

bacteria and one fungus — with a \$16,980 grant from the Florida Turfgrass Association. “Florida has a higher rate of infection than any place I’m aware of, except maybe Hilton Head and New Jersey, because of the sandy soils. We have a thousand golf courses and 90 percent are using nematicides on golf greens to control nematodes.”

Nematodes are sneaky little buggers which build up in January and February, destroying grass roots, and you may not see the results until May, Dickson said.

“Nemacur is all the golf courses have to control the nematodes with, and Dr. Ou, an IFAS soil scientist, has found microbes biodegrading



Don Dickson

Nemacur,” Dickson said. The biodegrading microbes build up, giving each application a shorter life span. Nemacur can be used legally twice a year; it’s expensive and there’s no possibility to rotate because there’s no other chemical out there.

“Factors that make good nematicides make chemicals environmental problems. DBCP was suspended in ’77 and we’re still picking it up out of the water; we’re still finding EDB, banned in ’83-84.”

Dickson said that the FTGA-sponsored research into biological controls for pest nematodes is going well.

“In year one, we identified *Pasturia penetrans* bacteria specific to the lance nematode and to the sting nematode, the two major nematode parasites on turfgrass in the state of Florida. Now we are trying to ascertain if they will cross control.”

Using naturally infected nematodes in their lab studies, the team follows population dynamics of the nematodes, taking samples every month. Other experiments track the bacteria and fungus which attack the nematodes. Also under evaluation: whether Temik or Nemacur cause nematodes to be more susceptible to the biologi-

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cal control. Some past data seem to indicate that carbamate nematicides like Temik may do that.

The experiments are tough because it's not easy to grow the organisms in the lab. Some requirements are very particular, like maintaining 25 to 27 degrees Celsius.

Biocontrol harmless to good nematode

Grover Smart, the IFAS nematologist working on the mole cricket biocontrol project, says the biocontrol for sting and lance nematodes will not hurt the nematode which wears a white hat in the mole cricket wars.

"There would be some real advan-

tages in doing the two of them together," said Smart. "For the most part, in controlling plant parasitic nematodes, we have used chemicals. At the rate the chemicals are put out, however, they will also will kill nematodes put out to control mole crickets."

Smart said FTGA cooperators in the mole cricket project are limiting their nematode sprays to greens. "The hope is that there will be enough infected mole crickets in untreated areas to keep the nematode populations surviving. Where we have put the nematode, in most cases, is in roughs where they would not be treated with the chemical nematicide."

Lakes doing well near golf courses

Numbers are being crunched this very minute for a final report on the \$5,000 FTGA-sponsored research by Dan Canfield in the IFAS Fisheries and Aquaculture Department in Gainesville. The report is slated for fall publication.

The study of the fish population in Gate and Mountain lakes sampled fish with column nets, gill nets, shock and other methods. A smaller number of the fish were brought back to the lab to be weighed and measured.

Biologist Mark Hoyer said, "We pulled the inner ear bone (it's called

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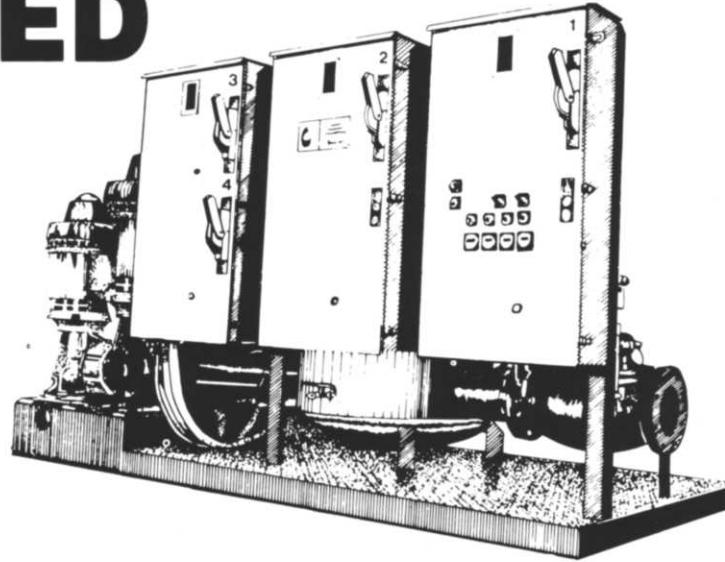
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the otolith) to see how old the fish are and how fast they have grown." The bones have growth rings like a tree.

