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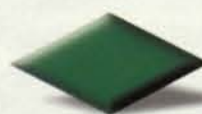


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Vince Patterozzi, Baltimore Ravens.
Photo by Sam Williams.

PSINet Stadium

"When we first got to Baltimore in 1996, and 1997, we played at Memorial Stadium and we brought in GNI. After we built PSI Net Stadium at Camden Yards, we brought that same GNI over here," said Vince Patterozzi. "But the difference between the two stadiums is like night and day. Old stadium designs are more like a 'V,' with the upper deck seats farther away from the field. This gives the turf the opportunity to get full sunlight, even in the dead of

winter—a nice 6 or 7 hours worth of daytime sunlight.

"In the new stadiums, the walls and seats are much more vertical. It's like a box, a true box," Patterozzi said. "By mid-October, the shade on the south side of the field here runs from the wall to the sideline and that's a 20,000-sq. ft. area. By mid-November half the field is shaded. I mean, there's no sunlight whatsoever, even on a bright, sunny day. And by December 1, the entire field is shaded, and it stays shaded until early March when the sun starts to come back north.

"I'm anxious to see how our new TifSport holds up under these conditions. I've seen and heard a lot of good things about it. The Tennessee Titans have it at Adelphia Coliseum in Nashville. They play all of their home games on it along with a full schedule of college games and concerts," said Patterozzi.

Patterozzi is also very interested to see what affect cold weather has on his TifSport. Westminster, 45 miles north of Baltimore at Western Maryland College where the Ravens are about to report for training camp, is about as far north as TifSport has ever been installed except on a test plot. Patterozzi explained, "Right now we're at about 700 to 800 feet above sea level, which is about 695 feet higher than the PSI field in Baltimore. Actually it's a little more because the actual field is 20 feet below street level. So you have two extremes. PSINet is also surrounded by concrete. Not only the stadium concrete, but city concrete. And this creates a dome of warm air that can really affect the microclimate down on the field.

"Here at WMC, where it is wide open for miles

and miles, we're going to get some pretty chilly winds coming in on top of us. And when we leave Aug. 20, the college football team will start practicing here, and the soccer team will start playing on it too, in the fall. That'll continue until late November. Then in February the lacrosse teams start using it, and their seasons don't end until May. That's 3 months of heavy, heavy use, and there's no rougher sport on grass than lacrosse, including football. I can't wait to see how this TifSport holds up under these kinds of conditions."

Nurturer

In reality, Patterozzi has done everything he can to give his field a good environment. "Our root zone is a blend of 80 percent coarse sand and 20 percent loam soil. I believe the combination of a loam soil and sand gives you the stability you need in a football field, particularly at the professional level. We also blended in Axis at 15 percent by volume. Then we put down our phosphorus, and followed that with two biostimulant sprays at the soil surface. In addition to humic acid, both biostimulants were loaded with microorganisms.

"We sodded next. Our sod went down quickly because it was 21 rolls, 110 feet long. Right after we put the sod down, we started watering. Right away. The very next day we initiated our liquid fertility program. Primarily we're trying to stimulate growth through the activity of micro-organisms," he said. "We've had success with this, and I think you're going to see more of this type of approach all over the country, simply because the environmental laws are going to stop us from using a lot of the products that we've been using. We also used a starter fertilizer and a granular 18-24-12. I believe in very high phosphorus rates, especially early in your program. That's what's going to really stimulate your roots."

Patterozzi, who has a degree in soil science and turf management from Southern Illinois University, began his career with ServiceMaster, where he was responsible for the grounds management program over a 14-state region. It probably didn't hurt his reputation that one of his key accounts, Central Missouri State, was voted best-maintained campus and best-maintained field in the nation in 1990.

Right after that, he got a phone call from the Cleveland Browns. "They asked me to come up and be their head groundskeeper." Then the Browns became the Ravens. "It was good to get back into the transition zone, where I was educated and had

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Don Follett, head groundskeeper, FedEx Field.
Photo by Clark W. Day Photo-Graphics.

worked for so long. Cleveland was strictly bluegrass, and I was anxious to get back into the bermudagrasses and the zoysias."

Redskins' Don Follett

Don Follett is also partial to bermudagrass. Fortunately, he doesn't have the severe shade problems that Patterozzi has. "Maybe a little in the late part of the winter, late December when the sun is lowest in the horizon. But I still get full sun on the field for at least for 4 hours," he said.

