

DIAMONDS OF THE YEAR SELECTED

Fields in Florida, New York, and New Jersey have been tapped for top honors in the Beam Baseball Diamond of the Year Awards competition. Sponsored by Beam Clay, the Sports Turf Managers Association, and Golf & sportsTURF Magazine, the awards are given annually to three professional, college, and municipal baseball parks in recognition of excellence in maintaining outstanding, safe, high-quality baseball facilities.

The professional field award went to Bud Koehnke, head groundskeeper at Osceola County Stadium in Kissimmee, FL, which is the Houston Astros' spring training camp and home of the Class A, Florida State League, Osceola Astros. The stadium is an outstanding example of a new multi-field baseball complex in Florida and Koehnke is regarded by many as the "dean" of Florida groundskeepers.

In the college division, the award was presented to Steve Johnson, supervisor of Ithaca College's Bucky Freeman Field in Ithaca, NY. Grandstands at Bucky Freeman Field not only overlook the meticulously maintained, professional quality diamond,

but also nearby Lake Cayuga.

Middlesex County Vo-Tech High School baseball field in East Brunswick, NJ, took top honors in the municipality, park, and school division. The award was presented to the Tigers' baseball coach Ray Cipperly, who maintains the field with his player/students. The field demonstrates what can be accomplished on a limited budget through hard work and dedication to baseball.

Osceola County Stadium is featured in an article in this issue of Golf & sportsTURF. The college and municipal winners will be featured in upcoming issues.

WHITE FORMS CONSULTING FIRM


Charles "Bud" White, a long-time agronomist with the USGA Green Section and most recently director of golf and landscape operations at the Harbor Club in Greensboro, GA, has formed Total Turf Services, a company specializing in professional turfgrass consultation. Headquartered in Watkinsville, GA, the firm will work on domestic and foreign projects.

The organization will provide technical and managerial assistance to golf course architects and superintendents, as well as



other turfgrass professionals. Services will include grow-in management, budget development, equipment need determination, maintenance facility planning and evaluation, soil testing, and irrigation and drainage consultation.

"Today's turf specialists face an ever-increasing workload and greater responsibility than at any time in the past," says White, a certified professional agronomist who holds a master's degree in turfgrass management from Clemson University. "I view my role as someone very familiar with the industry who can pitch in and work right alongside the person in charge."



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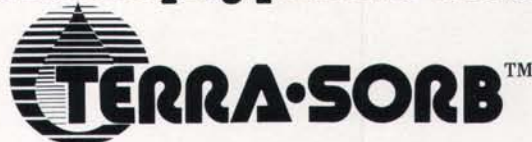
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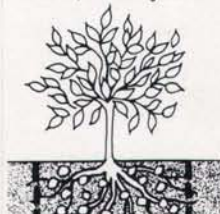
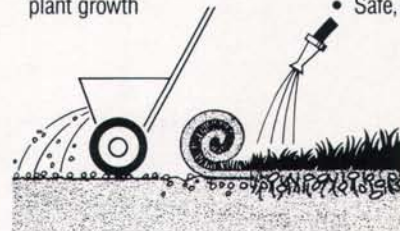
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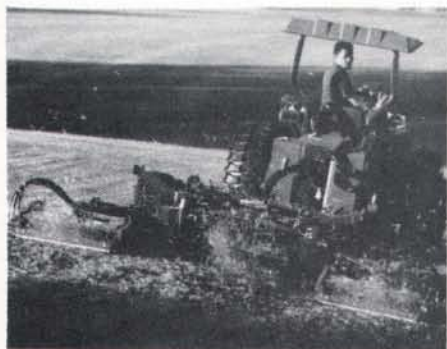
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Old And New Mowers Mix To Provide Best



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Jacobsen HR5111
rotary mower.



Trends in the mowing industry tend to be gradual. Commercial mowing equipment typically lasts five years or longer. In the past, there was little motivation to upgrade mowing equipment while it was still productive. That might be changing as an influx of new technology, closer attention to equipment and labor costs, and the specialized needs of the golf and sports turf industries are recognized.

