331-8773 EXT. 3316

www.ecosoil.com
Birdwatching
Continued from page 11
sighting 84 different bird species. Second place was shared by The Greenbrier in White Sulphur Springs, W.Va., and Eagles Landing Golf Course in Berlin, Md., which both recorded 74 species during the 24-hour event.

Of the 25 birds that were most commonly sighted, the majority of species are fairly generalist species that can be found in a variety of habitats. Indeed, the top 25 list of species such as red-winged blackbirds, mourning doves, European starlings, blue jays, and common grackles on 80 percent of the courses.

Though one would expect to find such common species topping the list of most national bird counts, several birds on the list may be benefiting from golf course habitat-enhancement projects. More than 50 percent of the courses reported bluebirds and tree swallows, benefactors of nest-box placement, while species such as red-winged blackbirds, green heron, great blue heron, and mallards may be benefiting from improved shoreline vegetation near water features.

Species that were sighted on only a few courses depend on specific habitat types and reflect the range of habitats that can be found on courses.

Eighteen courses sighted federally endangered or threatened species — good news for the bald eagles, wood storks, least terns and Florida scrub jays spotted, and a good indication of habitat diversity.

Results submitted showed a wide spread in species counted on the various participating courses (18 to 84 species). Yet the majority, 66 percent, counted 40 or more birds. An individual course's list largely reflects the size and diversity of natural habitat, the course's location, and the quality of environmental management and restoration projects. Other factors may include the skill of the designated bird-watcher, weather conditions, and the timing of the event.

Courses that reported sighting the greatest number of birds were generally larger and contained more diverse or specialized habitats than those with fewer sightings.

While not a scientific study, this one-day count seems to confirm that the amount and diversity of wildlife habitat incorporated into a golf course is key to the number and variety of birds found on the property. The bird-count also reveals that properly managed golf courses can indeed provide habitat for a diversity of bird species.

Persons interested in obtaining a species listing should contact Audubon International at 46 Barick Rd., Selkirk, N.Y. 12186; telephone 518-767-9051.

VITAL STATISTICS

<table>
<thead>
<tr>
<th>Number of participants: 48</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of courses counting more than 50 species: 21</td>
</tr>
<tr>
<td>No. of courses counting 40-49: 11</td>
</tr>
<tr>
<td>No. of courses counting 30-39: 13</td>
</tr>
<tr>
<td>No. counting less than 30 species: 3</td>
</tr>
<tr>
<td>Average (mean) number of species per course: 48</td>
</tr>
<tr>
<td>No. of federally endangered and threatened species sighted: 6</td>
</tr>
<tr>
<td>No. of courses sighting endangered/threatened species: 18</td>
</tr>
<tr>
<td>Total bird species sighted (all courses): 310</td>
</tr>
</tbody>
</table>

Legacy joins Signature
LONGWOOD, Fla. — The Legacy Club at Alaqua Lakes, owned by Taylor Woodrow Communities, has become the third non-private golf course in the world to join the Audubon Cooperative Signature Sanctuary Program.

To achieve this status, each course must apply for membership before the design phase through a committee review process. Upon obtaining membership, the developers must comply with certain principles set by Audubon International for each natural setting.

Prior to development, the land at Alaqua Lakes was monitored for water quality, wildlife management and irrigation for three years. The 170-acre course is a nurturing habitat for wildlife, birds and native or indigenous plants.

"One day this type of process will be required if corporations want to build more golf courses, so this is our way to honor the ones who are already trying to save the environment," said Audubon President Ron Dodson.

Developers spent approximately $150,000 more on construction and manhours to take care of this natural environment.

What other mowers dream of becoming.

Nestled in their sheds at night, ordinary mowers dream of only one thing: growing up to be a Kubota F-60 Series. And it's easy to see why.

The Kubota F-60 Series features our exclusive Auto Assist 4WD with Dual-Acting Overrunning clutch. It automatically transfers power to the rear wheels when the going gets tough. Or, you can manually engage 4WD on the go. Either way, it gives you unqualified traction and maneuverability while reducing the damage to your valuable turf.

The durable, independent hydraulic PTO clutch lets you engage and disengage PTO driven implements on the move. A real time-saver in tight situations.

Kubota's advanced E-TVCS diesel engines are designed to deliver maximum power with minimum vibration and noise. Plus, these super-efficient powerplants go a long way in cutting fuel costs and emissions.

Available in 22, 25 and 30 horsepower 4WD models, the Kubota F-60 Series also comes in a 25 horsepower 2WD model.

So if you're looking for a front-end mower that handles like a dream, see your authorized Kubota dealer today.

For more information please write to:

KUBOTA TRACTOR CORPORATION
P.O. Box 2992-2CN
Torrance, CA 90409-2992
1-888-KUBOTA ext. 407

Financing available through Kubota Credit Corporation

©1998 Kubota Tractor Corporation

GOLF COURSE NEWS
CIRCLE #111
July 1999 15
USGA funding
Continued from page 11

He said that "given the urgency of environmental issues and needing to know what impact golf courses had on the environment, that research has been the most important."

While the long-term development of new turf varieties is a step-by-step process, questions about such issues as pesticide leaching and runoff needed to be answered quickly.

The results of that research? "It's good [news] and bad," Snow said, "but mostly good. Even the bad part is good, because we can say that with most products there is practically no chance of leaching or runoff, and even with those where there is a chance, they can be managed successfully if applied properly."

Environmentalists, he said, "realize we're not saying there is no problem. We're saying we've learned how to manage them and we can recommend to superintendents how to apply them so that they won't have a significant impact. We realize there can be problems, so we have to keep up our guard all the time."

The high-technology genetic research may bring the grandest results.

"It's successful," Snow said. "They [scientists] have been able to accomplish quite a bit. They've been able to make the genetic transformation by transferring genes and seeing them suppress disease, or transfer tolerance to herbicides — that sort of thing. They did genetic transfer very quickly — more quickly than they thought possible. That turned out to be fairly easy. That means that in the future we will be successful in getting other genes into grasses."

The sticking point may be instilling those new genetic characteristics into breeding programs and developing the type of grass desirable for golf courses.

"That could take another five to 10 years," Snow said.

Meanwhile, there is concern about introducing genetically-transformed plants into the environment. For instance, bentgrass is a premier golfing turf, but in some agricultural fields it is considered a noxious weed. If a bentgrass were developed to be resistant to Roundup and were to cross with wild bentgrass types in the field, farmers could not control the weeds.

"Herbicide resistance is one thing," Snow said. "In terms of stress factors, probably most people are not too concerned about grasses being engineered for drought tolerance. There's not much for anyone to object to there. Delays from federal agencies probably will depend on what genes we're talking about."

Of ants and flies
Continued from page 1

and more important for golf course superintendents, especially as chemical products are taken off the market. And the ant and parasitic fly studies are indicative of this work that is being done at universities across the United States.

At the University of Kentucky, Dr. Daniel Potter, an entomologist, started a three-year study in 1998 to evaluate the role of ants as "beneficial predators in golf turf," while developing "tactics for managing mound-building pest ants on putting greens with reduced environmental risk or impact on beneficial species."

"Ants, the most abundant insects inhabiting turfgrass, are highly efficient predators on eggs and larvae of cutworms, grubs and other pest insects," reported Potter, whose $105,000 three-year study extends through 2000. "On golf courses, however, the positive aspects of ant predation must be weighed against the fact that some species build nests and mounds on putting greens and tees."

Potter's research at Kentucky courses revealed that virtually all of the mound-building problems in close-cut creeping bentgrass are caused by one species, Lasius neoniger. This species appears to be the major nuisance ant on courses throughout much of the country, he said.

Since surface insecticides usually won't eliminate these ants because they fail to reach the ground-nesting queen, Potter evaluated two methods for suppressing the mounding. The first involved using target-selective...
The search is on for improved Bermudagrass varieties

By MARK LESLIE

FAR HILLS, N.J. — Whether it be finding the origins of off-types of hybrid varieties, or searching out cultivars that resist nematodes and spring dead spot or tolerate the cold, scientists across the South are investigating Bermudagrass and how to improve it.

Several research projects are among those being funded by the U.S. Golf Association Green Section, and reports on their progress will soon be released. They include:

• At Oklahoma State University, Dr. Michael P. Anderson in 1998 began a $125,000 five-year study to increase resistance in Bermudagrass turf varieties to spring dead spot through gene transformation technology.

“The use of high-velocity micro-projectiles (biolistics) to deliver recombinant DNA into intact plant cells has been successfully utilized to transform many grass species, and is considered the method of choice for most grass species,” according to Anderson. His experiments will identify, sequence and characterize a protein that has been discovered to be strongly and persistently inhibitory to the bacteria that causes spring dead spot, Anderson said.

• At Texas A&M University, Dr. Richard H. White is in the midst of a three-year study on best management practices for new dwarf Bermudagrasses.

“New dwarf Bermudagrasses are, in general, more aggressive thatch producers than Tifdwarf,” White reported. “Judicious nitrogen fertilization will be required to slow the rate of thatch accumulation for many of the new Bermudagrass cultivars.”

Nitrogen amounts greater than 10 pounds annually per 1,000 square feet improved turf quality but contributed to increased thatch, decreased ball-roll distance, and did not substantially increase shoot density. White reported no differences in thatch accumulation among light (frequent) and severe (infrequent) vertical mowing and top-dressing regimes. However, he said, severe, infrequent vertical mowing reduced turf quality for long periods.

Meanwhile, White reported several new dwarf Bermudagrasses provided superior quality to Tifdwarf when mowed at 0.125

New Bermudagrass varieties in the golf course marketplace

SunDevil II
Medalist America Turfgrass Seed introduces SunDevil II seeded Bermudagrass that offers improved cold weather tolerance and disease resistance and requires less irrigation and maintenance. SunDevil II also greens up earlier in the spring and goes dormant later in the fall than common Bermudagrass.

The new turf is also ideal for overseeding existing common Bermudagrass and is a solution to areas of winter kill and turf disease.

For more information contact Medalist America: 1-800-568-TURF.

Southern Star
Jacklin Seed introduces Souther Star seeded Bermudagrass which offers improved quality, density, texture, greenup and seed yield than previous seeded varieties. The new turf establishes itself rapidly and is a comparable replacement for vegetative Bermudagrasses. Southern Star will be available following the 1999 harvest.

For more information contact Jacklin Seed: 208-773-7581

PRIMO Bermudagrass Blend
Seed Research of Oregon announces improvements for 1999 on its certified PRIMO Bermudagrass blend. A Seed Research Advanced Seed Coat, an organic soil amendment agent, has been added to the seed surface. The certified blend of two or three different Bermudagrass varieties ensures that the seed will better handle varying soil and growing conditions.

