The growth patterns of the northern turfgrasses, like perennial ryegrass, better fit the season of baseball play in the South. Perennial ryegrass will grow well through the spring baseball season, but it won't necessarily do well through the long, hot southern summer, and that's probably why it hasn't been used very much.

The inability of northern grasses to survive the southern summers is reasonable cause to reject their use for perennial baseball fields. A perennial field is one established and maintained in permanent grass all year round.

If the field is treated as an annual, it may be possible to use one of the northern turfgrasses successfully. The annual concept simply means that the turf playing surface is reestablished each year as is deemed necessary.

The program that will be tested in the fall in North Texas begins with killing all undesirable vegetation on the field in late summer or early fall. The field will then be seeded to a perennial ryegrass at a rate of not less than 200 pounds per acre.

One of the keys to the success of this program is using the right kind of seeder. The best seeder is the drill seeder like the one currently being offered by Olathe Manufacturing Co. Its true value will become apparent by the second and succeeding years. The field will be mowed at two-inches and not allowed to get any higher than three inches between mowings. It should be well established by the time freezing temperatures arrive.

The plan is to reseed these fields each fall to reestablish turf density needed for play

The fields will be fertilized prior to seeding with a complete fertilizer, such as 15:15:15, at a rate of about 15 pounds per 1,000 square feet. In late fall, a 15:5:10 fertilizer will be applied at a rate of seven pounds per 1,000 square feet. That same application will be repeated in the spring when growth starts, and again six weeks after that.

These procedures should produce an excellent playing surface by the time baseball begins in the early spring.

A total of eight high school baseball fields will be established this fall. Most of these fields are not used to any great extent during the summer and fall. Many small schools do not have the facilities or resources to care for these fields over the summer. This fact is one of the reasons why the annual concept in maintaining baseball fields is valid and will be tested.

Two big questions yet to be answered are just how well perennial ryegrass can take the hot dry summer without a lot of care and what kind of a population will remain when the cooler weather returns.

The plan is to reseed these fields each fall to reestablish the turf density needed for play. It is possible that a fair amount of perennial ryegrass will persist. This is where the Olathe seeder pays its way. It can successfully seed into whatever stand of ryegrass remains. The intended reseeding rate will be 100 pounds per acre.

Obviously, there is no one right way to provide a safe, durable baseball field. But experience has taught us tricks that make the sports turf manager's job more scientific, in other words repeatable by following certain important steps. Every possible option should be considered for improving our sports fields.►

Editor's Note: Dr. William Knoop is a turf specialist with the Texas Agricultural Extension Service, Dallas. He is organizing a sports turf workshop for next March at Arlington Stadium.

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MISSOURI TIGERS PRANCE ON OMNI-TURF

Faurot Field at the University of Missouri, Columbia, was the only Big Eight field with natural turf. University officials decided last year they could hold onto their unique position and keep the 58-year-old sod, or join the rest of the conference. After all, they are the home state for artificial turf with Monsanto located in St. Louis.

Being true to the state symbol of a stubborn mule, the University of Missouri did neither. Instead they selected a two-yearold concept in field surfaces, Omniturf.

Omniturf, by Sportec International in



University of Missouri athletic staff inspects new Omniturf surface at Faurot Field before the opening game. They are (right to left) quarterback coach Wright Anderson, new head coach Woody Widenhofer, asst. athletic director Jim Castigleone, and defensive coordinator Jim McKinley.



Kenmore, NY, is a sand-topdressed polypropylene fiber, porous carpet supported by separate underpad and sub-base. Sand helps create cushion, percolate water through the surface, and reduce footlock-related injuries. Inlaid colored fibers for the lines and team symbols eliminate layers of paint on the carpet and painting costs.

Omniturf was first introduced to football at the University of Oregon in 1984. Since then it has been installed at the University of Missouri; James Madison University, Harrisonburg, VA; Worcester Polytechnic Institute, Worcester, MA; and Buffalo State University, Buffalo, NY. High schools installing the surface include Westlake High School, Austin, TX; Union High School, Broken Arrow, OK; and Stadium High School, Tacoma, WA.

The makers of the new surface point out that teams playing on their surface seem to gain more yardage. Washington State University's Reuben Mays set an NCAA single-game rushing record of 357 yards on the University of Oregon's Autzen Field in October. Oregon's Tony Cherry, the leading rusher in the Pac-10, has had more than two 100-yard performances this fall on Omniturf. In the Duck's home opener against Stanford, Cherry tallied 249 yards.