If nothing else, the number of mowers to choose from has grown. There are models to fit all budgets, many different levels of turf quality, and the specific needs of various sports. That's not to say that older mower technology has been outdated. The new technology is focused largely on specific uses or sites. A mix of old and new technology might best fit the needs of a sports facility.

"The mower industry is more user-driven than ever before," says Larry O'Connell, chairman of Bunton. "The company that listens closely to superintendents and sports turf managers has a definite advantage. Equipment needs to be tailored carefully by engineers who can think like their customers."

One drawback from the user's standpoint is that each new mower model has few parts in common with existing models.

This forces the mechanic or servicing dealer to stock an ever increasing number of parts to make repairs quickly. O'Connell plans to make many of the parts on Bunton mowing equipment interchangeable in the future.

Lesco is addressing the parts issue with a service hotline and overnight shipping. "The person on the end of the phone has to be more than an order taker," states Jeff Mack, vice president. "He has to be completely familiar with each piece of equipment, its parts, and the way to service it."

Field testing of new equipment before it is placed on the market is essential, says Dennis Brown of Toro. "The best way to evaluate new technology is to let the superintendent or turf manager try it out before it goes into production," he remarks. "We refine our prototypes based on their feedback. Once in production, our distributors continue to pass on comments from buyers."

At Jacobsen, feedback from the field has taught engineer Bob Krick that customers' needs vary by region as well as by facility. "Our LF-100 [five-gang, lightweight fairway mower] was originally designed for northern fairways," reveals Krick. "Since it came out, sales have spread into the South. Clipping removal isn't as important in the South, but verticutting is."

Ransomes has discovered that the five-gang fairway mower market is split. "Some customers prefer slightly heavier, more durable units," says David Fondrie, executive vice president. "Larger reels and more power help them get through heavier grass on a daily basis."

By powering reels hydraulically and increasing the number of blades on each, manufacturers provide mowers with an exceptionally fine cut. For those facilities operating on tight equipment budgets, a number of companies offer hydraulically-operated, tow-behind reel units for tractors, such as Kubota's seven-gang Verti-Reel.

"Dedicated mowing units have certain

Technology Turf Quality



Lightweight
five-gang fairway mower
by Buntun.

advantages," comments Claire Peterson with John Deere. "Those advantages don't always justify the cost over tractor attachments. There will always be a market for multi-purpose tractors."

One area where reels may be losing some ground is on taller turf areas, such as golf course roughs and practice fields. When turf gets matted down by players or cart traffic, the foliage needs to be lifted prior to cutting. Rotary decks use suction to lift foliage up to the blades. The result is a more uniform cut.

Another advantage of rotaries is they can be attached to the front of tractors or prime movers which have a very small turning radius. This adds greatly to the maneuverability of mowers. Greater maneuverability translates into higher productivity. Mid-size riding rotaries have nearly eliminated the need for walk-behind trim mowers on large sites.

An increasing number of manufacturers are offering mowers with zero turning radius. Mowers in this category range from 32-inches-wide to 12 feet wide. The larger widths are made possible by attaching side-mounted cutting units which can be lifted for transport or for fitting through narrower spaces.

There are two ways to gain width with rotary mowers. The most common is to stagger the blades front to back so they can turn independently from one another. In this configuration, the blades can be powered separately by hydraulics or through a series of belts.

Walker Manufacturing uses a gear box to time the rotation of its blades so they can actually overlap. This allows the blades to be positioned in one line. "The advantage of our mowers is they are less likely to scalp," explains Bob Walker. "There is also no need to grease spindle bearings."

Jacobsen has also moved to reduce the amount of lubrication in rotary decks. Its HR-5111 rotary currently under development powers each blade with its own hy-

draulic motor. "The oil in each motor lubricates the spindle," states Krick. "This also eliminates belts and pulleys."