OKS95-1 Bermudagrass
This experimental seeded Bermudagrass variety has been developed by Dr. Charles Taliaferro of Oklahoma State University and has been tested in the current NTEP Bermudagrass test. Seed Research of Oregon and Johnstons Seed of Enid, Okla. are presently working with Dr. Taliaferro on commercial seed production tests and expect to release the variety in the very near future.

OKS95-1 is noted for its winter hardiness and will be of good use for those in the upper transition zone who lose their Bermudagrass in cold years.

For more information contact Seed Research of Oregon: 800-253-5766

Durable, Flexible, Affordable

Durable
Fore-Par direction and rules signs are weather proof and golfer proof. Wind. Sun. A whack with a golf club. A swift kick. They’ll stand up to almost anything. They retain their flexibility and appearance indefinitely, even under extreme weather conditions. Messages are screen printed on one or two sides with a tough, pliable coating that bonds to the sign’s surface.

Flexible
Just one of the words used to describe Fore-Par service. Do you need a single sided sign printed on both sides? Just ask. Want a custom message? No problem. Have a special color requirement?

Slate-Dunk. Need them fast? Our specialty! When it comes to flexibility of service, nobody comes close to Fore-Par.

Affordable
New production techniques and improved raw materials have provided us with significant savings which we are pleased to pass along to our customers. If you thought the legendary Elasto-Signs® were too expensive, it’s time to take a second look.

Our new affordable pricing plus years of durable service make Fore-Par Elasto-Signs® the best buy on the market. For more information on the Fore-Par accessories line, Call 800 843-0809, and get more for your money from Fore-Par.
### NTEP’s leading Bermudagrass seeded cultivars

<table>
<thead>
<tr>
<th>Name</th>
<th>AR1</th>
<th>AZ1</th>
<th>CA3</th>
<th>FL1</th>
<th>GA1</th>
<th>IL2</th>
<th>IN2</th>
<th>KS2</th>
<th>KY1</th>
<th>MO1</th>
<th>MO2</th>
<th>MO3</th>
<th>MS1</th>
<th>NM1</th>
<th>OK1</th>
<th>SC2</th>
<th>TX2</th>
<th>VA1</th>
<th>VA4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>OKS-R5</td>
<td>6.8</td>
<td>6.3</td>
<td>5.8</td>
<td>5.8</td>
<td>6.3</td>
<td>7.1</td>
<td>6.1</td>
<td>6.7</td>
<td>7.9</td>
<td>8.1</td>
<td>6.7</td>
<td>7.7</td>
<td>5.5</td>
<td>7.9</td>
<td>6.9</td>
<td>7.0</td>
<td>5.4</td>
<td>6.5</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td><em>Princess</em></td>
<td>6.9</td>
<td>6.6</td>
<td>5.2</td>
<td>5.7</td>
<td>6.8</td>
<td>5.5</td>
<td>6.1</td>
<td>7.6</td>
<td>6.6</td>
<td>5.1</td>
<td>7.1</td>
<td>6.0</td>
<td>7.6</td>
<td>6.6</td>
<td>6.9</td>
<td>6.3</td>
<td>3.0</td>
<td>6.0</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td>PST-R69C</td>
<td>6.3</td>
<td>6.0</td>
<td>4.9</td>
<td>5.0</td>
<td>5.7</td>
<td>6.2</td>
<td>5.0</td>
<td>4.1</td>
<td>7.3</td>
<td>7.1</td>
<td>5.4</td>
<td>7.1</td>
<td>5.7</td>
<td>6.7</td>
<td>5.8</td>
<td>6.0</td>
<td>5.5</td>
<td>5.7</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td>SWI-11</td>
<td>6.4</td>
<td>6.0</td>
<td>5.0</td>
<td>6.0</td>
<td>6.1</td>
<td>4.7</td>
<td>5.0</td>
<td>7.3</td>
<td>6.0</td>
<td>4.9</td>
<td>7.2</td>
<td>5.6</td>
<td>7.4</td>
<td>7.1</td>
<td>6.0</td>
<td>7.0</td>
<td>5.2</td>
<td>5.0</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td><em>Savannah</em></td>
<td>5.4</td>
<td>5.9</td>
<td>5.2</td>
<td>5.4</td>
<td>6.2</td>
<td>3.8</td>
<td>4.8</td>
<td>5.7</td>
<td>5.9</td>
<td>7.0</td>
<td>5.1</td>
<td>6.7</td>
<td>4.6</td>
<td>7.4</td>
<td>5.7</td>
<td>6.9</td>
<td>5.9</td>
<td>5.2</td>
<td>4.9</td>
<td></td>
</tr>
<tr>
<td>Southern Star</td>
<td>5.3</td>
<td>5.6</td>
<td>4.9</td>
<td>4.8</td>
<td>6.1</td>
<td>4.1</td>
<td>4.5</td>
<td>6.2</td>
<td>6.0</td>
<td>6.5</td>
<td>4.5</td>
<td>7.7</td>
<td>4.6</td>
<td>6.0</td>
<td>4.6</td>
<td>5.4</td>
<td>5.4</td>
<td>4.8</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td><em>Sydney</em></td>
<td>5.6</td>
<td>5.2</td>
<td>4.9</td>
<td>4.8</td>
<td>5.4</td>
<td>3.8</td>
<td>4.0</td>
<td>5.9</td>
<td>5.6</td>
<td>7.0</td>
<td>4.3</td>
<td>7.2</td>
<td>4.0</td>
<td>5.7</td>
<td>5.3</td>
<td>5.1</td>
<td>5.5</td>
<td>5.2</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td><em>Blackjack</em></td>
<td>5.5</td>
<td>5.5</td>
<td>4.8</td>
<td>4.6</td>
<td>5.7</td>
<td>3.5</td>
<td>4.0</td>
<td>5.8</td>
<td>5.9</td>
<td>6.5</td>
<td>4.7</td>
<td>6.8</td>
<td>4.7</td>
<td>5.7</td>
<td>5.7</td>
<td>5.4</td>
<td>4.9</td>
<td>4.9</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td><em>Majestic</em></td>
<td>4.6</td>
<td>5.1</td>
<td>4.6</td>
<td>4.3</td>
<td>6.0</td>
<td>3.9</td>
<td>5.7</td>
<td>5.8</td>
<td>5.7</td>
<td>5.3</td>
<td>7.3</td>
<td>4.1</td>
<td>5.7</td>
<td>6.0</td>
<td>5.0</td>
<td>4.8</td>
<td>5.1</td>
<td>5.7</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td><em>JS-540</em></td>
<td>4.6</td>
<td>5.7</td>
<td>4.8</td>
<td>5.0</td>
<td>5.7</td>
<td>4.1</td>
<td>3.6</td>
<td>5.8</td>
<td>5.3</td>
<td>6.4</td>
<td>4.2</td>
<td>4.9</td>
<td>4.2</td>
<td>5.7</td>
<td>5.1</td>
<td>5.3</td>
<td>5.3</td>
<td>5.2</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td><em>SunDevil II</em></td>
<td>4.6</td>
<td>5.8</td>
<td>4.8</td>
<td>4.7</td>
<td>3.7</td>
<td>4.1</td>
<td>5.0</td>
<td>5.8</td>
<td>4.5</td>
<td>6.5</td>
<td>5.6</td>
<td>4.4</td>
<td>6.4</td>
<td>5.1</td>
<td>5.4</td>
<td>4.1</td>
<td>5.8</td>
<td>5.1</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td><em>Shangril La</em></td>
<td>5.0</td>
<td>5.2</td>
<td>5.0</td>
<td>4.5</td>
<td>5.8</td>
<td>3.4</td>
<td>4.3</td>
<td>4.9</td>
<td>6.2</td>
<td>5.1</td>
<td>5.1</td>
<td>3.9</td>
<td>5.8</td>
<td>5.2</td>
<td>4.9</td>
<td>5.3</td>
<td>4.6</td>
<td>5.0</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td><em>Pyramid</em></td>
<td>4.4</td>
<td>5.5</td>
<td>4.8</td>
<td>5.6</td>
<td>3.3</td>
<td>3.7</td>
<td>5.8</td>
<td>5.1</td>
<td>6.3</td>
<td>4.1</td>
<td>3.9</td>
<td>6.0</td>
<td>5.5</td>
<td>5.3</td>
<td>4.5</td>
<td>4.9</td>
<td>5.3</td>
<td>4.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Mirage</em></td>
<td>3.8</td>
<td>5.7</td>
<td>4.7</td>
<td>4.8</td>
<td>5.4</td>
<td>3.2</td>
<td>3.6</td>
<td>5.6</td>
<td>5.4</td>
<td>6.0</td>
<td>4.7</td>
<td>5.3</td>
<td>4.8</td>
<td>5.6</td>
<td>4.5</td>
<td>4.8</td>
<td>4.9</td>
<td>5.1</td>
<td>4.9</td>
<td></td>
</tr>
<tr>
<td><em>Blue-Muda</em></td>
<td>4.2</td>
<td>5.2</td>
<td>4.8</td>
<td>4.3</td>
<td>5.7</td>
<td>3.1</td>
<td>3.5</td>
<td>5.7</td>
<td>4.9</td>
<td>5.7</td>
<td>6.6</td>
<td>4.3</td>
<td>5.5</td>
<td>5.4</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.1</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td><em>Numex-Sahara</em></td>
<td>4.3</td>
<td>5.5</td>
<td>4.7</td>
<td>4.3</td>
<td>5.4</td>
<td>3.9</td>
<td>3.4</td>
<td>5.2</td>
<td>4.5</td>
<td>6.3</td>
<td>4.2</td>
<td>6.8</td>
<td>4.0</td>
<td>5.6</td>
<td>5.4</td>
<td>4.7</td>
<td>4.9</td>
<td>5.3</td>
<td>4.9</td>
<td></td>
</tr>
<tr>
<td><em>Jackpot</em></td>
<td>4.8</td>
<td>5.2</td>
<td>4.8</td>
<td>4.2</td>
<td>6.1</td>
<td>3.2</td>
<td>3.4</td>
<td>4.5</td>
<td>5.0</td>
<td>5.0</td>
<td>4.2</td>
<td>6.1</td>
<td>4.0</td>
<td>5.2</td>
<td>5.5</td>
<td>4.9</td>
<td>4.9</td>
<td>5.2</td>
<td>5.8</td>
<td></td>
</tr>
<tr>
<td><em>Ariz. Common</em></td>
<td>3.8</td>
<td>5.3</td>
<td>4.4</td>
<td>3.6</td>
<td>4.4</td>
<td>2.9</td>
<td>2.6</td>
<td>4.4</td>
<td>4.5</td>
<td>5.4</td>
<td>3.9</td>
<td>6.2</td>
<td>3.7</td>
<td>6.0</td>
<td>5.1</td>
<td>4.1</td>
<td>4.3</td>
<td>4.1</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>LSD VALUE</td>
<td>0.7</td>
<td>0.5</td>
<td>0.3</td>
<td>0.6</td>
<td>0.5</td>
<td>1.0</td>
<td>1.0</td>
<td>0.8</td>
<td>1.3</td>
<td>0.9</td>
<td>0.8</td>
<td>1.1</td>
<td>0.8</td>
<td>0.6</td>
<td>1.1</td>
<td>1.2</td>
<td>0.6</td>
<td>0.7</td>
<td>1.2</td>
<td>0.5</td>
</tr>
</tbody>
</table>

* — Available in the U.S. marketplace.

