stared at the infield dirt for nearly ten minutes. "The turf didn't bother me," he points out. "It was the dirt and all the field preparation that had me worried. Fortunately, I had a good older crew with lots of ideas they had been holding inside for years. We agreed that I would listen to them if they worked with me as a team. I knew then, and I am still convinced, that the people around you are your greatest resource."

Then Gill got on the phone to the major turf suppliers and sod growers in the area. He also called Dick Ericson with the Minnesota Twins and George Toma with the Kansas City Royals. "I picked brains as much as I could," Gill admits. "Not all stadium groundskeepers were willing to share their knowledge of baseball field management. That bothered me."

Time has eased the pressure of that first season, but Gill's description of his first eight months as a major league groundskeeper is enough to send chills up the spine of anyone starting out. The All Star game was July 12. In May, a Seals and Crofts concert wiped out 5,000 square yards of turf. Gill managed to locate enough Merion sod to repair the damage before the next home stand.

On June 8, the stadium hosted a Rolling Stones concert, followed two weeks later by a Pink Floyd concert. "I don't know why anyone puts chairs out on a field," Gill comments. "The 12,000 kids on the field for the concerts never sat down. They just stood, danced, and jumped up and down." The result was another 5,000 square yards of destroyed turf on the field, with less than three weeks to go before the All Star game.

This time, sod growers were fighting diseases on their Merion fields and couldn't help Gill. All they had was common Kentucky bluegrass.

"I couldn't have an infield that was half Merion and half common," Gill recalls with alarm. "The White Sox were coming in eight days, followed a day later by the All Star game. On a Thursday we removed the damaged sod from the infield. That's when we noticed that there was a bubble of dirt four inches high, extending from the basepaths into the infield turf from first to third. The rock fans on the field had kicked dirt into the diamond turf and ruined the grade."

Between the two concerts, four player protests had been filed with the league about the field. Both the Brewers and the American League initiated law suits against the county which operates the stadium. With league officials looking over his shoulder, Gill proceeded to solve the problem.

Gill's plan was to take healthy Merion sod from outside the foul lines (hips) and use it to fix the infield. Then he would sod the hips with the common. The crew started by removing the infield dirt and the bubble between first and second. "We hit the origi-

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nal stakes three to four inches below the surface," Gill recalls.

The clay mix was stockpiled while the crew cut the remaining healthy Merion from outside the foul lines. As the grade was restored between first and second, the crew began laying the Merion cut from the field. The process was then repeated between second and third.

The final step was to install the common Kentucky bluegrass sod outside the foul lines. "Each load of sod was a different color, from dark green to yellow," Gill laughs. "We ended up with a checkerboard pattern that was impossible to miss."

He called in the county painters on Wednesday, two days before the series with the White Sox. "I gave the painters one radio and took another radio to the upper deck of the stadium," he remembers. From his vantage point in the stands, Gill instructed the painters on the field where to spray green dye for a uniform appearance.

On Thursday, Brewers owner Bud Selig and two lawyers met Gill on the field. The question was simple and directed to the new groundskeeper: "Will the field be ready for the All Star game?" With the confidence of a person with 30 years' experience in turf, Gill replied that the field would be ready.

On Friday morning, a large headline on the sports page of the Milwaukee Sentinel read, "Groundskeeper Says Field Not So Bad." That night the series with the White Sox started without a hitch.

After the last Sox game on Sunday, Gill brought the painters back in to touch up the common bluegrass. The following morning hundreds of press and players poured onto the field for the traditional interviews. Meanwhile, Gill carefully outlined his strategy to the crew and painters.

As soon as the reporters, photographers and players left the field, the crew ran out to perform their assigned tasks according to Gill's schedule. He has become known for timing all field duties with a stopwatch, a practice which came in handy that night.

As the field was being mowed, Gill made several trips into the stands to check the pattern. When he was satisfied, the painters refreshed the white lines on the turf. Meanwhile, other crew members worked like a precision drill team on the mound, batter's box, bull pens, and basepaths. Each dirt area was wet down and covered upon completion.