YEAR-ROUND SCHOOL MAY OVERLOAD FIELDS

California and other Sun Belt states are facing a tremendous influx of students as northerners move South. California has another problem; Proposition 13 which restricts the increase of property taxes. The best solution to overcrowding, according to Bill Honig, state Superintendent of Public Instruction, is year-round school.

Al Nociolo, principal of a Saugus, CA, elementary school on year-round teaching, explained that the individual school receives a certain amount of money for each student (roughly \$2,000). By going year-round he can increase his student population by nearly 25 percent, increasing the school's funding from the state by the same amount.

Expensive new school construction is temporarily delayed by current schools absorbing a quarter more students. But older schools may have to add air conditioning to help students concentrate in summer heat. Bottom line is year-round schools save about 20 percent of school expenditures says Honig.

The primary concern of the state superintendent is education, not sports. Summer use of sports fields may force summer leagues to find other fields to use. Field maintenance will need to be improved to get fields through summer use and still have them ready for fall.



San Francisco

SPORTS TURF CLINIC PLANNED FOR TEXAS



The faculty for the first Texas Sports Turf Clinic is (left to right) Vincent Mannino, Bill Knoop, Jim Anglea, and Stacy Reese.

Texas A&M and the Texas Rangers have teamed up to provide a one-day sports field clinic and equipment rodeo for March 20, 1986, at Ranger Stadium in Arlington.

Bill Knoop, event coordinator and extension turfgrass specialist for Texas A&M, told sportsTURF there will be three hours of clinics on fertilization, cultural maintenance, weed control and insect control. Extension agents Stacy Reese and Vincent Mannino will assist Knoop.

In addition, Jim Anglea, field manager for the Rangers, will give an on-site clinic on baseball field preparation and maintenance, including mound work, painting and base path care. A sprayer calibration demonstration will be held in the outfield.

Chemical & Turf Specialties of Dallas will provide a complimentary lunch for the event. After lunch, sportsTURF magazine will sponsor an Equipment Rodeo in the outfield, where field managers can operate and test various essential equipment.

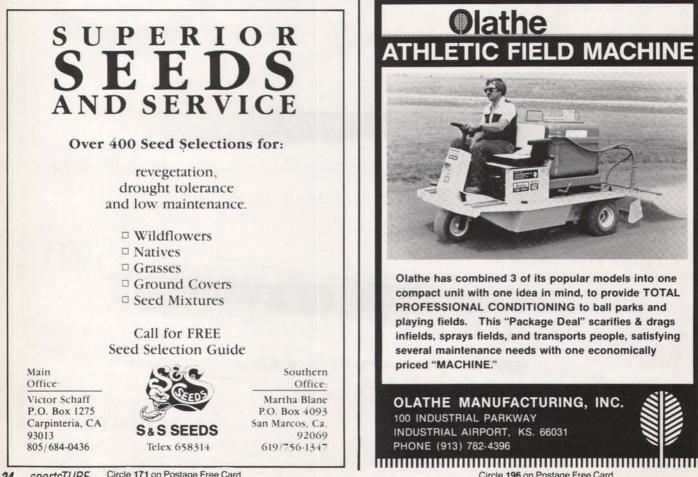
Interested field managers, coaches and athletic directors should contact Bill Knoop, Texas Agricultural Extension Service, 17360 Coit Rd., Dallas, TX, 75252. (214) 231-5362. The costo for the one-day event is a nominal \$10 per person.

CAL POLY SEEKS COACHES FOR NIGHT TURF CLASSES

High School and college athletic directors and coaches, as well as future coaches and athletic directors, will have a night turf class just for them this winter at Polytechnic University, California Pomona, CA. The university, which hosts more than 400 sports turf managers at its Sports Turf Institute each March, wants to make classes on sports turf management available to those responsible for sports turf at all levels.

The Monday evening class will be taught by Dr. Kent Kurtz, professor of horticulture and executive director of the Sports Turf Managers Association. Kurtz is returning from a six-month sabatical during which he toured sports turf facilities in the U.S., England, and Scotland.

The class will cover soils, turfgrasses, installation, and maintenance of sports turf in understandable terms. "In many cases," says Kurtz, "it is the coach or the athletic director who is most concerned with field conditions. We think he should know enough about sports turf to understand what's involved in making sports turf safer, more attractive, and able to handle heavy field use. And, today the coach often must contend with special events on his playing field. We can tell him how to manage most of the challenges in sports turf management."





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Base Path Edges

Lips along base paths are a top priority for Jim Anglea in his maintenance program at Ranger Stadium in Arlington, TX. Lips are ridges built up just outside the base paths in the turf. These lips develop from the base path mix being raked or kicked into the turf area.