Hoyer commented that at least three or four largemouth bass were found weighing over 10 pounds. The largest was from Mountain Lake and weighed 13.1 pounds. Mountain, with 136 acres, had 17 species of fish; Gate, 17 acres, had 12 species, including a walking catfish.

Neither lake had a nutrient overload, he said.

Area residents feared intensively managing the lakes for tourist enjoyment could lead to eutrophication, but both lakes appear generally healthy from preliminary results, Hoyer said.

*Where the REAL money is...
The USGA recently announced a \$3 million commitment for turf research.
Below are the budgets of 10 major environmental advocacy groups.
If those groups spent as much of their \$253 million on environmental research as they do on legal fees...*

Environmental Advocacy Groups

Organization	Membership	Latest Budget
Nature Conservancy	436,407	\$88,021,000
National Wildlife Federation	5,800,000	69,017,000
National Audubon Society	550,000	32,573,730
Sierra Club	426,000	28,059,498
Nature Resources Defense Council	95,000	11,760,242
Wilderness Society	250,000	10,932,448
Environmental Defense Fund	100,000	8,530,454
Envir. Policy Institute/Friends of the Earth	42,000	2,500,000
Izaak Walton League	50,000	1,544,908
Environmental Action	20,000	958,028
Total	7,769,407	\$253,897,308

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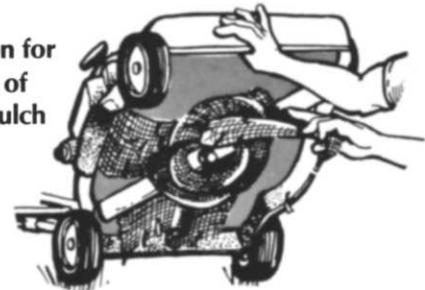
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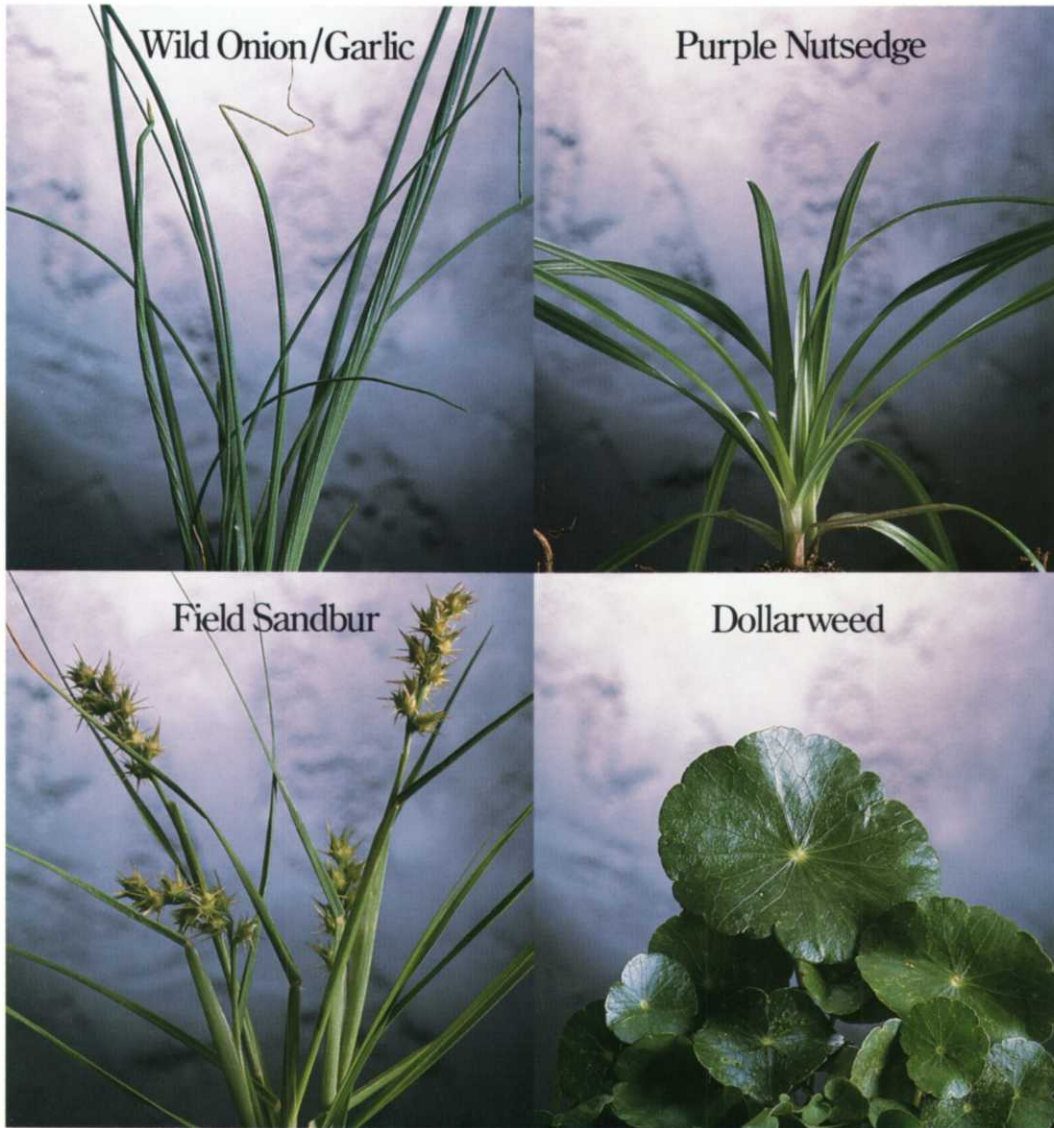
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Golf's Own Imagineer