Regardless of the type of mower, more attention is being focused on site conditions. In addition to maneuverability, mowers are needed with better stability on slopes. Banks around greens, tees, and sports fields constitute acres of mowing.

Heavily mounded fairways require cutting units that can float with the contour of the surface without scalping. Increased emphasis on target golf is reducing the size of fairways. Striping of fairways has also become a sign of high quality. Fairway mowers must be able to negotiate narrower spaces yet have the maneuverability to make the tight turns required for striping. Operators need to lift cutting units easily and quickly.

Like many sports fields, fairways are not as free of debris or rocks as greens. The operator must be able to see such debris before it comes in contact with reels. Cutting heights around one inch or below require reel mowers. If this is the goal, then extra diligence is needed prior to mowing. A second option is the fine-cut flail if a turf area is likely to contain trash.

Ransomes' Fondrie summarizes trends in mowing equipment as stepping up from one site to another. "Riding triplex

greensmowers moved from the greens to fairways," he states. "With the advent of lightweight five-gang units for fairways, triplex units moved to tees and collars. Then out-front rotaries started replacing reel gangs in the roughs. Now the attention is being placed on equipment that can handle green banks, tee surrounds, and fairway mounds. Finally, many superintendents are going back to walk-behind greensmowers."

On sports fields, triplex and five-gang reels are taking over low-cut turf. Striping is as important for baseball and football fields as for golf courses. Stadium groundskeepers are starting to use walk-behind greensmowers for baseball infields.

For taller turf on athletic fields and surrounding areas, out-front rotaries do the job quickly and evenly. Fine-cut flails can be used where there is danger of rotaries throwing debris. A pattern can be given to the turf with rollers behind flail cutting units.

During the '90s, superintendents and groundskeepers aren't waiting for their existing mowers to reach the end of their useful life before trying new mowing technology. They find new uses for old equipment while taking advantage of new models. The end result is better quality turf, higher productivity, and a more professional approach to turf management.



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GUADAGNI APPOINTED NORTHWEST GOLF MANAGER



Bob Guadagni has been appointed golf manager-Northwest for the Golf Division of Rain Bird Sales, Inc. He is responsible for working directly with the company's network of golf distributors throughout the area. His territory includes northern California, Colorado, Idaho, Montana, northern Nevada, Oregon, Utah, Washington, and Wyoming.

Guadagni joined Rain Bird in 1977 as a district manager for its Turf Division. He was later named western regional sales manager. In 1984, he was appointed director of operations for Westircorp, Inc., a Rain Bird affiliate company. He is an alumnus of Diablo Valley College and California State University, Chico.

FOXBORO GOES NATURAL

Installation of a heated sand-based grass field in Foxboro (MA) Stadium, home of the New England Patriots football team, has begun. The new natural surface will replace the venue's artificial turf, which has been in place since 1984.

The field will be installed by Randall & Blake, Inc. (RBI), Environmental Contractors of Littleton, CO. The firm also designed and constructed the Denver Broncos' practice field in 1989.

"This is a great commitment on behalf of [Patriots owner] Victor Kiam and the New England Patriots organization to install a proven natural turf field," said Sam Jankovich, the Patriots' chief executive officer and owner's representative. "This decision is in the best interest of not only the

Patriots' football players, but also other players around the National Football League. In addition, such a surface is conducive to a better brand of football."

According to Dan R. Almond, design/build division manager for Randall & Blake, Inc., the surface should be completely installed May 1, and the field should be ready for play by June 1.

Said Almond, "As part of our original construction team, we will once again have Leonard Bayern of Associated Electrical Consultants, Don White of Riviera Electric, both from Denver, CO, to ensure the success of the field heating system, and Mark Altman of Altman & Altman Turf Consultants."

SPORTS TURF INDUSTRY TO GO TO HIGH SCHOOL

Sports turf industry manufacturers and companies will be included for the first time at the National Federation of State High School Associations' 22nd Annual National Conference of High School Directors of Athletics and Exhibition on December 15-17 in Orlando, FL. The organization is headquartered in Kansas City, MO.

