For the past few years we've been saying that the sports turf market is developing at a much more rapid pace than it has in the past. We weren't guessing, we were reporting what we saw and heard in the industry. It was for this reason that we believed a publication geared to your specialized segment of the turf market was in order.

It takes a lot of courage and nerve to put your money where your mouth is and start up a brand-new magazine in a field that's never been properly addressed before. However, both Bruce and I shared a gut instinct that the time was ripe.

Everyone we talked to, including turf extension agents, consultants, manufacturers, and sports turf managers themselves, encouraged us to go forward with SportsTurf. Where other publishers would not tread, we aimed to go—because we felt you were deserving of your own publication.

As the turfgrass industry grew, I felt that the time was zero in on your highly specialized segment of the market was indeed opportune. Only the future will tell if we were right or wrong, yet I can't help but feel the momentum. It takes guts to be on the cutting edge. The need was there for a publication that directly addresses the needs of managers of large, high-traffic turf areas. As an avid reader of trade magazines, I know personally that it becomes very difficult to maintain my interest in a publication that talks about subjects outside my primary concern.

Similarly, professionals in charge of large turf areas must find it very difficult to browse through a publication that also talks about small landscape contractors and the jobs they do. What does someone whose business is installing or maintaining a landscape on a quarter-acre homestead have to do with the sports turf manager's concern about constant traffic on tens of acres? It must be hard to relate one to the other.

However, when it comes to high-traffic turf areas, SportsTurf Magazine covers it all—from golf courses to sports complexes, to universities and stadium complexes. These varied endeavors all have a common thread—the maintenance of acres and acres of heavily used turf areas. Golf is surely one of the largest participant sports today. The demand to play on well-groomed courses increases daily. Some courses are even having to impose limits for play to handle the crowds. To combat this traffic, golf course superintendents have developed certain maintenance techniques, ones that can be utilized by other turf managers. These methods are not as expensive as many people think.

Instead of lamenting, "We don't have the money to do what golf course superintendents do," more and more sports turf managers at colleges, parks and stadiums are starting to say to their management, "I can provide safe and durable playing fields if you give me the tools and the support I need to make it happen." They are developing the skills and the confidence to ask for the help they need. Their positive dynamic attitude is the driving force behind the new momentum in the sports turf industry.

Turf managers at high schools and city and county parks have something special in common. They work with small-to-modest budgets, their fields are constantly in play, yet they have to keep them in condition. They learn how to make their fields even better by talking to their fellow turf managers at major universities, golf courses and stadiums, and at training facilities used for professional sports. They can make great strides at parks and schools with some of the affordable techniques used by these other facilities.

I think SportsTurf covers the market well. There is no doubt that we strive in each issue to make it the best magazine for your specialized needs. Beginning with the first issue this year, we will expand our coverage even further, but always within your particular area of interest.

There is an old saying—"Keep your eye on the ball!" It is something we are constantly aware of. If we can help upgrade the industry by disseminating timely, useful information and feature stories, we will contribute to the exciting growth in the market and give sports turf managers support they didn't have before. As I reflect back, I sense that the professional, be he golf course superintendent, sports complex manager, or a groundskeeper at a university or park, has generated more respect from his boss recently. We have to keep the focus on gaining not only more respect, but more attention to the sports turf professional's needs.

After all, it takes special skills to be able to work magic with a playing field or a golf course. It comes with years of training and experience.

To reinforce the importance of sports to our country, recently there has been a rash of newsletters and magazines that cater to the sports manager. Although this material will be directed to the executives of sports teams, etc., surely it will filter down to the playing field. Hopefully even more executives will begin to appreciate the Herculean task you all face daily, and give you the tools to do it even better in the future.

To this end—the greater success and prestige of the sports turf professional—we dedicate ourselves.
As the sod was being laid this past May to complete construction of Joe Robbie Stadium, the new home of the Miami Dolphins, the stadium still did not have a sports turf manager. Negotiations with a turf manager from another National Football League stadium had broken down and there was only three months to go before the Dolphins first exhibition game. It became quite clear to the Dolphins that finding a qualified manager for a professional stadium was not easy.

Fortunately, with the help of Dr. Bill Daniel, whose Prescription Athletic Turf system field graced the NFL's newest stadium, and Harry Gill, grounds superintendent at Milwaukee County Stadium, the Dolphins found Dean Kuykendahl. He was the field manager at Lewis University in Romeoville, IL, a small university that doesn't even have a varsity football program.