LSD Value: To determine statistical differences among entries, subtract one entry’s mean from another entry’s mean. Statistical differences occur when this value is larger than the corresponding LSD Value (LSD 0.05).
Ultradwarfs

Continued from page 1

Southern United States. The 1998 findings from the NTEP trials offer preliminary information and establishment data on five ultradwarfs and two standard-entry Tifdwarf Bermudagrasses (see table).

"With this trial we allow superintendents at each club to manage the turf the way they would manage the rest of their golf course greens," said Kevin Morris, NTEP's national director. "While management practices differ quite a bit, we hope to get good data on the differences between the ultradwarfs and the Tifdwarfs and establish the differences between the ultradwarf varieties.

Ultradwarfs have created a lot of interest because they combine the hardiness of a Bermuda with similar density and low mowing height of bentgrass. "These are for courses that have used Tifdwarf, but would like to mow it closer," said Morris. "Or for those who have had bentgrass but who are in the South and would like to try something else."

However, while ultradwarfs have their advantages, they also require attentive management. "They are finer and more upright than Tifdwarf and they look a lot like bent," said superintendent Keith Ihms at Bent Tree Country Club in Dallas, one of the eight testing sites. "But hopefully nobody has the impression that they will be any easier to maintain."

Experts say since ultradwarfs have an aggressive growth pattern and a greater shoot density, they are more prone to developing thatch. Therefore, they require more frequent and light top dressing, frequent verticutting and must be kept at or below 1/8 inch mowing height. "It takes more intensive management to keep the thatch under control," warns Dr. Richard White of Texas A&M University and sponsor of the on-site test in Houston. "Ultradwarfs are not for every golf course."

A careful eye must also be kept on fertilization practices, especially with nitrogen levels. While the high density provides a better putting surface, it also makes overseeding difficult and could result in a significantly altered root-zone profile.

"If I had to say one word about maintaining ultradwarfs it would be 'verticut,'" said Dr. Beth Guertal of Auburn University, who is sponsoring the on-site test in Birmingham, Ala. "If you don't have the budget to verticut twice a month and top dress twice a month, you shouldn't consider an ultradwarf."

The on-site superintendents agree. "We have had to verticut them a lot more often, weekly or bi-weekly, as well as top dress them," said Ihms.

Mike Sandburg, superintendent at Mike Sandburg, superintendent at

Continued on page 33

The new Verti-Drain® Mustang:
Runs like a racehorse, works like a mule.

 Spend less time aerating, spend more time playing.

The new Mustang deep-tine aerates at an unsurpassed 2.7 mph. That's about 80% faster than competing methods. It allows you to aerate a greater turf area - up to 66,000 square foot/hour production.

Using the new Mustang with solid or hollow tines, you can do high speed runs over large turf areas. Great for sportsfields, high-production landscape applications, as well as golf course fairways, tees and greens. And you'll still get the unique, patented shattering effect that is exclusive to Verti-Drain®. With the vertical action, each tine is forced backwards underground, shattering the soil so air and water can move freely, strengthening roots and helping grasses resist pests, weeds, disease, drought and hard play.

The new, faster Mustang is the real thoroughbred in the field. Call today to find out more details.

VERTI-DRAIN®

Redexim Charterhouse

Breaking barriers to better turf.

458 Wyoming Ave., Kingston, PA 18704 1-800-597-5664

The National Golf Foundation covers the facts with reports on private, daily fee and municipal 18- and 9-hole golf facilities and nine U.S. climate regions. They blanket the country, providing all the data you need, including:

- 21 separate revenue and expense line items
- net operating incomes
- average operating margins
- green and cart fees
- golf car fleet size
- staff size and payroll
- irrigation water sources

Call the NATIONAL GOLF FOUNDATION for detailed information and pricing.

Become an NGF member. Join today!
Great County Engineering
Green Lake Irrigation & Turf
Green Valley Golf & Turf Co
Gregori International
Griil Golf International
Griffith University
Guangdong Dayang Golf Club
Guangzhou Fei Tuo Golf
Guangzhou Purple Clouds Golf Club
Guizhou Guiyang Golf Co
Hali Chemicals
Hangzhou Westlake Golf Club
Hansberger Precision Golf
Happiness Solutions
HRC/TP Golf Architecture
Hualyin Fanya Garden Machinery
Hugall & Holle
IMG
Inchcape Engineering

Golf World Exhibitions thank the 223 exhibitors & 519 companies who contributed to the success of the growth of golf in China.

We wish everyone a prosperous year and look forward to seeing you at

China GILTS ’99

Golf World Exhibitions
(A Division of Golf World Group)
36 Kings Park Road
West Perth 6005
WESTERN AUSTRALIA
Tel: + 61 8 9322 3222
Fax: + 61 8 9321 6461
Email: gmg@wantree.com.au
Web page: http://golfworldgroup.com.au

The 5th International China & Hong Kong Golf Exhibition and Conference
September 5 - 7 1999
The Guangzhou International Exhibition Complex
American Skiing delays projects

NEWRY, Maine — A disappointing ski season has slowed golf developments at several American Skiing Co. (ASC) properties, according to Peter Webber, special assistant to ASC golf operations.

This past winter’s lack of snow in the Northeast and Colorado, the core of American Skiing’s holdings, led to a disappointing fiscal second quarter. Consequently, the company decided to sell some non-strategic holdings and cut capital improvements.

Wildhawk is one of those projects that meant putting construction of the new 18-hole Robert Trent Jones Jr.-designed course at Sunday River in Newry on hold for a year and temporarily tabling plans for new courses at Sugarloaf USA in Carrabassett Valley, Maine, and Attitash Bear Peak in Bartlett, N.H.

"We cut the trees on all 18 holes and the driving range this winter," said Sunday River Managing Director Chip Seamans. "We’ve taken some money from our capital budget for the resort to continue working on it this summer, mostly drainage issues and the sort of thing that will put us ahead in the future when we really jump into it again.

“We’re not doing as much as we’d like, but it’s definitely going to happen in the future.”

The original plan was to open the Sunday River layout in 2001. A revised opening date has yet to be determined. BMRInc. of Vancouver is the builder.

In addition to Sunday River, Sugarloaf and Attitash, ASC operates Killington, Mount Snow and Sugarbush in Vermont; Steamboat in Colorado; The Canyons in Utah; and Heavenly in California and Nevada.

Dick Phelps: An all-terrain architect

The 16th green at Saddle Rock Golf Club in Aurora, Colo., invites a clean approach shot. Designed by Dick Phelps, Saddle Rock was voted 8th-best new public course in 1998. It hosts the Colorado Open, the state men’s championship whose past winners include Hale Irwin and Dave Hill.

Dick Phelps has been designing golf courses since he graduated from Iowa State University in 1963 with bachelor’s and master’s degrees in landscape architecture. In 1966 he and land planner Donald Brauer formed a partnership in Minneapolis and a year later Phelps opened his own office in Denver. When they split in 1973, he formed a partnership with Brad Benz.

In 1981 they added J. Michael Poellot. Benz and Poellot left a year later to form a company in California, and "I've been my own destiny and I enjoy it," Phelps says. In 1990 Phelps and U.S. Open champion Hale Irwin began working together, but Irwin has since started his own design firm.

Golf Course News: When I hear the Phelps name I think mountains.

Dick Phelps: We certainly have had experience in the high country. But I think more of the golf courses have been out of it now — quite a few in the flat lands of Colorado. And we’ve been fortunate to have done courses, some of them with Hale Irwin, from Florida to North Carolina to Colorado to Sun Valley, Idaho, to central Illinois. So, we have gotten around to other kinds of sites as well.

GCN: What do you prefer?

DP: The mountain courses I’ve done have been on difficult sites. However, we have not had a lot of heavy rock and the kinds of obstacles you often have on the East Coast. So we’ve been fortunate that we’ve been able to move dirt without a lot of interference. I think [architects] all like to have a gentler rolling site with some rock, some water, some trees and so forth. I’ve had the perfect site only twice in my career and I’ve done close to 70 courses. Probably one of the prettiest was in the Sacramento area called Twelve Bridges. It has beautiful oaks, a couple of streams, wetlands and gorgeous rock — big granite boulders. The other site was Perry Park Country Club between Colorado Springs and Denver. It’s back in the Ponderosa pine, with vertical red rock formations similar to the Garden of the Gods.

Wildhawk fills void of ‘affordable public’

SACRAMENTO, Calif. — Aiming to fill the need in Northern California for affordable, public-access golf, Southgate Recreational Park District has opened Wildhawk Golf Club here.

"We believe that Wildhawk will prove to be a prototype golf development concept for local municipalities, county governments and park districts who have the vision and desire to use idle land, and at the same time provide an income-producing, high-quality, affordable golf facility for their constituents," said J. Michael Poellot Golf Design Group senior designer Mark Hollinger.

The course was created on a completely flat piece of farm land “with almost no existing natural features with which to work, not even one tree," said Hollinger. "We had poor, rocky soils... and a short timetable. The completed project, however, has become a high-quality, daily-fee recreational golf facility that is now coming into its own with a significant level of play.”

Builders moved more than 350,000 cubic yards of dirt to mold the 6,695-yard parkland-style course. The course features four sets of tees, undulating fairways, and creative movement on the greens set Wildhawk apart.

Wildhawk is being managed by Crown Golf Properties.
Q&A: Phelps

Continued from page 21

Unfortunately, we didn’t have much of a budget when we did the course and it got spread out timewise. So we’ve never been able to do everything we would like to on that gorgeous piece of ground.

GCN: Mountain construction means difficult construction.

DP: The biggest problem with the mountains is, you might have 14 or 15 gorgeous golf holes and three or four that hardly work. But you have to get from point A to point B to make the others work. So, of course everybody remembers the funky holes. That’s the hard part.

GCN: Have you worked with any other pros besides Hale Irwin?

DP: We’ve had the opportunity to work with Patty Sheehan of the LPGA Tour. Patty liked the Twelve Bridges course. The LPGA’s been playing it since it opened with an LPGA tournament. Patty has expressed an interest and I’d like to work with her. We just haven’t yet had the opportunity.