At four o'clock the following morning, the painters returned to dye the entire field green one final time. As the crew was touching up the dirt and chalking the lines, Selig walked out onto the field accompanied by two giants in baseball, Commissioner Bowie Kuhn and American League President Lee McPhail. Upon looking at the field and a brief conversation with Gill, they dropped all lawsuits.

Four weeks after the event, Gill was presented with an All Star ring for his dedication and achievement. By then he had already survived another potential disaster. On August 8, the Green Bay Packers played an exhibition game at Milwaukee County Stadium in the rain. If that wasn't hard enough on the turf and dirt, 1,800 Shriners marched on the field during halftime. Having resodded twice that season, and with two months of baseball and four more Packer games, Gill was determined to repair the turf he had.

*"Groundskeepers used tricks to give their team the advantage. Gill thought everyone should know what those tricks are."*

Gill knew from his work on golf courses and also from talking with Ericson, that perennial ryegrass could be overseeded into thin areas to bring them back to life quickly. He also recognized that core aeration provided holes to protect the seed while it germinated, relieved compaction, and produced topdressing. Before the first regular-season Packer game the stadium field was green, dense and soft.

That winter Gill made two trips which strengthened his belief that sports turf managers had to share their experiences. The first was to Fenway Park in Boston, where groundskeeper Joe Mooney had earned a good reputation with players. The second was to Purdue University in Wast Lafayette, IN, site of the Midwest Turf Conference. There, Dr. William Daniel shared his experiments with sand-based rootzones for golf greens and athletic fields with Gill. It was also where he met John Souter, a builder of sports fields from Scotland.

Gill asked Daniel if the university would provide a meeting room during the next Midwest Turf Conference to hold separate sessions on sports field care. Daniel suggested that Gill enlist the support of Erik Madisen, executive director of the National Institute on Park and Grounds Management. Madisen, who had begun to offer sports turf management seminars, promised to help.

When Gill returned to Milwaukee, he called Ericson, Toma, Barney Barron at Candlestick Park, Dale Sandin at the Orange Bowl, Roger Bossard at Comiskey Park, and Pat Santarone at Baltimore's Memorial Stadium for their ideas. They all agreed that it was time to remove the veil of secrecy hanging over athletic field maintenance. There were thousands of grounds managers at parks, schools, and universities who needed to know the elements of maintaining high-use athletic turf. These people may not have the budgets or staff of a stadium, but they could still adapt stadium methods to help their institutions.

They all knew that time was something stadium groundskeepers had little of. They could barely handle the growing number of requests for help from schools and parks. A way to provide information on field construction and maintenance to those who needed it had to be developed.

Stadium groundskeepers also needed a way to prove that they were doing all they could for their teams. "If your team won on the road and lost at home, the players and coaches put a lot of heat on you," recalls Ericson. "There were no standards to follow, just vague guidelines. Groundskeepers used tricks to give their team the advantage. Harry thought everyone should know what those tricks are to make the game fair for the groundskeeper as well as his team.

"Harry was different," adds Ericson. "He let out all his secrets. He was always trying to improve things, not just for himself, but anybody who was interested enough to ask. He learned and he shared, so today he is one of the best groundskeepers in professional sports, especially when you consider he has an outdoor multipurpose stadium."

Before Christmas 1980, Gill wrote a note in each card he sent to his long list of groundskeeper friends: "What do you think about starting an association for managers of sports fields?" The response was overwhelmingly in favor. He invited everyone to attend the meeting at the Midwest Turf Conference that coming March to work out the details.

"When I walked into the room that Doc Daniel set up for us at Purdue, 150 seats were set up," Gill remembers. "I thought, no way are we going to fill this room. But we did. I think it surprised a lot of people. Most of those who came were school and park groundskeepers worried about keeping their fields in shape with increasing use. They needed answers right then and there to help them get through the coming year."

**Milwaukee County Stadium.**

*Gill may have been the first stadium groundskeeper to use a helicopter to dry a field to prevent a rainout.*

That night in Gill's hotel room in the student union, seven people gathered to work out the details of starting an association. Among them were Toma, Daniel, Ericson, Madisen, Purdue groundskeeper Steve Weisenberger, Wisconsin landscape contractor Roy Zehren, and Mike Schiller, park superintendent from Northbrook, IL. The Sports Turf Managers Association (STMA) was officially formed that evening with Ericson as president, Daniel as vice president, Weisenberger as treasurer, Gill and Toma as board members, and Madisen as the executive director.