Kuykendahl is a fighter—someone who pushes for what he wants. He knew virtually nothing about sports turf management when he took the job at Lewis three years before. But that didn't stop him. Lewis puts its athletic energy into its Division 2 National Collegiate Athletic Association baseball program. The first thing Kuykendahl did was decide to make Lewis's varsity field the best in the conference. He started calling universities for help with the field.

His search led him to Daniel who was still teaching at Purdue University in Lafayette, IN. Daniel provided Kuykendahl with reams of information on baseball field care and told him to get in touch with Gill at Milwaukee County Stadium. Without hesitation, Gill invited Kuykendahl to come to Milwaukee and see how he prepared the field for the Brewers. "Pops" Gill took him under his wing, as he has many other aspiring stadium field managers in the past, and gave Kuykendahl probably the best "on-the-job" training available today. The drive between Romeoville and Milwaukee became a regular trek for Kuykendahl.

The extra effort paid off. Kuykendahl asked for and received sizeable budget increases for his program at Lewis. The baseball team started bragging about improvements in the softball and soccer fields on campus.

Working those few games in Milwaukee, however, had given Kuykendahl "stadium fever." He wanted to go all the way to the top, whether that was in Division 1 university or a professional baseball or football team. He kept in touch with Gill and Daniel on a regular basis. His dream came true this June when the Dolphins put him in charge of the field at Joe Robbie Stadium.

Kuykendahl worked hard to get his break and beat incredible odds to get the job he did. That is wonderful for him, but not so wonderful for the industry in general.

A training program for future stadium field managers needs to be developed as soon as possible. The demand for experienced field managers exceeds the ability of Harry Gill or George Toma at the Kansas City Royals to individually train all candidates for future stadium positions. Furthermore, on-the-job training needs to be backed up with at least a two-year education in turfgrass management. Up to this point, golf course superintendents and turf management students have had to learn special stadium techniques from Gill and Toma. Field managers, on the other hand, frequently lack important general turf management knowledge. They need both to succeed in the long run. Both Gill and Toma spend hours on the phone with turf experts making sure they consider all the angles of turf management when there is a problem.

Stadium field managers today must know both turf management and field preparation techniques. A two-part educational program has to be established to train the stadium managers of the future. These "complete" candidates will then be available when a stadium needs a turf manager. The last minute scramble will hopefully then become a thing of the past.

*Bruce F. Shank*
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- Patch Disease Research Update
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- Why Post-emergent Broadleaf Herbicides Fail
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- Core Cultivation Effects on Pre-emergent Herbicide Efficacy — Another Look
- Considerations and Selection of Core Cultivation Equipment
- Soil Improvement and Management — Physical or Chemical?
- Pre-emergent and Post-emergent Herbicides for the Lawn Care Professional
- The Pros and Cons of Turf-Type Tall Fescues
- Reducing Pesticide Usage Through Agronomic Practices
- Experiences with PGRs in the Landscape
- Insecticides — Recent Developments
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Joe Robbie Stadium's PAT field is wide enough for international soccer competition.

The completed field two weeks prior to its inaugural exhibition game in August.

Some of the greatest plays in professional football are made off the field by people who never wear pads, helmets or cleats. The people making these plays are quarterbacks in their own right, but they will never be inducted into the Football Hall of Fame. They have contributed as much to the game as the greatest players who ever graced the gridiron but you'll never see them on Monday Night Football. Joe Robbie is one of these individuals.

Joe Robbie owns the Miami Dolphins, a team he helped create in 1965 during the last major expansion of the National Football League. He knew then the importance of a stadium to the success of a NFL franchise and has never forgotten it. Miami's Orange Bowl helped tip the scales in his favor so he could build one of the most successful franchises in NFL history.

Every fall for 20 years, Floridians flocked to the historic 75,000-seat stadium to see the Dolphins play. Loyal fans tolerated parking on city streets, college-style seating and long lines at concession stands and restrooms. The city did what it could to satisfy the team and its season ticket holders.

In 1976, it installed the first prescription athletic turf (PAT) field in the NFL. Seating was upgraded as public funds were made available.

To pay for some of these improvements the city added events. The use of the stadium grew as the Dolphins, the University of Miami, the Orange Bowl Classic and local high schools and colleges played on a tight schedule that included concerts, motocross, soccer and tractor pulls. Robbie and Dolphin Coach Don Shula became concerned over the impact of these other events on the condition of the field and the stadium.