"Based on a survey conducted among the 1,200 high school athletic directors and administrators who attended the 1990 national conference, the results indicated that the majority of attendees want to know what types of mowers and turf maintenance equipment, irrigation systems, fertilizers, pesticides, herbicides, and seed they should be purchasing," said Brad Rumble, National Federation assistant director and show manager. "There are approximately 20,000 high schools in the United States, resulting in a significant number of athletic fields and grounds that high school athletic directors are responsible for maintaining."

For more information contact Brad Rumble, Assistant Director, National Federation of State High School Associations, 11724 NW Plaza Circle, P.O. Box 20626, Kansas City, MO 64195. Telephone (816) 464-5400.

MILLER NAMED PRESIDENT

Richard D. Miller has been named president of Jacobsen Division of Textron, Inc., in Racine, WI. Prior to joining Jacobsen, he served as vice president of Combat Vehicle Operations for Cadillac Gage Division of Textron in Warren, MI

Improving Traffic Tolerance with Fertilization

The most significant turf management problem common to golf courses, athletic fields, and institutional grounds is traffic. It separates golf and sports turf from all other types of maintained lawn areas.

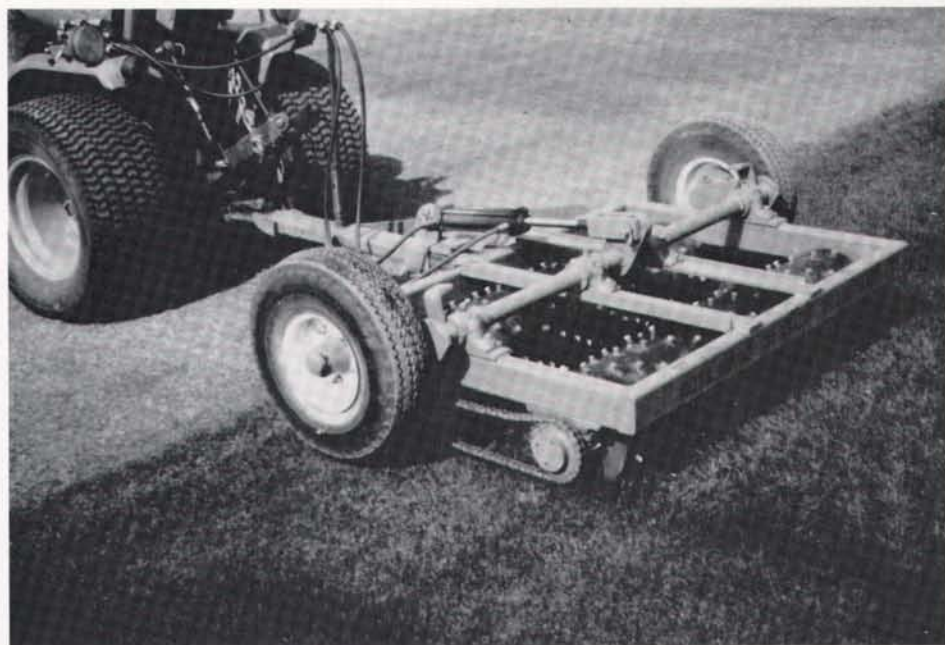
Traffic involves more than wear caused by the weight of people or machines. The scope of traffic extends to compaction and lateral forces which tear or shear turf fo-

which fertilizer, primarily nitrogen, actually decreases traffic tolerance. P. M. Canaway at the Sports Turf Research Institute in Bingley, England, revealed that the traffic tolerance of Loretta perennial ryegrass

optimum fertilizer rate than those receiving no nitrogen or high rates.

Canaway suggests that high rates of nitrogen result in turf with a high moisture content and low wear tolerance. He also

Research has shown that there is a point at which fertilizer, primarily nitrogen, actually decreases traffic tolerance.



Traffic simulators, such as the Brinkman model developed at UC-Riverside, enable researchers to evaluate the effect of cultural practices on the traffic tolerance of turfgrasses.

liage and roots. Selection of turfgrasses and management practices to combat traffic must take all these factors into account.