For two years, STMA provided educational sessions at both the Purdue and the NIPGM conferences. Other stadium groundskeepers joined the cause to help the association keep up with the demand for field information. Steve Wightman from Denver Mile High Stadium, David Frey from Cleveland Municipal Stadium, Tony Burnett from RFK Stadium in Washington, DC, and Sam Newpher from the Atlanta Braves pitched in to take some of the load off of Gill.

Many state extension services started to include sports turf management in their turf programs, including Ohio, Massachusetts, Nebraska, New York, New Jersey, Pennsylvania, Virginia, Maryland, and California. The most successful of these was the Sports Turf Institute at California Polytechnic Institute in Pomona. Professor Dr. Kent Kurtz, groundskeeper Mark Hodnick, and the department of horticulture organized the conference and exhibit, attended each March by more than 300 area turf managers.

Kurtz, an Illinois native, shared Gill's vision of what STMA could be. He started helping Gill and the rest of the STMA board on evenings and weekends from his home in Ontario, CA. In 1984, the board voted to make Kurtz executive director and turn it into an independent association. Within five years the membership increased from 60 to 800, before Kurtz had to resign for health reasons in 1989.

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Gill's part in the creation of STMA too often overshadows his other accomplishments. From his first job at West Bend Aluminum Company in 1944, he has always sought extra responsibility and showed a knack as a problem solver. His willingness to try new things took him from the production line outside to the landscape of the corporation, and then to its golf course (West Bend Country Club) as superintendent.

"I used to polish aluminum kettles in the factory during the winter and then plant trees, turf, and flowers around it during the summer," reflects Gill. "I loved being outside and getting involved with all sorts of things from landscaping to blacktopping roads. One day I was called to the boardroom by Bernie Ziegler, chairman of the company. The board was meeting and I thought they might be having a problem with lights or a projector.

"I walked into this fancy paneled room with a big mahogany table surrounded by all the bigwigs. To my surprise, they wanted to talk to me! The professional at the country club had quit and they fired the superintendent. They wanted me to take over. All I knew about taking care of a golf course was what my son, the caddymaster there, had told me."

The first thing Gill did was call in all the area equipment distributors to suggest what he needed and give him a bid. "Bob Reinders (Reinders Turf Equipment Co.) was just starting out," Gill laughs. "His bid was lowest but he didn't have a place to put the equipment together. Jacobsen sent all the equipment to the course in boxes and we had to put it together ourselves."

Gill immediately sought advice from other Milwaukee superintendents. He read every book on golf course management he could find, and then put together a list of 30 questions. He asked the same list of questions of every superintendent he could reach within 40 miles. From their answers he obtained important information about cutting heights, fertilization, weed control and irrigation. He also shared the results with everyone who had helped him.

Two superintendents were especially helpful to Gill: Frank Moosebach at Blue Mound Country Club and Lester Ver Haalan at Brentwood Country Club. In October 1963, the three superintendents organized a two-day seminar in Milwaukee in conjunction with the Wisconsin Golf Course Superintendents Association. Both days were devoted to one subject. Every October since, WGCSA and Milorganite have sponsored the two-day seminar.

Gill may have been the first stadium groundskeeper to use a helicopter to dry a field to prevent a rainout. "A cancellation can cost a stadium hundreds of thousands of dollars," he points out. "Some people might not think it's too smart to spend $150 per hour for a helicopter to hover over the field, but twice it has saved a cancellation at Milwaukee."

*Gill has become close friends with celebrities of all types, from players and managers to movie stars and announcers.*

Ericson at the Metrodome in Minneapolis thinks the efforts of Gill to increase communication among groundskeepers led to more specific standards for field maintenance. "The old rules said the mound had to be about 15 inches higher than home plate," says Ericson. "Without rules, the pitching rubber would be anywhere from 10 to 18 inches high, depending on where you played. Sometimes the catcher couldn't even see second base.