Anglea first hooks up a hose to a quick coupler behind the pitcher's mound and sprays full force directly at the lips, pushing the base path mix back where it belongs. Then he uses a Weedeater to edge the base path. Finally, Roundup is applied to any turf growing in the base paths.

The result is a very neat edge to base paths and no lip in the turf for runners to trip over.

Reduce Mowing While Adding Color

The Howard County, MD, Park System team built a new athletic field complex last year in a wooded, scenic part of the

TIPS FROM THE PROS

CHALKBOARD

county. Park Maintenance Director Jeff Bourne and County Supervisor of Grounds Maintenance Mark Raab wanted to experiment with wildflowers and to avoid mowing banks and roadsides whereever possible.

"Use a seed drill, don't rototill," said Brourne from experience. "Rototilling brings up too much weed seed that you'll have to knock out with Roundup by hand."

"The funniest thing that happened the following year was we discovered residents digging up the wildflowers and taking them away in their cars," Bourne laughed. "When we asked them why, they responded they wanted to save the wildflowers before the park people mowed them down."

Hydraulic Oil Spills

In the most recent issue of Divot News, the official publication of the Southern California Chapter of the Golf Course Superintendents Association of America, Bill MaGue, superintendent of Western Hills Country Club, Chino, CA, gave the following account.

"Recently there was an hydraulic oil spill on one of our greens which sent the mower operator tearing back to the shop and returning a short time later with a bag of charcoal. His intention was to apply it to the oil spill as he had been instructed when employed at another golf course.

'Fortunately, I was in time to prevent him from doing so. I explained the effect of the charcoal on an oil spill. It was pointed out that charcoal absorbs the oil but only adds more carbon and does not break it down.

"I have found through experience that any detergent works well: Tide powder, Joy liquid, or organic penetrants (the latter giving the best results mainly due to their concentrated form.)

The application of an organic penetrant from a two gallon sprayer directly brings results. Apply it three or four days, consecutively, hosing it in with plenty of water. The ideal situation would be to wash and rinse a spill immediately."

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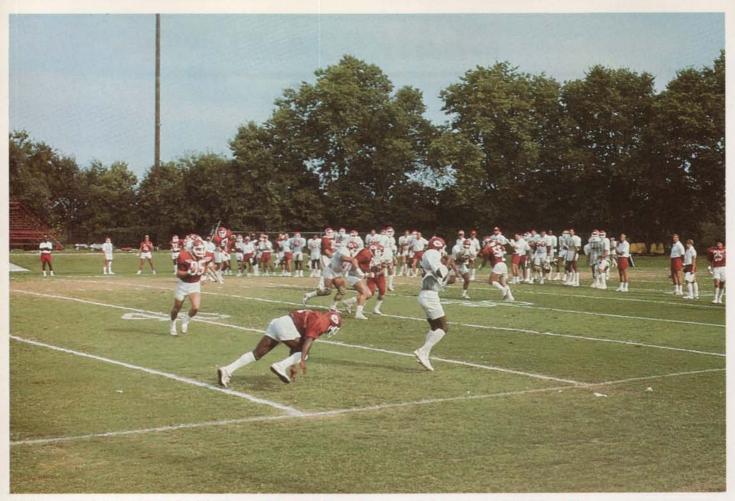


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Chiefs practice twice a day on the Liberty fields starting in July but the maintenance program starts months before.



The father and son team responsible for all Kansas City Chiefs playing fields is George and Chip Toma. When Chip completes his work on the Liberty fields, he returns to Arrowhead Stadium to help his father. 26 sportsTURF

Milkshake Turf **Stands Up To Downpours** and The **Kansas City Chiefs**

he Kansas City Chiefs play on artificial turf in Arrowhead Stadium. So why is George Toma praising grass playing fields? After all, he's the team's director of fields and landscaping.

The reason is simple. Real sod still plays an integral part in the team's training schedule. The Chiefs' training camp fields at William Jewell College in Liberty, Mo., are green with living grass.

Both Toma and his son, Chip, who is responsible for maintaining the Liberty practice fields, praise their playability and safety-while admitting they're sometimes a headache to maintain.

To the Tomas, father and son, real turf

is well worth the trouble.

Nevertheless, when spring rolls around and it's time to get the practice fields back in shape. Chip must sometimes wonder whether he's in charge of turf renovation or out-and-out reincarnation.

For instance, it took Chip and his assistant fully two months last spring to renovate and groom the three fields. Then, just when the grass had come beautifully back to life, the rains came.