Walt Disney would have loved Tom Mascaro who combines engineering skill with imagination

BY KIT BRADSHAW

"My objective through all my years of business was to develop equipment that had never been made before. And now John is continuing on with the same thing."

Sounds a little like Tom Mascaro, 74, is getting ready to pass the torch to his son, John, 24. But don't bet the store yet. As Tom says, "I've tried to retire three times before and always came back."

There's a difference this time.

The last time Tom had what might be called a brief lull in his active career was in the early 1970s. Young John was only turfgrass high at the time.

Today John has his associate degree in business management from Tallahassee Community College. He has taken additional courses in turfgrass management and has learned the business by working with his father.



Tom Mascaro
Age: 74

Experience: West Point Products Corp., Pennsylvania, president; Turf Grass Products, North Miami, Fla., president; Turf-Tec International, director.
Professional: Consultant, lecturer, writer on all subjects relating to turfgrass. Adjunct professor, Florida International University, Miami; Biscayne College (now St. Thomas University), Miami.
Awards: USGA Green Section Award, 1971; GCSAA Distinguished Service Award, 1976. Many state and regional awards.
Personal: Wife, Dorothy; daughters Tammy 27 and Linda 26; son John 24.



John Mascaro
Age: 24

Experience:

*Turf-Tec International,
North Miami, Fla., CEO;
Turf Grass Products,
North Miami, Fla., vice
president.*

Education:

*Associate of Arts,
business management,
Tallahassee Community
College.*

Professional:

*Sports Turf Managers
Association, Florida
Chapter 1, secretary;
GCSAA, South Florida
GCSA; Florida Turfgrass
Association.*

Personal: *Wife, Jenni.*

John has become Tom's right-hand man in their company, Turf-Tec International, with headquarters in North Miami. And he and Tom have dovetailed their efforts to expand their line of golf course equipment into diagnostic tools to help golf course superintendents gather data about their turfgrass and greens in order to better maintain their courses.

If there is a transition in the offing, then it is moving steadily and very smoothly.

Walt Disney would have loved Tom Mascaro. Years ago, Disney coined a word to describe a person who combines imagination and engineering ability:

Imagineer.

Although Disney and Mascaro never met, the word describes Tom perfectly.

And what has this Imagineer developed in his nearly half century of creativity? The aerifier, the verticutter, the Verti-Groove and the soil profile sampler, just to name a few.

Mascaro says he has had the brainstorm for the creation of all these mechanical devices from other people's suggestions, helping to solve problems that needed new, innovative solutions.

Take the aerifier, for instance.