"The rules also didn't say anything about the slope of the mound. If you had a power pitcher, the groundskeeper could build the mound up to provide a steeper slope in front. If the pitcher was sidearm, you'd lower the mound to ten inches and decrease the slope. Today, the league requires that the mound is ten inches high with a slope of one inch per foot. This helps the groundskeeper by eliminating last-minute changes to fit certain players."

Gill is a teacher as well as a manager. His willingness to share is greatest with those just starting out. He can detect if someone is dedicated to being a good groundskeeper. "If someone really wants to learn, I tell them to come to the stadium to watch the guys work," he says. "But I also expect them to be here at eight [a.m.] sharp, not a minute later."

He takes pride in the fact he helped mold students into groundskeepers in their own right. "I didn't have an assistant the first year, but then I hired a graduate of the University of Wisconsin named Rod Adel. He had a master's degree in soils. He taught me about soils and I taught him about groundskeeping during the three years he was here."

Gary Vandenberg joined Gill in 1979 and is his assistant today. "Gary was a superintendent on a golf course in town," Gill recalls. "Other candidates were better qualified, but I had a good feeling about Gary. I'm positive I made the right choice 11 years ago."

Paul Zwauska, a former member of Gill's crew and a graduate of the University of Wisconsin, is now Pat Santarone's assistant in Baltimore. Gill also helped Steve Wightman perfect his baseball preparation when he was at Mile High Stadium. Wightman is now turf manager at San Diego/Jack Murphy Stadium in San Diego, CA.

"A few years ago, Dr. John Street at Ohio State University called me up and said he had a turf student that wanted to be a stadium groundskeeper. I didn't have any openings at the time, but I told him to send the student up to work that summer," says Gill. His name is David Mellor and he is now Vandenberg's assistant at the stadium.

During his career, Gill has managed the stadium through many special events. Beside rock concerts and dirt events, he has directed the care of the field and the stadium through a World Series and the filming of motion pictures ("Major League" to name just one). In the process he has become close friends with celebrities of all types, from players and managers to movie stars and announcers. "They all like to visit my office under the stadium to get away and shoot the bull," he reveals.

Another of Gill's big challenges involved Compadre Stadium, the Brewers' new spring training facility in Chandler, AZ. In December 1984, General Manager Harry Dalton approached Gill and said, "Can you get away for a few days?" Dalton wanted Gill to look over different parcels of land in Chandler for the complex. A site was selected and plans were reviewed that summer by Gill.

Chandler presented the Brewers with a tough challenge. A city ordinance restricted the height of any building to one story. To meet this requirement, the field had to be built 40 feet below grade.

Just before Thanksgiving, Dalton came to Gill with a problem. The job wasn't on schedule and he wanted Gill to fly to Chandler and check things out. He was alarmed that the project was eight weeks behind. With only three months to go before the opening of spring training, Gill was given the assignment of making sure the complex would be completed on time.

Faced with the near impossible, Gill remained in Chandler that fall and winter, finishing the job on schedule. To make matters tougher, the week before opening a fire broke out in the clubhouse. The complex is a finalist in the 1989 Baseball Diamond of the Year Award.

This month Gill returned to Chandler with an easier assignment: to give the crew at Compadre Stadium a little advice and take it easy before the season opens in Milwaukee in April. "I've got good crews in both locations," he boasts. "They know I'll back them up on new ideas that can improve our fields."

When he retires this fall, Gill will still be there to share ideas with the Brewers management and crew. Maybe he'll have more time to help sports turf managers at other facilities solve problems, advise students on entering the field, and help advance the quality of natural turf outdoor stadiums. These have been his goals from the first day he stood on the mound at Milwaukee County Stadium. They will continue to be his goals into retirement.

## OHIO STATE BEGINS CONVERSION TO GRASS

The artificial turf and pad at Ohio Stadium were rolled up in November as Ohio State University began to convert its field to a Prescription Athletic Turf (PAT) system. This May, thousands of Ohio State students will walk across Kentucky bluegrass to receive their diplomas during graduation ceremonies at the stadium.