Professional football was becoming more businesslike. Attracting corporate sponsors, season ticket holders and the best players and coaches were based largely upon the reliability and revenue-producing ability of the stadium. So, in the late '70s, Robbie started voicing his concerns to the city and...
Joe Robbie Stadium (right) is located across the Snake Canal from Calder Race Course.

considering his options regarding a stadium for his Dolphins.

Football was Robbie's life, but his training was in law. Rather than making snap judgements, instead he looked for small loopholes that others had failed to notice. He had developed unique contracts with his coach and some of his players to attract the best talent for his team. The answer he was looking for was not public financing or another publicly-owned and operated stadium. Why couldn't he devise a unique arrangement to build one of the only privately financed stadiums in the League?

In 1984, Robbie's research led him to HOK Sports Facilities Group, a Kansas City, MO, architecture firm specializing in stadiums. With some creative planning, Robbie believed a stadium could pay for itself and asked HOK's Ron Labinski and Dennis Wellner for their suggestions. Having previously developed solutions for Giants Stadium, The Pontiac Silverdome, Arrowhead Stadium, Milwaukee County Stadium, Candlestick Park and the Hoosier Dome, HOK was anxious to perfect the income generating potential of skyboxes and an improved type of seating for season-ticket holders called "club seating." Both types of seating could be sold to corporate and individual sponsors ahead of time to generate the level of credit worthiness lenders require before making multi-million dollar loans.

Skyboxes, luxury suites designed for corporate entertainment during games, had generated important revenue for other football and baseball franchises. In addition to the $30,000 to $65,000 annual lease for a skybox, a corporation bought a set number of tickets to each event held in the stadium.

Club seating was designed for individuals or small companies that wanted some of the same conveniences of skyboxes without the sky-high price. For $600 to $1,400 per year, fans in club seating could view the game in a comfortable, premium...
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view seat and take advantage of convenient-
ly located lounges reserved just for them. These fans also purchase tickets for events just as skybox customers do. Labinski had helped develop the club seating concept for the Edmonton Eskimos of the Canadian Football League in 1977.

The Dolphins had become an important part of the Miami entertainment scene without really providing local corporations with much more than a seat. Robbie believed that there was an opportunity to uti-
lize this virtually untapped commercial sup-
port to build a new stadium. HOK proceeded

with a stadium design that included 216
skyboxes and 10,000 club seats, far more
than had ever been built in stadiums before.

With a 20 year record of winning teams,
Robbie felt he had the solution to financ-
ing in his grasp. He convinced Dade County
that tax revenues generated by a stadium
in the northern part of the county would eas-
ily make up for a one dollar per year lease
on 460 undeveloped acres. He then deve-
loped an extensive marketing program to
obtain ten-year leases on skyboxes and club
seats. Before the first shovel of earth was
turned, Robbie had $20 million in lease and
ticket commitments, enough to convince

three banks to lend him the $100 million
he needed to build the stadium.

He found the loophole he was looking for
and revolutionized stadium financing in the
process. He raised the eyebrows of own-
ers of professional sports franchises across
the U.S. and has helped fuel the hopes of
investors looking for expansion teams for
their city. In the long run, Robbie may have
lifted a great burden off the taxpayer in ci-
ties with municipally-owned stadiums and
discovered the way to “privatize” the stadium
business.

He also may have removed a roadblock
to major field improvement at stadiums
across the country. Robbie has been a fan
of natural turf since 1976 when he was in-

instrumental in having the artificial turf in the Orange Bowl replaced with the PAT system. Natural turf meant the stadium needed a natural turf manager. Miami hired Dale Sandin, a golf course superintendent from Georgia, who got to know Robbie well over the next ten years.

"Mr. Robbie always took an active interest in the field," recalls Sandin. "When we had field problems he would first ask me what was wrong before he made any statements to the press. He always supported me when people took pot shots. He understands how the PAT system works and what can go wrong."

"Joe Robbie wanted natural turf from day one," reveals HOK's Wellner. "He was very realistic about the limitations of a natural field, but he insisted on it anyway. He supported the NFL regulation requiring all natural fields to have tarps available in case of rain. When the PAT people asked if a tarp storage area could be built underneath the stands along one side of the field, he approved the change order without hesitation."