"My brother, Anthony, and I had developed a mechanical leaf-gathering machine in 1946 and we went to Washington to discuss its application with Dr. Fred Grau, director of the USGA Green Section and a pioneer in turfgrass," Mascaro recalls. "He thought the machine was a good idea, but he said that if we could make a machine that cultivated bluegrass fairways, we could make a million dollars. The problem with bluegrass fairways was compaction.

"So we came back home and worked until we invented the aerifier, the first practical tool that cultivated the turf without disturbing the turf. It was basically a modified plow. It removed cores of soil and redistributed them."

Did they make a million dollars?

"Well, let's just say that because of the aerifier, we were jet-propelled into the national picture overnight. We had developed a machine that was just what the superintendents were looking for and the word spread rapidly.

"For a time, we had mailbags with checks in them that we couldn't open for a month because there was so much mail.

"A million? Well, it did pretty well."

Things started getting pretty hectic for Mascaro once the aerifier hit the national scene.

Grau and L.J. Noer, the city of Milwaukee's world-famous agronomist, made arrangements for Mascaro to speak at turfgrass seminars throughout the country. For years, he attended about 25 such meetings annually.

He not only talked; he listened.

He took prodigious notes at the conferences, learning from turfgrass experts. For 40

years, he carried a notebook with him, recording the problems, the needs and the suggestions he heard from golf course superintendents he met on his travels. The notes were translated into designs and into machines to help superintendents do their jobs better.

For instance, when Mascaro found out that some superintendents were using the aerifier on greens in addition to fairways, he invented a smaller version for greens and "it took off like wildfire," he recalls.

"Now, when you invent one thing, everyone thinks you can invent anything. And we had all kinds of suggestions about what was needed. Like the verticutter.

"The verticutter. Now that's an in-

vented word as well as a machine. It was a vertical mower... a true mower that cut the green vertically. You see, a greensmower is horizontal. It only

"We'd verticut half the green, sweep it up and then invite the pro which side he wanted to putt from. He picked the verticut side every time."

cuts the blade that's up. But all grass blades don't stand up. Some of them are down at the base, and they never get cut.

"They just lie there, and they accumulate as part of the thatch. The verticutter was designed to remove

thatch before it started by cutting those blades, runners and so forth, before they could form thatch."

Mascaro developed a unique sales presentation for the device.

"We'd get the pro and the superintendent out on the green," he recalls, and we'd verticut half the green, sweep it up and then invite the pro which side he wanted to putt from. He picked the verticut side every time."

In 1969, Mascaro's Pennsylvania-based company, West Point Products, merged with Kearny National, and he became vice president of development. Three years later, the company divested its turf division and Mascaro took the cue to move to Florida.

Once in Florida, Mascaro took four years to begin Turf Grass Products,



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which was joined later by Turf-Tec International.

"I sat around for four years," he recalls.

"But you were inventing things in your head the whole time, Dad," chided John.

What came from those mental designs was the soil profile sampler, which Mascaro claims is the only one of its kind.

"The Soil Profile Sampler is vertical, and the cutter blades split apart so that the profile of the soil is visible," he says. "You can see everything that's been done to that soil sample in a nice slice. You can even photograph it for reference.

"I have a slide of a soil sample which shows soil that seven superintendents

had worked on. The sample shows each one's pet mixture in that piece of soil."

Miami's Orange Bowl was the birthplace of the Verti-Groove.

"I was part of the transition from artificial turf back to good grass. . . natural turf," he says. "So when they had a problem with the turf, I was called in. The problem was that the roots were decomposing down deep. The samples we took showed the roots had turned into a giant sponge and the field didn't drain.

"Something had to be done to remove those dead roots, not only to get water into the soil, but also air, nutrients and so on. So I invented the Verti-Groove.