Turf Services, Inc., of Spring Lake, MI, will install the new sand-based field. The company was the contractor for the PAT systems at the University of Iowa's Kinnick Stadium and Soldier Field in Chicago. The Buckeyes will be the third Big Ten Conference team to convert to natural turf. The recent addition of Pennsylvania State University to the Big Ten brings the total of natural turf fields in the conference to four.

Ohio State is constructing three new fields on campus to handle many of the intramural sports previously played at Ohio Stadium. The decision to return the stadium to natural turf hinged on finding other fields for the university's busy athletic department.

The Ohio Turfgrass Foundation, which has been a major proponent of converting the stadium to natural turf, will donate the sod for the stadium field. The school decided not to include a field heating system.

## PENNSYLVANIA COUNCIL FUNDS TURF SURVEY

The Pennsylvania Turfgrass Council (PTC) has donated money to the Pennsylvania Crop Reporting Service for a turfgrass survey of the state. The report, which is due out by this summer, will be the first survey of turfgrass facilities in the state since 1966.

The Council is encouraging everyone who receives a questionnaire to fill it out promptly and accurately. PTC hopes this data will be helpful in obtaining new services for the turfgrass industry in the state.

"Our industry has grown and diversified substantially since 1966," stated outgoing PTC President Joseph Baidy. "Many questions have been asked concerning the size of the turfgrass industry in Pennsylvania, and for the past 15 years we have been severely limited as to how we can respond. The Council feels very strongly that by funding most of this survey we can provide an important and necessary service to the industry."

## RAIN BIRD EXPANDS GOLF DIVISION

As the golf boom enters the 1990s, the Golf Division of Rain Bird Sales, Inc, has expanded to meet the growing needs of golf course architects, irrigation consultants, contractors, and golf course superintendents.

Ed Shoemaker has been promoted to the postion of vice president/general manager. He will oversee the sales, marketing, engineering, and manufacturing operation for the Golf Division. Shoemaker brings more than 30 years of irrigation and business experience to his new post.

The company's home office in Glendora, CA, has brought Steve Christie on board as its new director of sales and marketing. Christie will draw on his 15 years of golf course and turf irrigation experience to direct the efforts of Rain Bird's newly expanded field sales and service staff.

The Golf Division has also established six new field sales and service positions. Rod McWhirter has been appointed national golf specification manager and has begun working directly with golf course architects, designers, and irrigation consultants acrosss the United States. Rain Bird has also added Alan Clark, Shawn Connors, Dave Ferron, and Jim Schumacher as golf sales managers, with sales responsibilities in the Northeast, Southwest, Northwest/Rocky Mountains, and Southeast regions, respectively.

The Golf Division has also created a golf service manager postion to provide service support in the Northeast/Atlantic Seaboard area.

# Super Bowl XXIV:
## NFL Comes Home to New Orleans

When National Football League Commissioner Pete Rozelle retired last year and handed the reins to Paul Tagliabue, he also transferred the management of one of the greatest sporting events in the world, the Super Bowl. For 23 years, Rozelle was as much a sports producer as he was a management representative for 28 professional football teams.

Super Bowl XXIV on January 28 in New Orleans will be the first without Rozelle at the helm. However, new Commissioner Tagliabue must be relieved to know that New Orleans has served the NFL admirably in six previous Super Bowls. Only Miami and Los Angeles can match New Orleans' record for staging the world championship of football.

To the NFL turf team of George and Chip Toma and their crew from Kansas City, New Orleans is "like coming home." "Once you've been through a couple Super Bowls together, you know what to expect and how to handle just about anything thrown at you," states George Toma. "That's the way it will be in New Orleans."

What you see on television screens on Super Bowl Sunday is only part of the turf team's job. You won't see the fields at Tulane University and the Saints Practice Facility where the AFC and NFC champions prepare the week before the game. You won't see the hard work involved in changing a multipurpose indoor stadium from college football to a tractor pull to college basketball to professional football in less than a month. Each changeover of the Louisiana Superdome requires weeks of planning.

While the game will be played on AstroTurf, the league champions practice much of the week on the natural turf fields at Tulane and the Saints' complex. There are half fields of AstroTurf at both practice sites. Three weeks before the pros arrive, teams from the University of Alabama and the University of Miami prepared for the Sugar Bowl at the same facilities. This is after a full football season at Tulane and camps and weekly workouts by the Saints at their 12-year-old complex.