GCN: What kind of input would she have?

DP: I would bet everything. I wouldn’t want to restrict her strictly to the ladies’ end of it.

‘One of my greatest fears is that all this competition for highly sculpted, upscale, target golf simply raises the cost to build the golf course, which translates to a higher greens fee to break even or show a profit, and we’re pricing the average golfer out of the game.’

She’s an accomplished enough golfer that she could give us input on the whole thing.

GCN: What was it like working with Hale?

DP: It was a lot of fun. Hale is a very personable guy and has good ideas. We’re not doing anything with him now. He has chosen to build his own staff internally, which makes sense economically.

GCN: How do you think the newer equipment and balls have changed golf design, and do they threaten the traditions of design?

DP: A lot of people like to point at the clubs or golf balls, and that is the case to some extent. But I can’t blame everything on the clubs and balls. We have much, much shorter-cut fairways now than we used to have. Pete Dye said several years ago that if you took a Stimpmeter reading on some of these fairways they would be rolling faster and further than they used to on the greens back in the ‘50s; and he’s right. We are cutting the fairways so short that you get that much roll on your tee shots. And we’re rolling the greens faster, too.

I don’t think there’s any question in the research that’s been done that golf balls are going further. How much it is affecting the game is the big debate.

Yes, the pros are hitting it further. You have to assume the average golfer is hitting it a little further and maybe a little straighter. But is it really seriously affecting the game?

I think publicity and marketing are causing changes in design. We get pressure all the time to build a longer golf course than the guy down the street, especially since we’re doing so many combination golf course/residential projects. This guy wants to sell his condos or lots or custom homes, so he wants a longer course than the competition. So you’re getting over 7,000 yards — 7,300, 7,500. You see all the pretty pictures in magazines of deep roughs and highly sculpted bunker faces and green edges and whatnot. That’s all changing the game.

One of my greatest fears is that all this competition for highly sculpted, upscale, target golf simply raises the cost to build the golf course, which translates to a higher greens fee to break even or show a profit, and we’re pricing the average golfer out of the game. Everybody complains about people leaving the game, and there is one big reason: Cost. Cost of equipment and cost of greens fees and carts.

Then add the mega-length golf courses that take forever to play. People talk about 4-hour or 4-hour and-20-minute rounds. Well, it can’t be done on some of these long golf courses with difficult roughs and rolls and so forth.

Sometimes you just have to get tough. And when you do, get the E-Z-GO Workhorse™.

With standard features like an 11hp 350cc engine, a 1200lb. payload capacity and an exclusive heavy-duty bed liner, it has everything you need to handle the big jobs. It carries sand, gravel, bales of straw, building materials, and all your tools and equipment. Optional extras include an oversized cargo bed and power dump. So, when the going gets tough, get to your E-Z-GO Workhorse dealer.

The finest utility vehicles in the world.™
Q&A: Phelps
Continued from previous page

Friends tell me they can't devote a whole day to a round of golf. Add the drive there and back, warming up, the 5-hour round, and it's an 8-hour-plus day for some. A lot of folks trying to get into this game have a young family and other things they have to do.

GCN: What should be done about it, and by whom?

DP: We need to build more affordable courses, first of all, and more player-friendly courses. But that's difficult since many developers don't want that kind of course because they don't think it will sell adjacent lots. The course architects themselves are a little leery of doing that type of course because it won't make the magazines and rankings and so on.

GCN: There used to be a much higher percentage of projects driven by housing. The figures show more courses are standalone now. Why isn't that bringing lower-cost courses onto the market?

DP: That's a good question. We still jump for joy when we get a pure golf course — a core course without housing around it. Those are still fairly rare — at least in this part of the country.

GCN: What's it like having your son Rick working with you?

DP: It's been great. As a youngster of 8, he'd be out on the site with me holding the survey rod. Rick adds a breath of fresh air to the office. I've been doing this 37 years and Rick has some different ideas. And he has brought me into the computer age. I'm still scared to death of them myself.

GCN: Give us an example of what "fresh new ideas" in design would entail.

DP: Let me give you, first, an example of why we want to do it. I have done so many projects in Colorado that on occasion we hear the comment, "We know you have been successful and have done profitable and fun golf courses, but we want a fresh face." That has always been disturbing because they always preface it with the fact that we've done such a great job.

So, Rick for the last several years, has said, "Hey, I'm a fresh face." And we just added Kevin Atkinson, a young man who has been with Tom Clark and Brian Ault. Kevin brings in more fresh ideas and I think he will be an excellent designer.

But with the fresh face, the younger approach, I think we're still going to have to be very cautious on costs. I've worked on golf course crews, so I've always been careful not to create a lot of hand maintenance, steep slopes, and dangerous things. Yet that's what gets the attention.

I was at a golf course in Texas, touring with the superintendent, when a call came over the radio that one of the guys had slipped on a bank early in the morning and gone underneath the old Flymo and cut off three toes. Things like that caused them to redesign the Flymo.

GCN: Rick just got voted in as an associate member of the ASGCA. Are you proud of him?

DP: Absolutely. It's wonderful to have him in the society. He will be doing a lot of contributions to the society. He has a strong interest in it and in golf course architecture.

I was president in 1986-87, when we made our first trip to Scotland. Rick's first official meeting will be in Ireland next year.

GCN: Are you personally going to cut back now?

DP: I'm going to stay active. My whole future has changed since I lost my wife a year ago. I had looked forward to slowing down and traveling with her. But to lose her suddenly... I don't want to give it up... I enjoy it too much.

We're trying to take a bit of a new tack on our design. We want to step up a notch or two and really strike out here in a fresh direction with Rick and Kevin. And what I'm seeing is exciting. We think it will open a new page for us — not just being Rocky Mountain architects.

COLO. HALL INDUCTS PHELPS

Dick Phelps has been inducted into the Colorado Golf Hall of Fame. While most of his 250 golf course designs have been in Colorado, Phelps has designed or remodeled courses in 22 states. Eight are ranked in the respective states' top 10 courses.

Not Just the Same Old Potash!

K+Si

0-2-12 + 7% Silica

Makes every leaf StandUp™!

3 OZ. EVERY TWO WEEKS
• Builds up energy in the roots
• Hardens the leaf blade
• Gives a better roll & fewer ball marks
• Makes mowing easier

Ask your distributor rep for the technical details.

ROOTSinc. 3120 Weatherford Road • Independence • MO • 64055 • 800 342-6173 • www.rootsinc.com

GOLF COURSE NEWS

CIRCLE #120
TUSTIN, Calif. — Rainville & Bye Golf Course Architects has been selected to design the $2 million practice facility for the new Mission Hills of Hayward public golf course.

The practice facility is Rainville & Bye's second contract with the Hayward Area Recreation and Park District (HARD), which initially hired the firm in December 1997 to design its $3.1 million, nine-hole executive course. According to Gary Bye, the 1.940-yard, par-30 executive track will open late this summer, with the practice facility to open next year. The practice facility will feature night lighting, double-deck artificial-turf tees accommodating 40 golfers, 10 grass practice tees and chipping and putting areas.

Situated on 37 acres at Industrial Parkway West and Mission Boulevard, the course is located on a 100-acre parcel being developed with homes by Standard Pacific of Northern California. The home builder set aside 26 acres and the city of Hayward, in cooperation with HARD, purchased an additional 11 acres for the nine-hole course. HARD is providing the financing and will operate the course.

According to Wes Asmussen, general manager of HARD, "This executive course promises to be one of the best in Northern California. Its design allows for players of all abilities to have an enjoyable round and use virtually all of the clubs in their bag."

Rainville & Bye needed to design a course that would accommodate the project's unique wetland restoration and flood mitigation needs.

"Our precise grading design enabled us to create marsh areas that provide natural habitats for wildlife as well as retain flood waters," said Bye.

The practice facility is scheduled for Meadowbrook once the "River" course reopens. Meadowbrook will be closed and construction will begin.

Renovations on the "River" course include rebuilding all the greens and repaving them with TifEagle dwarf Bermuda grass. Tees will also be rebuilt and expanded to allow for more players of different skill levels. Sand bunkers will be rebuilt with drainage and new white sand. Two additional lakes will be strategically built to enhance the playability of the course, as well as help solve ongoing drainage problems.

Similar improvements are scheduled for Meadowbrook once the "River" course reopens. Meadowbrook is scheduled to close in November 2000 and open in the new millennium. Greens, tees and sand bunkers will be rebuilt and drainage issues resolved along the lake system that runs through Meadowbrook.

The Fort Worth public golf courses are operated as a government "enterprise" fund. That means no tax dollars are involved in the operation, maintenance or improvements conducted at the courses.
First ClubCorp/Golden Bear project begins

ATLANTA — Habersham Investment & Development Corp., the developer of BirchRiver, has finalized negotiations with ClubCorp/Golden Bear, paving the way for development of the Nicklaus Golf Club at BirchRiver. Construction has begun on the championship links at the mixed-use development located in Dahlonega.

The Nicklaus Golf Club at BirchRiver represents the first course to be developed under the partnership formed in late 1998 between Dallas-based ClubCorp of America and Golden Bear International, Inc. of North Palm Beach, Fla., which will develop, own and operate BirchRiver's signature Jack Nicklaus golf course and related facilities.

"We are thrilled about the naming of the course. We know Jack Nicklaus will design a great golf course at BirchRiver," said Pete Calabro, president of Habersham Investment & Development Corp., which is developing the north Georgia mountain community in partnership with Owens Valley Farm, L.P.

"The golf course will run through the beautiful Chestatee River valley, winding through some spectacular mature trees," said Nicklaus, whose company, Nicklaus Design, has been retained to design the 18-hole course. "This is just one of those rare and exciting pieces of property, and it is our challenge to enhance and complement what nature gave us. The end result should be a golf course that is both fun and challenging, and hopefully a course golfers will walk away from with some special memories."

Development of the Nicklaus Golf Club at BirchRiver is slated to coincide with the residential development. The course is scheduled to be completed in late summer of 2000, according to Dave Richey, senior vice president of ClubCorp.

"The golf course itself provides enormous potential," Nicklaus added. "BirchRiver will be a core golf course, which is a bit of a rarity in today's modern design. The routing of the golf course will afford us the potential for numerous and unique hole strategies. Yet, when homes are built adjacent to the golf course, they should enjoy some spectacular views of the course and valley."

Pebble Beach sold

Continued from page 1

$501 million — a $340 million loss. Under the Lone Cypress Co., Taiebyo Club holds a 75-percent stake in the company and Sumitomo Credit Services holds the other 25 percent.