"It takes out thin slices of soil, six

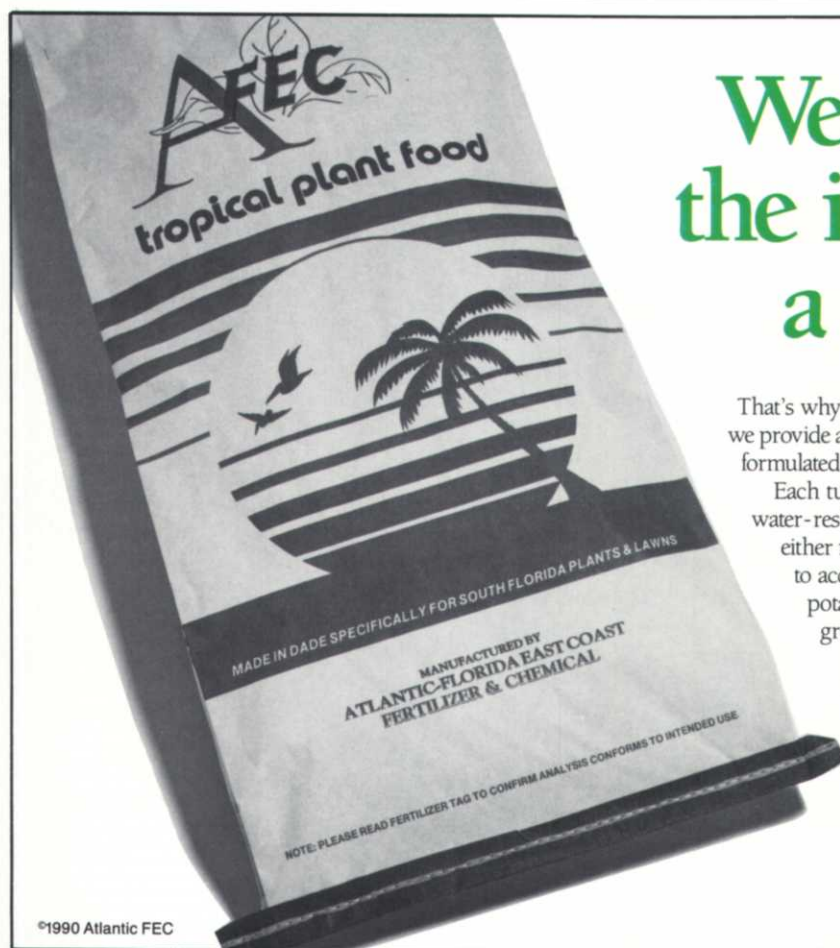
inches deep, and brings the soil to the top without materially disturbing the surface. They could play football in the Orange Bowl the day after we used the Verti-Groove."

Mascaro adds that until that time, no machine had been made that went more than three inches deep to cultivate turf. The Verti-Groove helps to cultivate the soil to a much greater depth.

If the Verti-Groove was born in the Orange Bowl, its development also spawned the successful collaboration between father and son on the creation of new devices to help the industry.

When John joined the company, Turf-Tec changed focus.

"We already had the Soil Profile



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Tom Mascaro keeps his focus sharply on the future.

"I had been asking myself what was going to become of my collection of 75,000 slides when John came up with a great idea," Mascaro said at the South Florida GCSA Field Day this past April.

"He suggested we turn them into a series of video tapes."

Professionally produced and distributed under the Turf-Tec Productions label, the first tape, "Growing Turf the Hard Way," was released in April.

Nearly a verbatim replay of Mascaro's most popular banquet lecture, the tape not only will become a sought-after piece of memorabilia for the current generation of turf managers, it should become a stock training item for untold future generations.

Featuring Mascaro's familiar droll, understated delivery, the tape is in some ways superior to his live lecture because it uses the production technique of "dynamic stills," which creates much more visual interest than a

static slide on a silver screen.

For those who haven't heard "Growing Turf the Hard Way," the program humorously details many of the problems Mascaro has encountered in more than half a century of work with golf course superintendents and other turfgrass managers.

"We should learn from the mistakes and experiences of others," Mascaro says, "because we cannot possibly live long enough to make them all ourselves."

Sampler," John says, "so we decided to come up with a line of diagnostic tools that were as simple as possible — no engines or moving parts — tools that normally would be available to university researchers.

"But the tools that researchers use are impractical for superintendents to use. So we tried to come up with practical approaches to analyzing problems and practical lab instru-

ments that we could put right into the hands of the superintendents."

Development was a cooperative process, with John translating the original concept into a prototype of wood, steel and leftover parts. Father and son then finely tune the working model before having a local machine shop create a production prototype.

Their new devices include the

continues on page 72