Some of the most critical judges of both artificial and natural turf will be on hand for one week of "big stakes" football. Meeting their expectations involves truckloads of equipment, dozens of people, and close communication among personnel at three different sites.

Those in charge of the fields at all three locations have worked and planned for months for the event. Lester Vallet, groundskeeper at the Saints practice facility, is the most seasoned. He retires this year after participating in six Super Bowls and more Sugar Bowls than he can recall. Formerly a groundskeeper with Tulane and the Superdome, Vallet joined the Saints when the practice facility was built 12 years ago.

**The Louisiana Superdome.**

M.L. LaGarde, associate athletic director at Tulane, is also experienced in bowl games. Sugar Bowl Stadium was located on the campus until the event was moved to the Superdome and the old stadium was torn down to make room for more campus buildings. The Saints also used to practice at the university before building their own practice facility.

The staff at the Superdome has handled all kinds of events since it was built in 1975. Stadium Manager Bob Johnson and Field Manager Jerry Anden have perfected the changeover in the stadium while handling conventions, boat shows, ice shows, basketball, rock concerts, and football. Stadium operations have improved since MCA/Spectacor took over management and added 68 skyboxes.

The Superdome is a fixed-roof, enclosed stadium with mobile stands that will accommodate 75,000 football fans for Super Bowl XXIV. Stored within the stadium are 15-foot-wide rolls of AstroTurf, large sections of the wood basketball court, an ice rink with boards for hockey, and goals for each sport. The concrete floor is left bare for conventions and shows, covered with one of the above surfaces for sports, or buried under tons of dirt for dirt events. Only the ice rink will not be used this month.

The year at the Superdome starts off with the Sugar Bowl Classic on New Year's Day. The game between Alabama and Miami is actually the end of a three-day Sugar Bowl Festival. For two nights prior to the Sugar Bowl, four college basketball teams will compete in the dome. In less than 24 hours, the basketball court has to be removed, the stands reconfigured, and the sections of AstroTurf put back in place.

During basketball, one end zone remains down. "Alabama" was painted on this end zone turf in December before the area was covered with tarps. As soon as the basketball court is removed, the pad is installed, and the remaining sections of the football field are rolled out from sideline to sideline and fastened together with "zip-lock" type closures. The Miami end zone and the Sugar Bowl logo then have to be painted onto the AstroTurf in time to dry before the game.

The day after the Sugar Bowl, Anden's crew will roll up the entire field and return it to bins in the rear of the stadium. Truckloads of dirt will then be hauled inside the dome for a truck-and-tractor pull scheduled for the 13th.

The Superdome crew has six days to remove the dirt and install the basketball court for a game on the 20th between Notre Dame and Louisiana State University. Toma's crew moves in to prepare for the Super Bowl on the 22nd.

The first order of business will be to wash all paint off the AstroTurf. To accomplish this, the turf is unrolled in the parking lot. After being wet down with hoses, a mild solution of ammonia and water is sprayed on the turf with a boom sprayer. The paint, made by Products Research Service of Belle Chase, LA, is designed specifically for artificial turf.

As the ammonia dissolves the paint, a Tennant sweeper is used to scrub the turf. Finally, the paint residue is blasted off the turf with high-pressure hoses and the carpet is squeegeed. "Since our turf is indoors, it is rarely exposed to ultraviolet light," says Johnson. "It doesn't fade, but the white

paint can dull the green fibers if the turf isn't washed and rinsed well."

After washing, the turf is brought inside to dry. Toma has shipped two large leaf blowers from Kansas City to speed up the drying process. The turf must be absolutely dry before the new lines and logos can be painted.

Stencils for the NFL logo and the end zone designs must be made in less than one week after the conference championship games on Jan. 14. Calvin Sign Corp. in Kansas City, MO handles this assignment every year. Calvin Autry constructs the six-mil plastic stencils based upon information he has gathered from each NFL contender during the final weeks of the season. The templates will be in Toma's hands by January 22. All new lines with professional hash marks will be sprayed on the Superdome field and the half field of artificial turf at Tulane.