The stadium site, which is located on the Snake Canal in Davie, FL, across from Calder Race Course, presented additional challenges for HOK, the general contractor Huber Hunt and Nichols, and Southern Turf Nurseries, the field installation contractor. At its original elevation, the water table was just a foot under the surface. Soil and compaction tests showed the existing sandy soil and inconsistent rock formations below the surface would not settle evenly under the weight of a stadium and 73,000 football fans.

Many stadiums are built partially below ground with the field below the outside elevation. Designers like to have spectators enter stadiums on a concourse above the first level of seating. This simplifies access for all fans. Due to the shallow water table beneath Joe Robbie Stadium, a different approach was needed.

Since all fans would have to go up to reach their seats and down to exit the stadium, HOK devised a set of eight circular ramps with escalators—two for each corner of the facility. A capacity crowd can leave the stadium in about 15 minutes.

To compress the rock and sand before the first cement was poured, 500 cubic yards of fill was piled on the stadium's footprint. The 40 foot high mountain was left untouched for nearly four months before it was spread over the site. When the dozers finished, the stadium floor was ten feet above the former ground level.

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While not all of Robbie’s experiences with PAT were pleasant, he believed he understood why because of his frequent discussions with Sandin. Cancellations are a definite threat in Miami where tropical storms are common and it rains nearly 60 inches every year. One cancellation can take more than $200,000 off the bottom line. Robbie had seen the pumps at the Orange Bowl suck standing water off the field in a matter of minutes. Despite a tight budget, he set aside the $600,000 for a PAT field.

As footers were poured and girders started to form the pattern of a stadium, PAT’s Dr. William Daniel and Laurel Meade started making final adjustments in the plan with Dr. Tim Bowyer, Turner Gibson and Bill Wilson of Southern Turf Nurseries. The plans and prices for the stadium field were first submitted in the summer of 1985. It was now August 1986 and construction of the field was to start in February, 1987. Robbie takes special interest in the plans for the irrigation system and asks Wellner to check on other PAT fields with surface irrigation systems. He is concerned about heads located on the field. To satisfy Robbie’s concern, the number of heads on the playing surface was reduced to 12, four of those in the end zone.

More than three acres of Tifway bermudagrass sod was being custom-grown on sandy soil at STN’s sod farm in Lake Wales, FL. “We had soil samples from the farm tested,” explained Wilson. “The lab said they were the closest thing to a greens mix they had ever seen.” More than 8,000 yards of sand with a specific particle size were ordered in addition to three miles of drainage pipe, three acres of plastic liner, and 60,000 pounds of calcined clay. Orders for the irrigation supplies and two vacuum pumps were also placed months in advance.

On February 9, 1987, the STN crews began lazer grading the flat subgrade. No slope is required for the PAT system to operate. The plastic moisture barrier was installed over the subgrade and up to the stands sur-
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rounding the field. The network of wrapped perforated drain pipe was then put together on top of the liner. The distance between drain lines is closest in the center third of the field, the part of the field receiving the most wear. In this part of the field the lines are only eight feet apart. This enables the drainage system to remove up to four inches of rain per hour from the center of the field.

The drain lines feed into "wet pits" located behind the goal posts at each end of the field. The subirrigation system works by injecting water into the drain lines at the wet pits. By removing water from the wet pits and adding suction, excess moisture is drawn out of the root zone quickly. This dual-purpose drainage system is really the heart of the PAT system. The sand root zone only improves its performance.

With the drainage network in place, STN started putting together the surface irrigation system. It consists of 44 Toro 640 heads, 64 feet apart, in a square pattern. The heads are divided into six zones. The playing surface is divided into two zones splitting the field down the center.

The ability to irrigate the playing surface and not the perimeter was important, but Daniel also wanted to be able to operate all zones at the same time. This required a larger six-inch main line and another change order which was quickly granted by Robbie. "We got everything we asked for," exclaimed Wilson. "The Dolphins' cooperation made this project the smoothest installation we've ever had."

With the drainage and irrigation systems in place, 8,000 square feet of Tifway sod was down and rolled. The sod was laid in sections to fit the irrigation zones. "Soil and air temperatures were perfect," recalls Wilson. Within days the sod was rooted into the sand/calcined clay mix. "If anything, it grew too well. We started to build up a thatch layer faster than we would have liked. We had to maintain the field ourselves until Dean Kuykendahl was hired in July."