The Tomas remember it well. Last July 18-the night before the Chiefs' first preseason practice, as luck would have it-nearly five inches of rain deluged the

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Milkshake Turf continued from page 26

Liberty training camp fields.

At best, it seemed, the fields would need a couple of days to dry out, since they are built on heavy clay soil that tends to hold moisture like a porcelain saucer holds tea. That meant that if practice were to begin on schedule the Chiefs would have to pack up all their gear and make the trek to the artificial turf at Arrowhead Stadium, which is located just outside Kansas City.

However, the dawn that followed the downpour brought a happy surprise. Early in the morning, when the Tomas inspected the Liberty gridirons, they were delighted to see that the fields were already playable. Not a lake in sight.

Chip cites two reasons for this—"the way they were built and the way we baby those fields to compensate for the abuse they get."

Indeed, the three training fields are in constant use eight months of the year. Not only the Chiefs, but the William Jewell



Profile of the milkshake soil containing gypsum, sand and topsoil.





College football team as well, pound up and down their length for six or seven hours a day all through July and August. The college's intramural teams crush them in the fall and spring. Then, adding insult to injury, the fields become parking lots for college football fans during the fall and winter.

Most sports fields subjected to such intensive use and abuse would be unable to support turf at all, yet the Liberty fields are in top condition every July when the Chiefs return—"because the coaches expect them to be perfect," Chip explains matter-of-factly.

The Chiefs' head coach, John Mackovic, insists on well maintained fields because he firmly believes they help prevent sports injuries. Or, as George Toma puts it, "If the turf doesn't give when a player makes his cuts, he could blow out a knee."

With utter candor-for a man whose team stadium is paved in plastic-he explains, "During the regular season the players take enough of a beating on artificial turf. It's our job to make sure that these natural fields are in excellent shape so that the players stay healthy and perform to their potential."

In Arrowhead Stadium, of course, they are on their own.

Five years ago, after conducting training camps at Liberty for more than 16 years, the Chiefs' management decided to upgrade their training fields. With a budget of \$25,000 per field—that was for everything, including drainage and irrigation—the Tomas went to work.



Chip Toma regularly checks Liberty fields with soil probe to check root depth, soil moisture and insects.

"We took an unconventional approach to constructing these fields in 1980," says Chip. "We call it the three-tier process, or milkshake for short, and it has worked well for us every season."

No soda fountain ever saw the likes of Toma's milkshake, but it works just fine on football fields.

He gladly discloses the recipe. "We brought in eight tons of gypsum and tilled

it into all the fields to about six inches deep. Then we added three inches of sand and tilled again to six inches deep.

"Another two inches of sand was lightly mixed into the top four inches with a rotary harrow. Finally we topped off the field with one inch of sand and carefully crowned the field."

Chip directed every step and maintained close control over the components and the labor during the rebuilding. The care taken in constructing the fields is only half the story, however. A heavily used field will deteriorate fast if it is not properly maintained, wasting all the time and money that were invested in the original construction.

With a modest budget, Chip begins his maintenance program as soon as the weather breaks with an early-season application of 500 lbs. of Andersons Tee Time 10:15:30 fertilizer per field.

On May 15 the renovation begins in earnest. Each field is topdressed with one inch of sand mixed with one ton of Milorganite. Chip then applies Bov-A-Mura fromn P.B.I Gordon to "liven up" the beneficial soil bacteria.

Since Kansas City, which is in the transition zone, is known for its hot and dry summers, Chip plants Tifway II and Midiron bermudagrass sprigs. Soil moisture is critical for the sprigs to take root and spread aggressively, so he applies Aqua-GRO soil wetting agent. Another application of fertilizer is made after June 1, this time with 500 lbs. of 18:5:9.

By the time the players report to camp, the bermudagrass is well established. "Ideally we'd like to have a year to get the turf in shape, but that's not realistic," concedes the younger Toma.

Every Friday through August 20, Chip applies between 220 and 230 lbs. of ammonium nitrate fertilizer to each of the fields. "That may seem like a lot of nitrogen," he allows, "but we've got to keep the turf growing fast to compensate for the abuse and damage from such heavy use—and to replace the nitrogen leached from the sandy soil."

Between the rapid growth of the turf and the coach's requirement that the bermudagrass be kept at about 3/4 of an inch, Chip often has to mow the fields every day from June through August.

Since the fields have to sustain such heavy traffic, he gives special attention to preventing compaction before it has a chance to begin.

"You don't have to deal with compaction if you begin aerifying from the start," he explains. "I make sure that we sliceaerify a couple of times a week. We also slice before fertilizing and then follow up with water."