The property includes the Pebble Beach Golf Links, Spyglass Hill, Spanish Bay and Old Del Monte golf courses and two luxury hotels. Another 18-hole course is planned. The group has no plans to significantly alter the operations philosophy of Pebble Beach but is pushing forward plans to develop an additional 300 home sites on the property.

The sale is being financed by Bank of America and is expected to be finalized by July 31.

GOLF COURSE NEWS

Toro distributors are experienced renovation specialists. And with experience comes the knowledge that listening is the most important part of a system renovation. After all, you know your course better than anyone. Once you've shared your plans, goals and concerns, your Toro distributor will work closely with you during every step of the renovation process. Then, you can count on them to be there throughout the life of your irrigation system. The world's number one irrigation renovation experts are ready to listen when you're ready to talk.

Call your Toro distributor today.
Weiskopf's Cedar River GC opens in Michigan

Bellaire, Mich. — If Tom Weiskopf has his way, his new creation, Cedar River Golf Club at Shanty Creek, looks as though it were built "at the turn of the century, not at the end of it."

Weiskopf-the-designer turned into Weiskopf-the-player on June 11 when he played an inaugural round at the grand opening of Cedar River, which gives Shanty Creek 72 holes of golf. The new 18 joins The Legend, Schuss Mountain Golf Club and Summit Golf Club at the four-season golf and ski resort.

"This is traditional golf," Weiskopf said. "The bunkering here is traditional. The entries into the green are traditional and so is the presentation from the tee."

Weiskopf said the site offers the three key qualities he hopes to find on properties: changes in elevation, mature trees and water.

Maxwell adding to Brookhaven track

Brookhaven, Miss. — Maxwell Golf Group, Inc. has announced that construction is underway on its Golf Course Design division's expansion and renovation of Brookhaven Country Club, some 45 minutes south of Jackson. The plans call for 10 new holes to be built this summer on newly acquired property north of the existing course and the current nine holes to be converted into eight new holes and new house lots next summer.

"There are a lot of nine-hole country clubs in Mississippi that have been around for years," said MGG senior design associate Nathan Crace. "The recent growth in Brookhaven over the past few years forced the club to take a proactive approach in improving and expanding the facility before someone else built a new club and stole their members."

The new holes, being built as part of phase one this year, will route golfers back and forth between stands of towering pines and a large open field. According to Crace, this setting provides for some unique design elements.

"We were able to produce a 'linksy' feel with large mounds, strategic bunkering and native grasses in the open area, while providing for a more sheltered and isolated element through the wooded areas. It's been both challenging and rewarding to blend the two together without creating an element of separation within the course."

One unique characteristic of the layout when it is complete will be the combination of holes in the new course. "Landlocked to some extent by the configuration of the property, MGG opted to design a par-70 layout with four par-5s and six par-3s.

"Par-5s and par-3s are what make golf fun," Crace said, "and a strong par-70 with this combination of holes is more fun than a short par-72 with 10 par-4s."

Meanwhile, MGG has completed plans for the University of Mississippi regarding a renovation project at Ole Miss Golf Club in Oxford. Construction was expected to begin in June, with the renovations completed by the fall.

"The course is a fun layout," said MGG President Frank M. "Max" Maxwell Jr. "And, as a result, they have experienced a significant increase in play like other public courses in Mississippi. But the course doesn't have the needed tee space to accommodate the annual rounds played." According to Maxwell, the average size of the tee complexes throughout the course will be at least doubled, with special attention being given to the par-3s.

Maxwell's staff will consider the upcoming changes to the course as a result of a proposed expansion at the Oxford Airport adjacent to the golf course.

"A number of holes may have to be readjusted in a few years due to the expansion," Maxwell said. "So we are planning those changes into the new tee complexes now to keep from having to rework them in the future."
Private club launched in Mich. resort area

BY PETER BLAIS

OSCHMON, Mich. — Developers of a private country club community centered around a Tom Weiskopf-designed 18-hole course opening this summer are hoping to attract Detroit-area executives and professionals interested in purchasing second homes at the gateway to Northern Michigan’s recreational playground.

Tom Barrett, Jerry Petersen and Payne Palmer have developed second-home, master-planned communities in Scottsdale, Ariz. (Desert Highlands and Troon Golf & Country Club), Payson, Ariz. (Chaparral Pines and The Rim), Seattle (McCormick Woods) and Scotland (Loch Lomond).

Forest Dunes represents their first effort in a Snow Belt area.

“You really have to think about developing amenities like ice skating, and being able to change over the pro shop to cross-country skiing and snowshoeing,” Barrett said of the new venue. “We'll have buses bringing kids skiing at Boyne Mountain on Saturdays and Sundays. We need to promote other forms of recreation at a four-season resort.

“Golf runs from May through mid-October. We're so far north and west in the time zone that most of the summer you can tee off at 5:30 p.m. and still get in 18 holes.”

The lot sale program, which is similar to ones the developers have used else-

Continued on page 28

Kemper Sports to operate California’s Black Gold course

NORTHFIELD, Ill. — Kemper Sports Management has signed a long-term agreement with the city of Yorba Linda, Calif., to manage Black Gold Golf Club, an 18-hole daily-fee course scheduled to open in November 2000. Kemper will act as development consultant during the construction phase and assume management upon opening.

Located 10 miles northwest of Dis-

eyneland in Orange County, Black Gold Golf Club will feature a lighted driving range, putting green and 12,000-
square-foot clubhouse.

Architect Arthur Hills designed Black Gold on 225 acres of a former oil field that has been in production for Shell Oil Company since the 1930s. Hills paid special attention to the environment in his design as has planned to restore and inte-

Continued on page 29

Arizona management company poised for changes

BY PETER BLAIS

SCOTTSDALE, Ariz. — A new name and a new mission.

The Masters Group, a Scottsdale-based course management firm, has changed its name to MorningStar Golf International. MorningStar currently operates Great Eagle Golf Club in Surprise and Prescott Golf & Country Club in Prescott.

The company hopes to add five courses to its portfolio in the next 12 months, according to Vice President Robert Berkman.

“We're positioning the company to expand, and acquire new properties, and we're in the process of doing an equity raise,” said MGI President Doug Remy, who predicted rapid and strong growth for the 5-year-old firm.

The new equity will allow MorningStar to focus its expansion efforts on underperforming, mid-tier courses, ie green fees between $25 to $60.

“We want to provide good, consistent service at the mid-tier,” Berkman said. “Figuring out how to do it with the right economics is where we think there is some opportunity. You need to buy the courses at the right price with the right demographics around it. The service component, if done correctly, can really change and maximize the economics of the golf course.”

In addition to Great Eagle and Prescott, MGI also managed the Mountain View Golf Club for Arthur Anderson & Co. as court-appointed trustee, and provided consulting services for the San Marcos Golf & Country Club.

Continued on page 29

Kemper Sports to operate California’s Black Gold course
scheduled to open late this summer. Tom Fazio is the likely architect for the second 18-hole course, which could...

Continued on next page

GOLF COURSE NEWS

Forest Dunes
Continued from page 27

where, began in mid-May. For an up-front $60,000, founding members receive a 50-year family course membership and have their money returned within three years. They also receive a 25- to 50-percent discount on building lots. Forest Dunes has 50 founding members, most of whom are

being converted to property owners, Barrett said. Among the founding members are several high-profile automotive company executives.

"We want to make them a good deal because these are the type of people who will bring their best friends and golfing buddies up here," Barrett said. "Those are our future sales... What we find is

that we can usually count on each of our founders for at least one referral sale that first year."

The developers were able to purchase 1,190 of the project's 1,280 acres from a single owner. The property is surrounded by state and national forest located between Grayling and Roscommon, eight miles off Interstate 75 and about 2 1/2 hours north of Detroit, placing it closer to Michigan's largest city than most Northern Michigan resorts.

"We try to keep the drive time to two hours from a major metropolitan area on this type of project," Barrett said. "Statistically, the closer you come to two hours the more actively the community is used."

Weiskopf designed the first course, a 7,015-yard layout

scheduled to open late this summer. Tom Fazio is the likely architect for the second 18-hole course, which could begin construction as early as 2002.

"The unique thing about our property is that there are a lot of sand dunes," Barrett said. "This is all cleared and made into an apple orchard around the turn of the century and a lot of grasses appeared. The soil is so sandy that the wind, over time, has created these dunes. On the Weiskopf course, water comes into play on four holes, Nos. 9 and 10 are heavily wooded, and the rest play through the dunes. It makes for a unique experience."

In addition to their past dealings with Weiskopf, Barrett said they chose the former PGA Tour star to design the first course because of the amount of time he devotes to his projects.

"He was on site a day or two every two weeks last summer," Barrett remembered. "He does four to seven courses a year and spends a lot of time with the contractors and shapers. We just feel like we really get our money's worth with him... This will be a very traditional course with no more than 30 feet of elevation change on any one hole, making it very easy to walk. We're also planning a caddie program."

For much of this decade, Michigan has led or been near the top among U.S. states in new course openings, leading many to fear an over-saturation of courses in that market.

"It would [bother us] if we were a resort or a daily fee course," Barrett said. "We've set ourselves apart since we are totally private. The nice thing is that there are eight to 10 courses within a 45-minute drive, which allows our members to play not only our course, but a lot of others as well. Many of our early founding members have two or three other memberships at courses in Detroit, Florida or Arizona.

"We're marketing to two groups. The first is the Baby Boomers with two people working, kids in school, who are family recreation-oriented. We're also getting people who are planning to retire in a few years, plan to sell the Detroit house, and spend their summers here and winters in Arizona or Florida."

The developers began aggressively working on the project in the fall of 1996. They received their permits and entitlements surprisingly quickly, Barrett said, because there were no wetland/wildlife issues to contend with and the relatively poor tax base in

Continued on next page

Golf Course News
CALIF. FIRM BROKERS SEVERAL DEALS
SAN DIEGO — The Golf & Resort Properties Group division of CB Richard Ellis recently brokered several transactions totaling more than $30 million. The division, headed by Jeffrey Woolson, represented State Street Bank & Trust Co. of California in selling Sycamore Canyon Golf Course in Arvin for $1.6 million to Golf Course Management Representing U.S. Golf Inc. (ClubCorp), Woolson also brokered the sale of six municipal courses and one sports center in Philadelphia to Meadowbrook Golf. Woolson also arranged the sale of The International Golf Club in Boston for $25 million and land at PGA West in La Quinta, Calif.