Follett started out in the business in 1972 as a student at Arizona State University. "They were looking for some help to maintain the football field. I was just student laborer making the minimum wage. I helped the groundskeeper mark the fields, fertilize, and mow. It just kind of grew into a full-time career for me."

It sure did. When the Redskins built FedEx Field in 1998, they hired Don from Arizona State, where he was sports turf manager and in charge of Sun Devil Stadium.

The original turf at FedEx Field was a variety called Tufcoat, a bermudagrass that's unique to the mid-Atlantic region. "Only a couple of growers are still growing it in this area," says Follett. "It's an OK grass, but it isn't really a top quality sod. It's very hard to lift, and it's a bit coarser than the TifSport or the 419 that I was growing at ASU."

And it didn't have a very good aesthetic appeal as far as Follett was concerned. "I wasn't happy with the coarseness and the color," he said. "It's a very light green color. It also grows a little bit slower than 419, and much slower than TifSport. And its winter hardiness wasn't as good as it was cracked up to be. I'm very happy with my TifSport. It held up extremely well for us during this past winter."

So far, Follett is pleased with TifSport's ability to stand up to abuse. "Because of the way it grows together so tightly, I think it has better divot resistance than even the 419 I grew in Arizona, and a lot better than the Tufcoat we first had here. When players make big cuts on TifSport they may shear the green off the top, but they're not pulling rhizomes out, or the thatch layer out. Our players and coaches like it a lot. Everybody says it looks more like a golf green than a football field. They keep asking me if they can bring their clubs out here."

To succeed, overseed

Like Jimmy Rodgers at UVA, both the Ravens and the Redskins overseed. According to Follett, "When it gets into the dormant period, late October, November, I'll put approximately 5 pounds of rye seed down after each game. Not necessarily on a weekly basis, only after each game."

Patterozzi plans on experimenting some. "I've taken bermudagrass through the winter here without overseeding because of our underground heating system, but if we do choose to overseed, for instance up at Western Maryland, we'll overseed probably only 95% of the field. I'm definitely going to leave an area open, just to see what happens. And when I say overseed, I mean overseed. We'll overseed at 60 to 100 pounds per thousand square feet, which is 10 times the rate that most people use. And we'll mow it at the same height as the bermuda."

Patterozzi is borrowing a management practice that is fairly common on golf courses throughout the south. "You want to keep that rye grass in a juvenile stage because it's going to transition out in the spring better. By taking it down to say a 1/16 of an inch in June, and hitting it with Kerb, we should be able to take every bit of that rye grass out. And then we'll come on with di-ammonium phosphate or ammonium phosphate at a couple of pounds per thousand, and burn the rest of the rye out."

He also plans to overseed at the stadium. "We'll overseed during the season. Just have to do it. Especially between the hash marks. There are also a number of high school and college games scheduled at PSINet."

What about re-sodding?

It's no secret that a lot of teams end up re-sodding midway through the season, but Jimmy Rodgers has no plans to re-sod Scott Field unless something drastic happens. Neither does Don Follett. "I hate re-sodding. I do overseed, but I absolutely hate re-sodding," he says. "I work all summer long to make sure my grass has a good root system, a good thick thatch buildup and good rhizomes. I want to make sure I can make it all the way into December or January without losing the field."

Vince Patterozzi hasn't made up his mind yet. "I don't know. We'll see if TifSport is the Superman grass that everybody says it is. I've certainly had to re-sod the last couple of years when we had GNI. We may end up in the same situation as Terry Porch down in Nashville. He has lots of back to back games. He may have a college game on Saturday, and then a pro game on Sunday. And if he gets a rainy weekend, which we all get, he's got his hands full. As relatively inexpensive as sod is, with what's on the line here, it just makes sense to just go in and re-sod. But that raises other questions. How does the new grass knit? How does it react? Is the TifSport even growing? I doubt it. Do we ask the grower to overseed it, and do we overseed it again? If that's the case, how much are we weakening that bermuda? All these questions have to be answered. I just hope I find some of the answers over the next couple of years."

Practically every sports turf manager and every coach has a different opinion about mowing height. At FedEx Field, Don Follett usually starts the season at 1/2 in., and as



Jimmy Rodgers, sports field manager, University of Virginia.
Photo by Sam Williams.