The work on the natural practice fields began in November. Both fields are Tifway 419 hybrid bermudagrass. At the Saints practice facility, Vallet has enough room to reconfigure the field three different ways to distribute any wear. This field surface will not be overseeded. Instead it will be dyed green the week before the NFC champion arrives.

The AFC champs will practice on perennial ryegrass (Ph.D.). LaGarde started working seed into his field in November. However, heavy rains and colder-than-normal temperatures slowed the establishment of the ryegrass. Another 1,500 pounds of Ph.D. were pregerminated and sown on the field between Christmas and New Year's Day. The field will be covered with tarps (black side up) each night from 3 p.m. to 10 a.m. to keep the field warm and the grass growing.

During pregermination, 100 pounds of seed are placed in 55-gallon drums. The first day the seed is soaked for eight hours in water containing Bovamura and Aquazorb wetting agent. This solution is removed and the barrels are refilled with fresh water every eight hours. Within four days the seed will sprout. Toma then mixes it with an equal amount of Milorganite or calcined clay in a cement mixer. After aerifying the field lightly, this material was broadcast as soon as the Sugar Bowl teams completed practice on New Year's Eve.

"Pregermination has come a long way since the '60s," Toma reveals. "We pay a lot more attention to the temperature of the seed in the barrel and how long it sits in water. The seed needs air and moisture and must stay within a certain temperature range to pop quickly."

After the Super Bowl, Lester Vallet will retire from the Saints after 25 years in professional football. George and Chip Toma must quickly clean up and repair all three facilities in New Orleans before rushing off to Aloha Stadium in Honolulu, HI, to prepare for the Pro Bowl. Then Chip will return to Kansas City to begin planning a new practice facility for the Chiefs, while George heads for the Royals' spring training complex at Boardwalk and Baseball in Orlando, FL.

Preparation for Super Bowl XXV in Tampa, FL, has already begun. It will be the second Super Bowl at the natural turf facility under the direction of Rick Nafe. Dick Ericsen at the Metrodome in Minneapolis, MN, will be the groundskeeper for Super Bowl XXVI.

New NFL Commissioner Tagliabue is aware that he has much to prove to match Rozelle's record of 23 successful Super Bowls. But with experienced groundskeepers to back him up, the job will be considerably easier than the first world championships in Los Angeles and Miami.

"Every year we learn more about both natural and artificial turf. It's up to the next generation of groundskeepers to take what we've learned and apply it," says Toma. "I think the next decade will prove that the playing surface deserves more attention and skill to manage than in the past. With more $2 million players on our fields, it is our responsibility to make sure injuries are kept to a minimum. But everything we do for pro athletes can also be done at the college and high school level. All it takes is a commitment to quality turf and a willingness to hire the best groundskeepers available."

# CHALKBOARD

## TIPS FROM THE PROS

### VIBRATORY PLOW PULLS MULTIPLE DUTY AT SEA PALMS

Golf course superintendent Maurie Shields remembers when aerating fairways was a difficult operation. "It was like playing Russian roulette with a cartridge in all six chambers," he says. "When we tried to aerate we'd cut into our hydraulic sprinkler control lines and really complicate our lives."

Shields oversees three nine-hole courses at Sea Palms Golf and Tennis Resort, 90 minutes south of Savannah on St. Simon Island, GA. Built in the late '60s, the courses have aged gracefully, but their old irrigation systems have not.

The problem was three-pronged. First, there was an inadequate water flow and pressure supply. While irrigation lines of new courses step down from at least eight inches to a three-inch diameter between the pump and the heads, the Sea Palms system went from four to two inches. Shields' crews solved this problem by tying the systems together, so they could assist each other with supply and pressure.

Another problem was unmanageable water distribution. Because of numerous repairs over the years, the system could not be properly managed. There were two few controllers, deteriorating controllers, field controllers without pump starting capability, and poor power supplies. Management could not control the systems centrally, and could operate only one watering program at a time. The units required a tremendous number of man-hours to reprogram for changing weather conditions and normal course maintenance.