MorningStar

Continued from previous page
According to Golf Course News figures, there are at least 71 Arizona courses operated by management companies and other multi-course operators. "There are still courses to be acquired," Berkman said. "There is a lot of competition, but this is still a great market."
Berkman described Great Eagle and Prescott as "fixer-uppers" when the firm bought them five years ago. "If you have a good business sense, you can turn projects like that around and get a cash flow to cover operational expenses," he said. "They really were neglected assets without short- or long-term capital plans in place. We've done all that and been able to turn around the economics of those two assets."
MorningStar is looking beyond Phoenix at expansion plans that include acquisitions, leases and third-party management contracts.
"We're going to be a lot more opportunistic and less strategic with where we are going initially," Berkman said. "We're looking at deals across the country and even outside the country... We're putting together an equity raise, sort of a real-estate fund. The success of that will help."
"As you look at historical perspectives, we're due for a bit of a real-estate downturn and we want to be in a position to capitalize on that."
Two of MorningStar's principals, Remy (Wyndham Hotels & Resorts) and Berkman (Marriott and Carefree Resorts) come from hospitality backgrounds.
"Much of the golf business is 40 years behind the hospitality industry in terms of customer service," Berkman said.
The other two principals are

Forest Dunes
Continued from previous page
Crawford County made the project attractive to county residents and officials. The developers also affiliated themselves with Audubon International. Audubon has made several presentations on Forest Dunes' behalf.
The only environmental red flag was the development's location, a quarter mile from the south branch of the Au Sable River, home to some of the best trout fishing in the country. Trout Unlimited and The Sierra Club had some concerns about what effect a 1,000-home community with two golf courses might have on the aquifer, Barrett said.
Extensive hydrology studies helped ease those fears. Lakes are manmade and filled with well water.

'Tis The Seasons For BlueChip.

BlueChip isn't just the perfect bluegrass variety for spring, summer or fall. It's ideal for every season. Expect to see BlueChip as one of the first signs of spring and last colors of fall. But no matter what the season, you will spend less time, labor and money on BlueChip because of its excellent performance under low maintenance. A Five Steps Above™ variety, BlueChip 'tis a proven performer year round.
J. Christopher Kerckhoff.

StoneBridge is 90-percent complete and will open as a semi-private layout that will become a complete and will open as a semi-private when it reaches 400 members. Located within a residential development in the north-east portion of Bossier City/Shreveport, the course will help fill a shortage of private courses in an underserved market that has economically benefited from the infusion of casino money in recent years, Kerckhoff said. Shreveport Country Club and Southern Trace are the two main existing private clubs serving that market, Kerckhoff said. Garden Valley is a 36-hole, 580-acre complex. The John Sanford-designed Dogwood Course that opened in 1992 is rated among the top courses in East Texas. The acquisition was expected to close in mid-to-late June.

In addition to StoneBridge, Garden Valley and Aberdeen, the firm operates Briarwood Golf Club in Tyler; Crystal Highlands Golf Club in Festus/Crystal City, Mo.; Golf Club of Incline Village in Foristell, Mo.; Insbruck Resort & Golf Club in Helen, Ga.; Golf Club of Macon (Ga.); and The Country Club at the Legends in Eureka, Mo. The five courses Sports & Fitness expects to add this year put it ahead of its acquisition goal of two properties per year. The firm plans to grow through new developments and acquisitions in both current and new markets. New construction projects would preferably include contributions of permitted land, utilities and a portion of the course construction costs from the developer. Acquisitions would be existing facilities where improved marketing and management could lead to larger revenues.

"It's a little easier to acquire courses now because some of the big boys have gotten their toes stubbed," Kerckhoff said. "The Wall Street money firms and Meditrusts overpaid for properties a year and a half ago. Now golf properties are a little more reasonable again."

As for the availability of existing courses, even with the growing number of management firms looking to snap them up, Kerckhoff said: "There are courses available now and there will be more in the future. A lot of courses have gone under construction in the past few years that aren't being built by golf experts, but by golf devotees. We have several groups here in St. Louis who built courses because they thought it would be a good business venture, a fun thing to do, and not that difficult. In most cases, they found at least two of those three things weren't true... Those types of courses tend to turn over in two to four years."

Mark Beckham, J.L. Stevens and William Bates formed Sports Fitness & Management in 1984 to operate recreation properties, specializing in racquet sports, fitness and golf. The company purchased its first fitness club in 1987 and owns nine such facilities today. It acquired its first golf facility, The Golf Club of Incline Village, in 1992. Its assets are valued at roughly $30 million, more than half of which is golf, Kerckhoff said.

"We do have a number of investors and are interested in establishing a pathway to liquidity for them over the next five years," Kerckhoff said. "Two years ago we said if we were at $50 million to $60 million in assets, we'd be an attractive acquisition for a much larger group or a potential public offering. Now the number is moving closer to $75 million to $100 million. We'll just keep going, build a good golf company and see what happens."

In addition to Beckham (president), Bates (secretary/director) and Kerckhoff (vice president), the staff includes a number of financial, management and legal experts.

"Our origins are in turnarounds in the recreation industry and now in the golf business," Kerckhoff said. "We've been very creative in putting deals together, whether it's the acquisition of an existing property or developing a new course. We have a number of certified public accountants on staff, so we're good at putting creative financial deals together that come out as a win-win for everybody."
Toro acquires Multi-Core Aerators

ST. NEOTS, England — The Toro Co. has significantly supplemented its line of aerators with the acquisition of UK-based Multi-Core Aerators Ltd.

The Multi Core aerator range consists of three large units designed for use with compact tractors and to be operated on fine turf areas such as tees, greens and fairways. Units come in working widths of 101, 152 and 203 cm.

"These are proven products with a high reputation and we are delighted to have them join our stable," said Pete Mansfield, Toro general manager in the UK. "They shall continue to be made in Britain, and with immediate effect all sales, spares, repairs and service are now through our Lely operation."

This acquisition represents an almost mirror image of the SISIS purchase of Huxley Grass Machinery — Toro the grass cutting machinery specialists buying an aerator company versus SISIS the 'erator specialists' buying a grass cutting machinery specialist.

The economic principle of diversification of portfolio in order to expand has not been lost on the major players in the golf course industry and could well represent a significant step in the furtherance of 'single supplier' deals.

The latest such exclusive partnership deal for Toro has been signed with Sunningdale Golf Club, Berkshire. The famous heathland venue has entered into the five year partnership with ultimate investment being valued at approximately £0.25 million.

A MultiCore Aerator unit on the move. Toro recently acquired the UK-based company.
Smithco introduces new Mow-n-Go
A new model of its Double Mow-n-Go PGM Trailer has been introduced by Smithco. It carries two mowers, loaded front-to-rear, and is customized to carry all major brands — Jacobsen, John Deere, Toro and Ransomes.

The Double Mow-n-Go uses an automatic, lock-down, latching-bar system, which holds the mowers firmly in wheel-wells during transport, protecting against any damage to bed-knives, reels and rollers, and from changes in their adjustments. A hand lever lowers the trailer bed for easy roll-on, roll-off loading and unloading, eliminating heavy lifting.

For more information, contact Don Smith, 610-688-4009.

CIRCLE #202

Kubota launches new compact tractor
Don't let the compact size fool you. Kubota's diesel-powered compact tractor, the B2710HSD, is the perfect choice for jobs around the golf course.

Kubota's E-TVCS (three vortex combustion system) diesel engine, which is rated at 27 hp, powers the new B2710. This unique engine offers a total balance of power, low noise and vibration as well as cleaner emissions to meet the ever-changing environmental regulations.

The B2710 is equipped with an easy to operate hydrostatic transmission with 3-speed range that allows infinite speeds between forward and reverse direction. For information, contact 888-4KUBOTA, ext. 900.

CIRCLE #203

Terracare introduces Terratopper T
Terracare Products Co., Inc. has introduced the new Terratopper T-1000 topdresser.

The new T-1000 has a wider hopper for ease of loading with no spill over. The unit also features a new forged draw bar, forward-mounted slide gate controls for operator convenience, and a 9-hp Vanguard engine. The new T-1000 is less than 8 feet from hitch to pin to spinner blades, allowing high maneuverability on most any terrain. For more information, contact 608-429-3402.

CIRCLE #204

Conserve is derived from a naturally occurring organism, it also helps control your worries about chemical applications and the environment. Learn more about Conserve.

It's Changing the Nature of Insect Control. Call 1-800-255-3726. Conserve. The end of the line for insect pests.

Always read and follow label directions. *TM Trademark of Dow AgroSciences LLC

CIRCLE #127
**Ultradwarfs**  
Continued from page 19

"This is a red flag. Bermuda is not Bermuda anymore. We are going to have to start doing things differently than we used to," he said. Guertal and Unruh are starting tests on cold tolerance and how to deal with established thatch.

Unruh has a 14,000-sq.-ft. green of TifEagle at his research facility that has about 2-1/2 to 3 inches of thatch and he plans to start a thatch remediation study in the coming months. "Everybody is going to plant these ultradwarfs and they will thatch, so we have to look at how you get rid of it," said Unruh. However, the advantages of ultradwarfs may outweigh the added maintenance headaches, according to Ihms and Sandburg. Sandburg is working with Tifdwarf greens and intends to convert to an ultradwarf within the next three to five years. "We are going to wait until years three, four and five to decide which ultradwarf to go with," he said. "So far there is not a favorite, but all the members agree that they are more acceptable than the Tifdwarf surfaces."

Ihms, who is working with bent greens, is also studying at the ultradwarfs. "When bent is good, nothing can beat it," said Ihms. "The question is, how often is that? Look at what you have to do to get there, running fans, etc. How much sense does that make, especially when these ultradwarfs are peaking while bent is down?"

---

**Bermudagrass**  
Continued from page 17

"Off-types of hybrid Bermudagrass putting green varieties are a persistent problem in Southeastern golf courses," Goatley said. "They disrupt green uniformity and interfere with ball roll. Their effects sometimes necessitate green replacement."

His goal is to learn if their formation has a genetic and/or cytological basis.

- At North Carolina State University, Dr. Rongda Qu is in the second year of a $125,000 five-year project to obtain transgenic plants of hybrid Bermudagrass that express nematode-resistant genes.
- At Oklahoma State University, Dr. Charles M. Taliaferro is in the midst of a $125,000 five-year study that will assess the cold-hardiness of advanced breeding lines of Bermudagrass, and isolate and characterize cold-regulated genes responsible for conferring freeze tolerance.
- Taliaferro reported substantial progress toward isolating and characterizing cold-regulated genes from Midiron Bermudagrass.

In 1998 Taliaferro began a $124,978 five-year project of breeding and evaluating Bermudagrass varieties.

---

**TurfStone™ Tee Signs**

Our TurfStone™ Tee Signs are taken for granite all the time.

Turfstone gives you the look of granite you've always wanted, but at a fraction of the cost. Laser-engraved graphics in up to 10 colors stand out on a composite material that's virtually indestructible. Looking for signs of distinction for your course? Ask for Standard Golf.