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the season progresses he'll add 1/6 of an inch every month. "By the end of the season my cutting height is right at about an inch."

Jimmy Rodgers says he started out at 3/4 of an inch back when the sod was laid in May, stayed at that height pretty much all the way through August, but will move his mowing height up to 15/16 when Virginia's season starts. Patterozzi has been mowing at 3/4 in., but says he plans to lower that down to 1/2-in. by the first game in November.

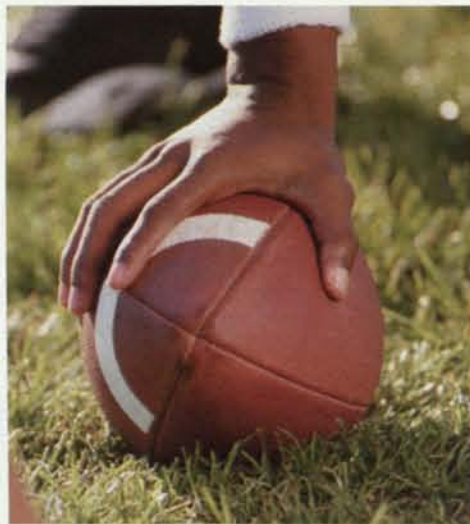
Like all of the new varieties released recently by the University of Georgia, TifSport is protected by a USDA patent and is regulated and inspected by each state's Seed Certification Agency. As a further safeguard, TifSport can only be grown and sold as genetically certified sod or sprigs, and only by a licensed member of the TifSport Growers Association.

Don Follett thinks this is vital. "When I was in Arizona and had to buy 419 from an Arizona grower, and later bought 419 from a California grower, it didn't even look like the same grass. It's nice to have a sense of security that when you're buying a product, you're getting that product and not an off-breed or mutation."

At PSINet, Patterozzi bases everything on tests. "I'm a big believer in the soil micro-biological process. By building that up, you can reduce the amount of chemical fertilizer you have to use. So every 3 months, I have someone come in and take samples from the root zone of my sod, and then 3 inches further down. We send that to Elaine Ingram at Oregon State University, and she does a microbial count. She tells us what we have in the root zone—the good bugs and the bad bugs."

Any drawbacks?

Miles Rush, Vince Patterozzi's stepson, was involved with the TifSport grow-in at PSINet Stadium. He's getting a degree in turfgrass science at Ohio State and has been working with turf since he was 14. Miles recalls, "We sodded the field in early May and had the Super Bowl Ring Ceremony here the first week of June. So we got some leaf blade damage from the tent platforms. They were on top of the grass for 5 days. It was a little worrisome for awhile, but we tweaked our mowing heights and it's just about all cleared up now."



Patterozzi has a long history with bermudagrass, but this will be his first full season with TifSport. "We're pleased so far with the density. As you know, we still have GN1 around the outside of the field, just off the playing surface, and when you look at the two grasses side by side, you can see that the TifSport is much denser. We like that a lot. What we don't like, and it may be due our high phosphorus levels, is the amount of seed heads, at least on this field. They popped up about 2 weeks ago. I don't know when they'll disappear, but I hope soon."

Like all bermudagrass, it's not unusual for TifSport to produce seed heads during the early summer months. It's a temporary situation, and not a long-term problem.

Patterozzi has been a little puzzled that TifSport doesn't seem to respond quite as quickly to phosphorus when he's trying to get a little color enhancement, at least compared to GN1. "GN1 will respond almost overnight to phosphorus-nitrogen applications. But I haven't seen that, either at the stadium or here at WMC. Maybe I just need to up my rates because there's so much more plant tissue with the TifSport. Or maybe it's the watering. It's not that it doesn't respond; it just doesn't respond as quickly as the GN1."

When we contacted Patterozzi again in mid-October, he felt that he had his color problem solved. "We recently started using a product from Opti-Gro called Liqui-Mag, a liquid magnesium source derived from magnesium sulfate. It's unbelievable, this is the first time we've ever been able to stripe the field with our mowers the same way you can stripe a ryegrass field."

Don Follett said, "As somebody once explained to me, it's better to be a groundskeeper than a grounds manager. If you replace your sod every year, you're just a manager, throwing away your problems every year. So I would like to be known as a groundskeeper. I like to keep my grass as long as I can. I'd recommend TifSport to anybody who wanted to put in a sports field, especially if they don't plan to re-sod every season."