One of the biggest problems was the fact that the control hoses on 16 of the 18 holes were buried only three inches beneath the surface. As hoses deteriorated, replacements were added at the same depth with a sod plow.

"We couldn't aerate, and that affected just about everything we attempted to do on the course," says Shields. "Water percolation, drainage, fertilizer, and pesticide penetration all were hindered because we couldn't aerate the fairways. When you add soil compaction due to the play—we had 8,000 golfers on the course last March alone—you magnify the problem to extremes."

Faced with these problems, Shields and his crew made plans to correct them. After recalling that an outside contractor had charged $12,700 to redo a hole the year before, an amount that would exceed $228,000 for 18 holes, they opted to do the job themselves. To do this, they acquired a Ditch Witch Model 350sx vibratory plow.

Most of Sea Palm's fairways are lined with large oak and pine trees which send radial roots out beneath the fairway and rough surfaces. Shields and his crew learned that roots extended well beyond the centers of at least two 60-yard-wide fairways. These roots were soaking up water and nutrients and causing the undernourished grass above to yellow. This was a particular problem under oaks in the spring, when developing leaves demanded a great amount of moisture from the root system.

*Plowing-in all new control lines gave Sea Palms an opportunity to redo sprinkler and controller locations.*

Course management began to realize the extent of their root problems when they saw their aerating equipment pull up solid, five-inch-diameter wood cores out of the greens. In some places, the growing roots had expanded beneath the concrete cart paths, buckling them and requiring seven-dollar-a-foot replacement patches.

One day, as a Sea Palms employee was pulling small-diameter pipe underground behind the thin plow blade of the Ditch Witch 350sx, Shields observed how easily the blade sliced through the roots. He realized they could intentionally trim roots with the plow.

If they trimmed them at or beyond the trees' drip lines, to only a foot beneath the surface, the trees themselves would not be harmed because most roots would be left intact. The trimming would suddenly eliminate competition between the severed roots and the grass under which they lay. Shields promptly instituted an underground tree-trimming program for fairways and roughs, tee and green slopes, and cart paths.

"It helped a great deal," Shields reveals. "Tying our systems together and increasing the number of sprinkling zones increased our sprinkler throw by 10 to 20 percent. And that let us water the rough, too. Trimming the roots helped change a spotty, yellowing rough into a lush and inviting one."

The 3/8-inch wide plow blade slit was barely visible. By crabbing the four-wheel-drive trencher so its right-side wheels rolled over opposite sides of the cut, the machine operator packed the dirt so that the cut became almost invisible. Rain and grass growth eliminated it completely within a few days.

Sea Palms management solved its shallow control-hose problem by using a different plow, this one with a two-inch-wide chute into which up to 12 or more 1/4-inch hydraulic control lines would fit. The plow buried the lines well below the depth of aeration equipment penetration.

The burying job was facilitated by a homemade reel carrier frame, set on a truckster bed, which held up to 21 reels of hydraulic hose and electrical wire. They are color-coded according to use, green or fairway heads, and for easy identification during hook-up. Spare tubes also were included to solve future problems. The carrier was driven ahead of the vibratory plow, and its bundle of hoses and wires was fed into the plow chute by an employee walking next to it. More than 200,000 feet of hydraulic line was used in the project.

Plowing-in all new control lines gave Sea Palms management an opportunity to redo sprinkler and controller locations and functions. In some cases green and tee controllers were switched to control fairways, and green and tee box heads were controlled with satellites. Breaking into smaller zones allowed better and greater coverage from the heads.

"One station watered one green before," explains Shields. "But since the elevated back of a green needs more water than its front does, we broke each one down into two zones."

Some new controllers were added so that the operator of each controller could see all its sprinkler heads work from that location. Before, the operator sometimes checked another fairway, found no one on it, and turned the remote controller on, only to find out late that a golfer had been sprayed.

Shields looks back at the project with satisfaction. It not only was performed at a fraction of the potential cost, but it has also given him more controls and a new aeration capability. The crew performed the work according to their own schedule. By doing it themselves, they were never down for more than 24 hours. They usually did one controller at a time, while they irrigated and operated throughout the whole project.