Talk to your Standard Golf distributor today. Or call 1-319-266-2638 for more information.

Cedar Falls, Iowa USA  www.standardgolf.com

---

**Turfstone Tee Signs**

Turfstone Tee Signs can be mounted on three different post sizes ranging from 16'' to 36'', so whether it's high on the tee or low near the cart path, or as a complete console with ball washer and litter caddie, you'll have the elegant look of granite at a fraction of the cost.

CIRCLE #134
Levans' farewell

Continued from page 8

reached the 1st green. It was late in the day, the last group was long gone, teeing off on 6 at this point. But there, standing alone leaning against a lean Carolina pine, was Dr. Joe Duich, turfgrass consultant for Tee-2-Green Corp. and the "grandfather" of the G-2 bentgrass used at Pinehurst No. 2.

I sidled up. "I think they're done for the day, Joe."

"Oh no," he said. "I'm waiting for Paul Jett's crew to come down to cut to the cups for the first round. You see, this is when the real action starts."

It's been a blast leading the GCN editorial charge over the past two years. I just want to take this final opportunity to thank Mark Leslie and Pete Blais for their assistance as I got my feet firmly under me.

I don't think there are two other people who know this industry and its players as well as they do. Golf Course News has been, and will remain, in good hands.

Williams commentary

Continued from page 9

...and abilities of superintendents;
- the advent of prescription soil profiles resulting from USGA and university research on greens construction;
- the cooperative efforts by manufacturers to produce and improve chemicals, machinery and processes; and
- perhaps, most importantly, the university researchers who have bred various grasses adaptable for situations in most any part of the country. Joe Duich of Penn State, Glen Barton of the University of Georgia and Terry Riordan of the University of Nebraska come quickly to mind, along with many others. These men are the real catalysts for better turf for better golf.

Computers have become all-important in course maintenance. The Golf Course Superintendents Association of America tells us 90 percent of superintendents are now computer literate. With the sophistication of computer-operated irrigation systems and the ability to be in direct contact with research bases at universities, it is a prerequisite to know where to find information when needed.

The constant competition between clubs to keep pace with one another has been another major incentive for change. As the number of clubs has grown, so has the competition.

Accompanying this has been a rise in expenses and revenues. Construction costs have increased dramatically in the past century. A typical 18-hole course that cost $50,000 to build in the early 1900s, costs several million dollars today.

Annual maintenance costs have skyrocketed from less than $25,000 pre-World War II to $1 million and more today.

By the same token, average green fees have leapt from less than $5 in the 1930s to more than $50 at just about any daily-fee course today. Golf cars, which didn't exist until the 1950s, add another $15 to $25 per person per round.

Wages have held steady at about 70 percent of the course maintenance budget. But the course worker who earned 25 to 50 cents per hour during the Depression makes $5 to $12 hourly today, not including health insurance and retirement benefits.

Superintendents have seen their annual salaries rise from $2,400 to $3,600 yearly to anywhere from $50,000 to $200,000. Superintendents have done their homework and are receiving their just rewards for the value and impact they have on their facilities.

Professional Research Leads To Professional Results

In 1988, our current Pennington/Seeds West team released our innovative new turf-type Bermuda named NuMex Sabara, followed soon after by another turf-type innovation in Bermuda grass – Yama. Now, our research is once again leading the way in providing professional results that are unmatched in the industry. At Pennington/Seeds West, we brought together the most improved turf-type bermudagrass varieties available to create a turf with a different dimension – Bermuda Triangle.

Our top performing turf type varieties have teamed up to make the new Certified Bermuda Triangle blend, superior to all others. Certified Mohawk provides cold tolerance, Sultan has excellent drought tolerance, and Sydney provides improved turf density. All of these varieties combine to make a blend with dark green color, finer leaf texture, and short internodes to provide characteristics desired by today's professional turfgrass managers. This new certified blend is ideal for golf courses, sports turf, parks, schools, commercial landscaping and premium home lawns. And, like all our grass seeds, Bermuda Triangle is only available with our exclusive PENKOTED® protective coating. For turf that stands up to the demands of today's professionals, contact Pennington/Seeds West turf specialists for the proprietary Bermuda that best fit your applications.

Pennington Seed & Seeds West. Quality You Can Trust.
HELP WANTED

SHAPERS WANTED
The Roger Rulewich Group and The Golf Group are seeking skilled shapers for golf course construction in the western USA. Immediate contact Irrigation Systems 800-491-0344 or through our Web site www.irrigationsystem.com

Newgent Golf Inc.
National golf construction firm is seeking qualified shapers, supervisors, foremen, lead men, experienced golf course estimator, irrigation superintendents and installers. Send resumes to: Newgent Golf Inc. Attn: Jack A. Ostrander V.P. Marketing/Sales Fax: 407-846-3069 EOE M/F/D/V

HELP WANTED
JOB SUPERINTENDENTS FOR GOLF COURSE CONSTRUCTION COMPANY FAX RESUMES TO 912-382-9676

LAKE CITY COMMUNITY COLLEGE HUMAN RESOURCES DEPARTMENT RT. 19, BOX 1030 LAKE CITY, FL 32055-8703

INSTRUCTOR
TURF EQUIPMENT MANAGEMENT AA/AS Degree plus three (3) years work experience in mechanics. Salary based on experience and education. Position will remain open until filled.

For more information call the job line at (904) 752-1822 or Human Resources Ext. 1314. E-MAIL: Boettcher@call.lakcity.cc.fl.us. Check us out on the Web at: www.lakcity.cc.fl.us.

VP/ADE/OA COLLEGE IN EDUCATION AND EMPLOYMENT

WEST COAST GOLF CONSTRUCTION looking for golf shape and finish operators to join its team of talented professionals on projects throughout the United States. We offer top compensation packages to those candidates with the qualifications, dedication and desire to develop a career instead of a job. Mail or fax resume and cover letter to: Newgent Golf Inc. Attn: Jack A. Ostrander V.P. Marketing/Sales Fax: 407-846-3069 EOE M/F/D/V

WANTED
SEMA Golf LLC, based in Scottsdale, Arizona, is currently seeking experienced and qualified project superintendents, irrigation supervisors, shapers, and finish operators to join its team of talented professionals on projects throughout the United States. We offer top compensation packages to those candidates with the qualifications, dedication and desire to develop a career instead of a job. Mail or fax resume and cover letter to: SEMA Golf LLC Robert Trueblood, President 7580 East Gray Rd., Suite 102 Scottsdale, AZ 85260 (602) 951-4086 office (602) 951-4081 fax

Specialized Shaping
The Shaping Specialists for over 25 years. Highly creative experience personnel motivated to make your project succeed. All operators are rated A status shapers. For a green remodel or 18 hole new construction, Specialized Shaping has the personnel to achieve outstanding results within budget. For more information and availability, contact Art Strain, owner/operator 530-521-0829.

SERVICES

CENTRAL NEW YORK - 100 ACRES Nine hole public golf course located in Central New York. 100 acres of land with course on approximately 68 acres. Includes 2 bedroom apartment over clubhouse. $750,000 Firm or will consider lease. For more information, contact Mel 315-853-4661.

GOLF COURSE FOR SALE An Executive 9 hole course located in a lake region. One hour from Tampa and Orlando. Asking $650,000 – Please call 352-637-4689.

NORTHEASTERN CA GOLF COURSE Northwestern Calif. golf course - 9 holes with room to expand to 18 plus 50 to 70 housing units. Has clubhouse, pro shop, driving range, lounge & rest. facilities. On 158 acres, Contact Jimmy @ 707-464-9741 (agent) or custorlas@telis.com for package or mging@realestateall.com/golfcourse on the Web.

MARK ELIOT DESIGN LANDSCAPE & GOLF COURSE DESIGN

CLUB LANDSCAPING
Design New Construction Renovation

GOLF COURSE DESIGN
Master Planning Renovation Construction Management

MARK E. SOSNOWITZ, ASLA
MARK E. LIOT DESIGN PO BOX 11188 GREENWICH, CT 06831 203-972-9131 Fax: 203-972-9132

Golf Courses Consolidated, Inc.
"SHAPING the FUTURE"

ATTENTION ARTISTS

SHAPERS seeking opportunity to earn more money & recognition should contact us. Send your resume to discover your earning potential, you will be surprised at the difference. Earn what you deserve.

Eastern Regional office: (888) 849-7060 P.O. Box 14878, North Palm Beach, FL 33408

Western Regional office: (702) 269-1621, P.O. Box 530388, Henderson, Nevada 89053-0388.

"The SHAPING ONLY company"

GOLF COURSE NEWS

Golf Course Classifieds
To reserve space in this section, call Jean Andrews 207-925-1099.

MARK ELIOT DESIGN LANDSCAPE & GOLF COURSE DESIGN

CLUB LANDSCAPING
Design New Construction Renovation

GOLF COURSE DESIGN
Master Planning Renovation Construction Management

MARK E. SOSNOWITZ, ASLA
MARK E. ELIOT DESIGN PO BOX 11188 GREENWICH, CT 06831 203-972-9131 Fax: 203-972-9132

Full Coverage Irrigation
Custom Designed Retract Sprinkler Nozzles for Most Models of TORO, RAINBIRD and BUCKNER Sprinklers
- Eliminate Dry and Wet Areas Caused by Poor Water Distribution
- Save Water and Energy
- Save Labor by Reducing Hand Watering

SCI PO Box 732 Coarsegold, CA 93614 559-683-3072 www.fcnozzles.com

July 1999 35
**LIST RENTAL**

**GOLFCOURSE NEWS**

...offers you the opportunity to reach the decision makers at thousands of golf facilities with an exclusive mailing list. Call for details...

**207-925-1099**

---

**A Visible Marking System You Can Mow Right Over**

- Speeds up play—Reduces playing time up to 50 minutes per round
- Cost effective—Pays for itself in months—Lasts for years
- More enjoyment—No pacing and hunting for sprinkler heads
- Available in all colors
- Proven at thousands of courses around the world

**www.Kirbymarkers.com**

---

**LAMINATED WOOD BRIDGES**

**PEDESTRIAN & VEHICULAR**

Order Direct From The Leading Manufacturer in U.S.

- Complete Prefabricated Packages
- Ready for Fast Erection
- Direct Distribution Throughout the U.S.
- Custom Design & Engineering

**CALL 800-777-8648**

---

**HARCO DUCTILE IRON FITTINGS FOR GOLF COURSE IRRIGATION SYSTEMS**

Sizes 2" through 12", all configurations including "knock-on" repair couplings. High Strength, high corrosion resistance.

The Harrington Corporation

**P.O. Box 10336**

Lynchburg, Va 24506

804-945-7094 Fax 844-8662
The mesh automatically sifts and separates debris. Three different mesh sizes are quickly interchangeable to meet your needs.