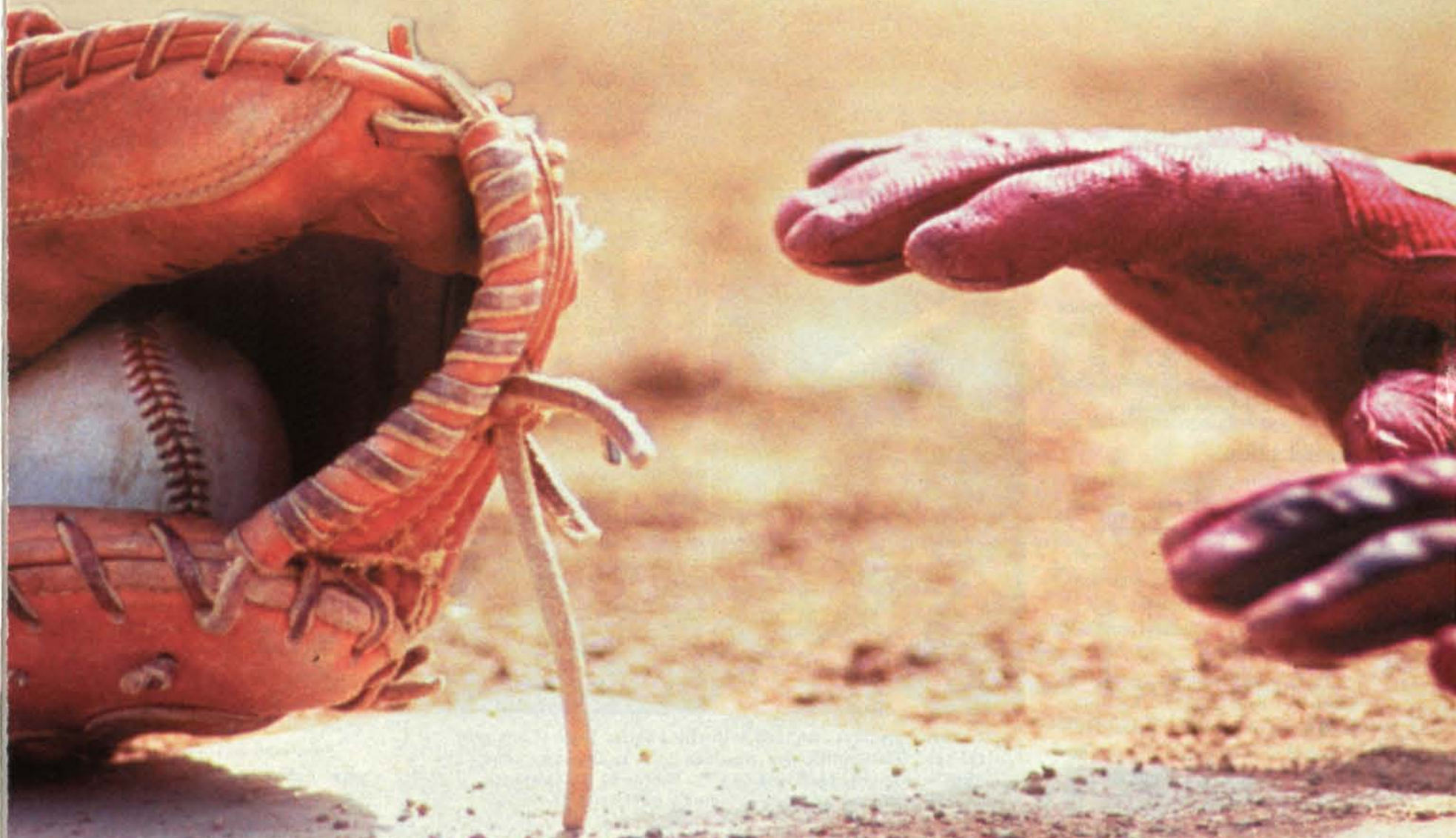
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Sam Williams owns a marketing and communications firm in Sautee-Nacoochee GA, and is a free-lance writer for the Georgia Seed Development Commission.

"I work all summer long to make sure my grass has a good root system..."