Before the fields were rebuilt, it took two 55-gallon drums of water atop Toma's aerifier to make it penetrate the compacted soil. These days, however, he doesn't need any weight. He claims that his frequent aerating, plus regular use of the wetting agent and gypsum, keeps his fields from becoming compacted and also encourages deep root growth.

During the last week of preseason practice, Toma overseeds with perennial ryegrass. This keeps the fields green after the bermudagrass goes dormant. He counts on the players to cleat the seed into the soil. Then, after the team leaves Liberty in late August, he overseeds again.

During midseason he makes another wetting agent application. By September he applies Tee Time 10:15:30, which helps the ryegrass get established for fall use and hardens it off for the winter.

Training camp ends the third week of August and the Chiefs return to Kansas City to begin their regular season. Chip turns over field maintenance responsibilities to the college personnel and rejoins the crew at Arrowhead Stadium.

Although their employers have chosen artificial turf for Arrowhead, George and Chip Toma share the belief that a properly constructed and well maintained grass athletic field provides more than just aesthetic pleasure. It can help prevent sports injuries and add to the athletes' enjoyment of the game.

That's why the practice fields at Liberty hold a special place in their affections. Milkshake, anyone?►

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Palm Beach continued from page 11

retaining lake.

Fields Four and Five in the Southfield area posed a special problem because they were too level, with only three feet of fall for every 1,000 feet. In heavy rains this poor drainage causes two problems: The sides of the fields become soggy and this in turn makes them an attractive site for mole crickets to take up residence. These problems are being successfully attacked through the use of additional topdressing to raise the crown area and the addition of extra side drains to the canal.

To promote water percolation, a turfquaker is used at the end of the polo season. It slices and loosens the turf before it is topdressed. Turfquaking is done from the crown outward in a horizontal pattern. The device is also used in the swale areas twice a month during the season. This slicing promotes efficient drainage.

The entire 156-acre polo complex is aerified five or six times a year. The cultivation with aerification and turfquaking helps provide the strong, healthy rootzone that sports turfgrasses require.

If divot repair is one of the most visible aspects of turf care at the Polo Club, weed and pest control plays just as vital a role.

Polo fields and other bermudagrass fields in Florida are fair game for nema-



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USA Sales Office • 3081 East Hamilton Avenue • Fresno, CA 93721 • CA (800) 742-1803, US (800) 344-7313 — WORLD LEADER IN IRRIGATION SINCE 1947 — todes and mole crickets. While a surface application of nematocide will reduce root damage by nematodes, a greater menace to the polo fields is the lowly mole cricket, whose handiwork is fully capable of unseating a prince and sending him sprawling. It attacks turf that has been weakened by nematodes or by overly damp soil caused by poor drainage. Newman has treated problem areas with Orthene in hopes of eliminating the cricket before the start of the winter season.

Wherever there are horses, there are bound to be certain souvenirs. Grassy and broadleaf weeds are encouraged by horse dung, as well as by surface damage. MSMA, 2,4-D, and Sencor are used for weed control.

Surprisingly, cars can cause similar problems. Crowsfeet along the roadways, caused by parking, are a nuisance. Weed seeds lodge in the tires and become dispersed alongside these roadways.

However, it's the game itself that really savages the turf. The two main fields are played on every Saturday and Sunday during the season. Some 15 to 20 preliminary matches take place every week on the outer fields.

All this hard action gives Newman's crew just five short days to prepare the championship fields between major matches and tournaments, while hustling to keep all the outer fields in top shape as well.

It takes real precision to mow the polo fields at the Palm Beach Polo and Country Club. During the summer, when only an occasional game of low-goal polo is played, the bermudagrass is maintained at its top height of 1-1/2 inches. As the season approaches in December, and then every three weeks during the season, Newman carefully lowers the cut by 1/8-inch intervals. When the season comes to an end in April with the Gold Cup Championship, the fields are at their fastest, mowed at a low 3/4 inch.

The speed delivered by such closely cropped fields allows players to move the ball much faster. This increases the overall pace of the game— and the skill required to keep up. The damage caused by the Championship takes more than a week to repair, but at last there is time to do so.

Newman and his crew make sure the turf is as trim and beautiful as the "beautiful people' who flock to the Polo Club for the matches. Of these, the most memorable was Princess Diana. After seeing Prince Charles help win a hard-fought victory, she graciously presented the captain of the winning team with—what else? the two-foot-tall Princess of Wales Trophy, topped with a figure of a player aboard a rearing horse. She gave her husband and the other players smaller trophies.

Someone should also have given a trophy to the turf.