**SandComb™**

**THE CATCH**
The mesh automatically sifts and separates debris. Three different mesh sizes are quickly interchangeable to meet your needs.

**TO ORDER CALL 1-800-253-2112**
FOR MORE INFORMATION OR TO RECEIVE A FREE CATALOG, CALL 734-429-6071 OR FAX 734-429-3985.

**CIRCLE #154**

**TRUE Aerators & Fountains**

- **NO Maintenance**
- **Up to 15 HP motors**
- **UL listed components**
- **28+ year history**
- **Request a catalog...**

**Aqua Control**
Attn: David Thrailkill
800-377-0019
www.aquaccontrolinc.com

**CIRCLE #138**

**EXCEL BRIDGE MANUFACTURING CO.**

Spearheading in golf course/ park/ bike trail bridges and using a variety of materials to suit your particular landscape needs, we fabricate easy-to-install, pre-engineered spans and deliver them anywhere in North America.

**CIRCLE #145**

**MAXON SP100**

4 CHANNELS, PL, SCAN

**$19975** VHF
**$20975** UHF

Call Nationwide Toll-Free
1-800-527-1670

**BEARCOM**

11545 Pagemill Rd., Dallas, TX 75243 • 214-340-8676 Fax: 214-349-8650

**CIRCLE #139**

**STEADFAST BRIDGES**

"DELIVERED ACROSS AMERICA"

PEDESTRIAN AND SINGLE LANE VEHICLE BRIDGES ENGINEERED AND FABRICATED TO YOUR SPECIFIC REQUIREMENTS. CLEAR SPANS TO 500 FEET AVAILABLE. AVAILABLE IN MOST OF OUR STYLES. FACTORY DIRECT.

1-800-749-7515
www.steadfastbridge.com

**CIRCLE #153**

**Champion Sod & Stolons**

**Now Available in the Western States**

Champion Dwarf Bermudagrass is heralded by players and pros alike for its speed and ball receptivity. Champion has exceptional tolerance of close mowing, does not thin-out to expose the ground even when mowed at 3/8" of an inch or less.

**CIRCLE #141**

**SUPERParts™**

Replacement Controller Parts
- Replacement triac and relay output boards.
- Direct replacement warranty service.
- The highest quality parts available. Exclusive Service Sockets™ for in-field servicing.
- Featuring epoxy sealed and oil lubricate switches.
- Upgraded non-OEM replacement parts for: Toro® NW8000, LTD, LTD Plus, OSMAC, and Rain Bird®-MSC, PAR.
- Contractor and distributor inquiries welcome.
- Don’t repair - trade-in your damaged OEM boards.

Irrigation Aftermarket Parts Corp.
12260 Shale Ridge Rd. #2, Auburn, CA 95602 Call: 800-294-1846

**CIRCLE #148**

**NATIONWIDE-IRRIGATION CONTROLLER REPAIR**

- Lightning and water damage specialists.
- One Price - normal reconditioning services.
- Fast turnaround, emergency or exchange services.
- Service contracts including the central computer.
- Repairing previously "totaled" equipment.
- Servicing: Toro® NW8000, LTD, OSMAC, V33, V34, V40; and Rain Bird®-MSC, PAR, ISC, SBM.
- Contractor and distributor inquiries welcome.

BoardTronics, Inc. (formerly ICS)
12260 Shale Ridge Rd. #2, Auburn, CA 95602
Telephone: 800-782-9938

**CIRCLE #140**

138 Aqua Control, Inc. 37
139 Bearcom 37
140 Ben Meadows Co. 13
141 Bird-X 36
142 BoardTronics 37
143 CAPS (Capital Agrl Prop. Serv.) 18
144 Champion Turf 37
145 CheTech Company 38
146 Continental Bridge 36
147 Dow AgroSciences 13
148 Dow AgroSciences 32
149 E-Z-Go 37
150 Eco Soil Systems 14
151 Enwood Structures 36
152 Excel Bridge Mfg 37
153 Enwood Structures 38
154 Flowtronex PSI 3
155 Fore Par 38
156 Fostermast Construction Co. 37
157 Golf World Exhibitions 20
158 Harrington/Harco Corporation 36
159 Irrigation Aftermarket Parts Corp. 37
160 Jackin Seed Co. 37
161 Jones Products/Pinhigh 36
162 John Deere 45
163 Kirby Markers 36
164 Kubota 15
165 Master of the Links 34
166 National Golf Foundation* 19
167 NOVARTIS* 67
168 Pennington Seed 34
169 PennState 38
170 Precision Small Engine 36
171 Precision Tool Products Co. 37
172 Quail Valley Farms 36
173 Redexim Charterhouse 19
174 Regal Chemical 28
175 Regal Chemical 28
176 Regal Chemical 30
177 Rohm LLC 24
178 Roots, Inc. 23
179 Ryan Inc. Central 37
180 SEISI* 19
181 Standard Golf 33
182 Steadfast Bridge Co. 37
183 Tee-2-Green 2
184 Tempest Controls 13
185 Textron TCASP 40
186 TifSport 18
187 Toro Comm'. Prod. Div. 10
188 Toro-Irrigation Div 25
189 Turf-Seed 12
190 United Horticultural Supply 9
191 United Horticultural Supply 8
192 United Horticultural Supply 8
193 Zeneca Professional Products 16
194 Zeneca Professional Products 21
*Appears in regional editions.
Of ants and flies — USGA biological research nets results

Continued from page 16

ant baits, "some of which already have revolutionized ant-control tactics used by the structural pest-control industry," Potter said. The active ingredients in the baits were either avermectin, hydramethylnon or spinosad, each having low mammalian toxicity and a different insect-specific mode of action. Field tests on golf tees, Potter reported, "showed that use of these baits will provide rapid, 80- to 95-percent elimination of Lasius mounds and nests."

In another study, fipronil — characterized by low mammalian toxicity and very low use rates — was found effective for season-long suppression of Lasius nests and mounds on putting greens.

"Field experiments," Potter said, "demonstrated that Lasius neoniger and other ant species are very important in suppressing other insect pests. In trial after trial on roughs, fairways, or putting greens, ants killed large numbers of eggs and young larvae of cutworms, and eggl of Japanese beetles. This underscores the wisdom of selective, rather than fence-to-fence, management of nuisance ants where mound-building becomes a problem."

Fortunately, Potter added, his work with halofenozide (Mach 2) and imidacloprid (Merit) has shown that these new insecticides are "compatible with the preservation of beneficial species, including ants."

PARASITIC FLY

The parasitic fly is another example of a natural enemy of golf course pests, namely the Scapteriscus mole cricket.

Dr. J. Howard Frank of the University of Florida is in the midst of a three-year study that has taken him to explore in Brazil and Paraguay to obtain stocks of the fly Orinia depleta and to culture them in a laboratory, he will be reporting to colleagues in other states for release.

The origins of this experiment began in 1987 when a stock of the fly was captured in subtropical Brazil and brought to Florida for culture in quarantine. About 10,000 of these flies were released in areas of Florida in 1988, and a population was established in peninsula Florida at 28 degrees North latitude.

Since subsequent release of these flies in Georgia, North Carolina and Alabama failed, entomologists hope that flies captured last November in extreme southern Brazil (at 30 degrees South latitude) will better adapt to withstand the colder winters of the United States. In a laboratory in Brazil, larvae of these Orinia depleta flies are being reared on Scapteriscus mole crickets and brought to the pupal stage, Frank said. Fly pupae were brought to quarantine in Florida in early summer to establish a laboratory culture.

This work is focusing on labor-intensive culture of several of the flies for distribution to other Southern States. Turggrass entomologists in Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Texas will release these flies upon delivery, Frank reported.

PESTICIDES AND GOLFERS

In a series of pesticide dislodgeability studies conducted to evaluate the risks associated with golfer exposure to pesticides, University of Florida master's degree student W. Raymond H. Snyder discovered results that should please the golf industry.

For example, exposure to chlorpyrifos on 18 greens one hour after application every day for a lifetime was calculated to provide a Hazard Quotient (HQ) of 0.31. HQs less than one indicate that the residues present are at concentrations below those that would cause effects in humans, while an HQ greater than one does not necessarily infer the residue levels will cause adverse effects, but that rather the absence of adverse effects is less certain. A similar calculation for exposure after irrigation was 0.02.

"Chlorpyrifos has a rather high Reference Dose (i.e., acceptable amount of exposure) that reduces the HQ value," wrote University of Florida Drs. George H. Snyder and John L. Cisar. "Calculations for the other pesticides, some of which have higher Reference Doses, will be reported next year." Those other pesticides are 2,4-D, dicamba, isazofos and fenamiphos, which were applied to Bermudagrass greens.

Want a utility vehicle that's easy going and light on it's feet? CheTech's Groundforce 100 utility vehicle combines a hefty 1200 lb. load capacity with the tenacity and reliability to handle the job at hand. It's smooth ride and ease of operation makes it accessible to even the newest member of your grounds maintenance crew. Visit your nearest CheTech dealer today to view our full line of utility vehicles.

CheTech

The CheTech Company
430 Phillips St.
Chetek, WI 54728-0738
(715) 924-3192

Do you have problems getting grass to grow in high traffic or hard pan areas? The AERA-vator is the solution. Vibrating tines loosen the soil with little surface disruption, so play can resume immediately with no cores.

For a no obligation demonstration or free video, call
800-363-8780
www.1stproducts.com / sales@1stproducts.com

To order the AERA-vator, please call
800-363-8780
www.1stproducts.com / sales@1stproducts.com

Visit our web site for more information: www.ybc.com

PESTICIDES AND GOLFERS

A Path Well Chosen

Want a utility vehicle that's easy going and light on it's feet? CheTech's Groundforce 100 utility vehicle combines a hefty 1200 lb. load capacity with the tenacity and reliability to handle the job at hand. It's smooth ride and ease of operation makes it accessible to even the newest member of your grounds maintenance crew. Visit your nearest CheTech dealer today to view our full line of utility vehicles.
STAY ON COURSE...
WITH GOLF COURSE NEWS ONLINE

www.golfcoursenews.com
He has a reputation for speed and control, too.

When it comes to corner-hugging performance, few can beat Bobby Rahal. But when it comes to turf-hugging performance, the clear-cut winner is Ransomes®. Ransomes fairway mowers have the features you need to mow down the fairways in complete control. An exclusive on-the-fly adjustment system lets you increase head pressure for faster runs on flat fairways and decrease pressure for slower, undulating terrain. Hand microadjusters eliminate tools and make quick work out of reel-to-bedknife adjustments. For the perfect finish on all your fairways, pick a winner. Call 1-888-922-TURF or visit our web site at www.ttcsp.textron.com for more information and the dealer nearest you.