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Alternative Tx for turfgrass health

In the ongoing war against insect pests, fungal diseases, and other threats to turf health, many turfgrass sod producers are exploring nontraditional treatment options to promote vigorous, pest-free crops.

In their continuous effort to provide those who buy and maintain turfgrass sod with the highest-quality product possible, turf growers and researchers are testing a variety of inexpensive alternative treatments, including mineral, herbal and live biological products.

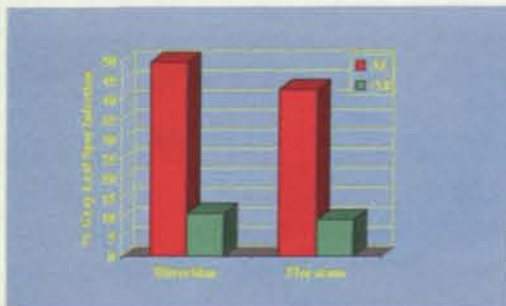
While these alternatives don't replace effective traditional pesticides, turf industry professionals are starting to recognize the value of such materials and reporting important successes in the field.

Mineral silica

For years, rice and sugarcane farmers have used water-soluble silica, a byproduct of phosphate fertilizer mining, to fight fungal disease and promote growth. Now its effects are also being studied on turfgrass, with funding from the International Turf Producers Foundation (ITPF).

Paul Grose, general manager of King Ranch Inc., Belle Glade, FL, has participated in the University of Florida's ITPF-supported silica/turfgrass trial studies for the past year and a half. While it's still too early to report definitive results, Grose said he has seen improvement in root system density.

"We used silica on our sugarcane for many years and had dramatic results," said Grose. "So when the University approached us about trying it with our turfgrass, we were interested."



Red bars represent the percentage of gray leaf spot infection in Bitterblue and Floratam turfgrass varieties not treated with silicon, and green bars represent the percentage of infection in the same varieties treated with silicon.



St. Augustinegrass amended with silica shows little if any gray leaf spot (left), while non-amended grass in the same conditions shows severe gray leaf spot (right). Photos by Dr. Lawrence Datnoff, professor of plant pathology, University of Florida.

According to Lawrence Datnoff, PhD, the Florida plant pathology professor who oversees the study, most soils contain considerable quantities of silica. However, over-planting can reduce the levels that are naturally available to plants. Datnoff has found that spraying turfgrass with soluble silica reduces incidents of *Pyricularia grisea*, or gray leaf spot. Other research has found it to be effective against pythium blight, dollar spot, brown patch disease, and powdery mildew.

"Right now, traditional fungicides are considered the

best method available for managing these diseases," said Datnoff. "But silica, as a complementary solution, potentially offers another disease management option for turfgrass producers and maintenance crews."

Because much of the current research is still not complete, some turfgrass producers are taking a "wait and see" attitude before they apply alternative treatments to their sod. Since producers are constantly looking for ways to further strengthen the turf they provide to customers, alternative materials for disease management are an attractive option, and the initial research results are promising.

In addition to the silica studies, researchers are testing the effectiveness of sulfur, manganese, iron, and other mineral products against pests and disease. Scientists also are studying the health benefits to turfgrass of herbal remedies such as salicylic acid and the bacteria *Xanthomonas*.

Live biological remedies like the bacteria *pseudomonas* have been shown to suppress a variety of turfgrass diseases. And beneficial nematodes (microscopic worms of the phylum Nematoda) are being used to parasitically control insect pests, such as grubs, mole crickets, and caterpillars.

Some innovators also are exploring the value of alternative materials as fertilizers. For example, in an effort to recycle waste while improving quality and yield, one company is manufacturing fertilizer from

used photo and film processing chemicals.

Timing is crucial

For the past 3 years, Myron Kuenzi of Kuenzi Turf & Nursery, Salem, OR, has used a yeast starter containing the beneficial fungus *Trichoderma* to combat the fungal disease *helminthosporium*. Kuenzi says he has experienced "modest" success by spraying it on turf in the early stages of growth.

"The timing of the application is exceedingly important," he said. "You need to be aware of the life cycle that you're working with. If it's too early or too late, there's no benefit."

Most researchers and producers familiar with alternative treatments agree that timing is crucial, and that these products work best if applied before disease occurs. That way they are used to help prevent the problem, rather than cure it. And as is the case with traditional pesticides, these alternative remedies should never take the place of good maintenance practices.

"I always tell my customers, that's the most important part of disease management," Grose said. "Sod producers are doing all they can to deliver the healthiest product possible, but after the grass is installed, the customer can avoid most fungal problems by maintaining turf properly."

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This article was contributed by the Turfgrass Producers International, an independent, not-for-profit association. For more information, visit www.TurfGrassSod.org.

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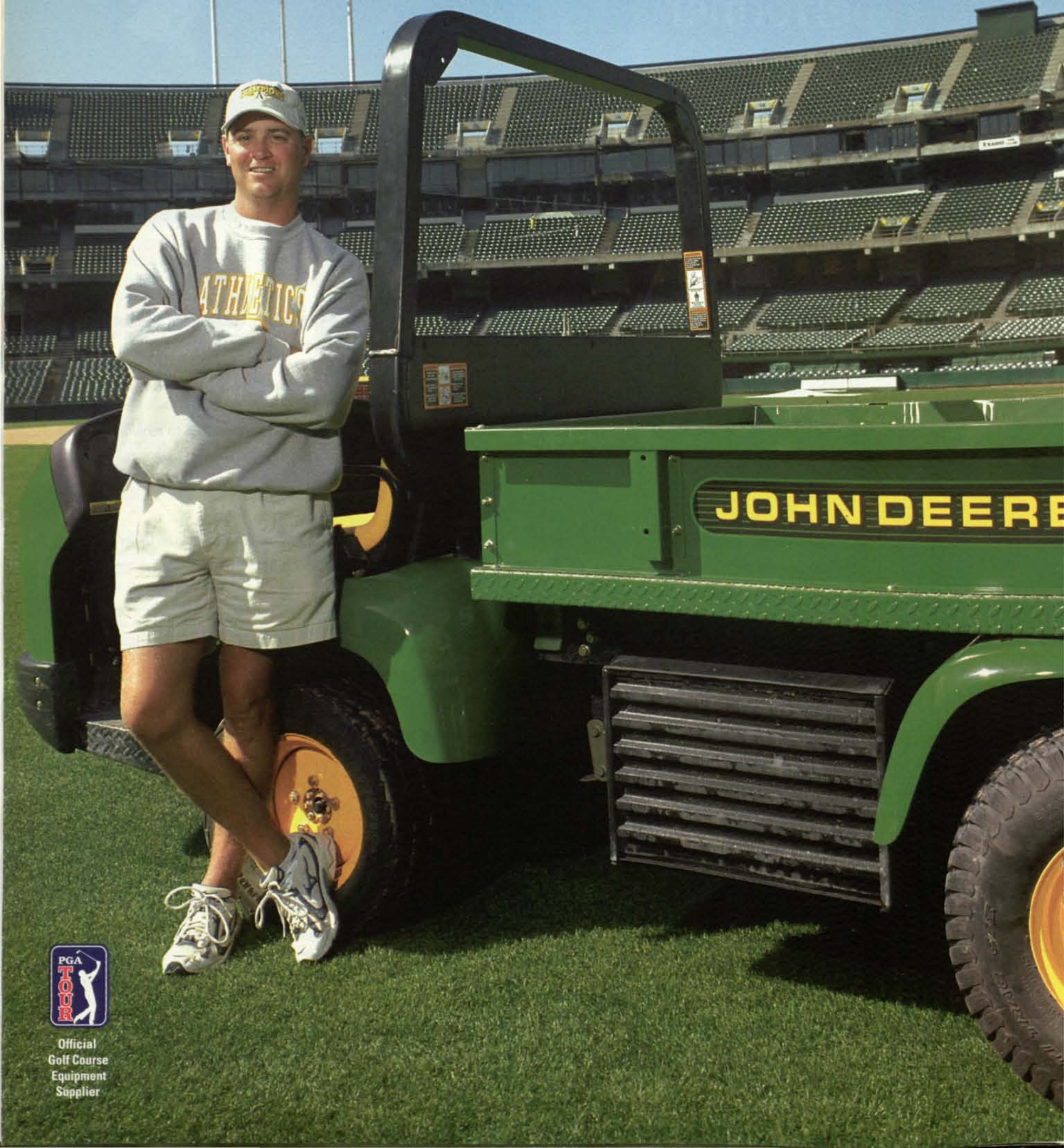
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