The full impact of traffic is just beginning to be understood. Research is now underway at various universities and private facilities to develop important information related to the traffic tolerance of different turfgrass species and cultivars. A clearer picture of how turfgrasses recover from traffic stresses will eventually lead to more durable natural turf surfaces.

Historically, a common remedy to the ills of conventional turf areas caused by traffic is a simple application of fertilizer. The reasoning is that nitrogen and other nutrients will stimulate the grass plant to recover from damage. Fertilizers are typically applied in greater quantities to golf and sports turf than to conventional turf to increase the growth rate and the density of the stand, and to establish more vigorous root systems.

This logic is sound to a degree. However, research has shown that there is a point at

growing in sand diminished as annual nitrogen rates exceeded approximately five pounds per 1,000 square feet.

In his tests, he measured percent of ground cover before, during, and after applying artificial soccer-type wear treatments on both soil and sand root zones seeded in August. Before traffic, higher rates of nitrogen did increase the ground cover significantly. However, once wear was applied, plots receiving high rates of N deteriorated at a faster rate than those receiving between four and six pounds per 1,000 square feet.

The fertilizer solution Canaway applied contained nitrogen, phosphorus, and potassium in a ratio of 4:1:3. The turf growing on local topsoil could not withstand the effects of eight months of treatment with a wear machine. The coverage of the sand-based plots was three times greater at the

found that traction did not improve as nitrogen rates rose above moderate rates.

Potassium is the nutrient that impacts the water relationships in turf, explains Dr. Robert Carrow, professor of agronomy at the University of Georgia. Adequate levels of potassium in the root zone make plant cells stronger and more rigid, he points out.

In 1975, research at Texas A&M University by Dr. James Beard and Dr. Robert Shearman showed that traffic tolerance of Toronto creeping bentgrass dropped significantly as potassium levels were reduced. In fact, Beard observes today that low potassium has more of an impact on traffic tolerance than low nitrogen. He recommends a 1:1 or 4:3 ratio of nitrogen to potassium for high-traffic turf, especially in sand root zones. "There is a point at which potassium can interfere with the uptake of other nutrients," warns Beard.

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Improving Traffic Tolerance

continued from page 25

Deficiencies in potassium can be magnified by excess calcium or magnesium, advises Dr. Dean Mosdell of Scotts. "Soil tests are a necessity for anyone with high-traffic turf," he adds. "Sand root zones require closer monitoring than others."

Potassium also reduces the wilting tendency of turf. This can prove valuable in scheduling irrigation around events. Many superintendents and groundskeepers prefer to have root zones on the dry side during high-use periods. Wet soils compact more easily and are less resistant to impact. By preventing wet conditions, turf damage can be reduced significantly.

Like nitrogen, potassium is subject to leaching, especially in sandy soils. The problem is amplified if nitrogen sources containing ammonia are applied frequently, adds Beard.

Since reseeding and overseeding are important cultural practices on high-traffic turf, Beard also recommends paying attention to phosphorus levels. This nutrient is vital to young turf. It assures rapid establishment of seedlings and also promotes root and shoot growth. From the standpoint of traffic, phosphorus speeds up maturation of new plants. Turf becomes more durable as it matures.

Phosphorous is relatively immobile in soils. Still, Beard suggests that managers of high-traffic turf apply it with nitrogen and potassium. "The only detrimental effect of high phosphorous levels could be an increased population of *Poa annua*," he states. Annual bluegrass infestations are also promoted by poor drainage, excessive irrigation, and compaction.

Rapid establishment is critical for high-traffic turf, remarks Dr. Paul Reike at Michigan State University. "The turf manager needs to build density quickly, encourage rapid maturity, and get his turf to harden off as much as possible before traffic is allowed," he states. "A certain amount of thatch is important to protect the crown. Topdressing can also help if the material is compatible with the existing soil mix. Do not overwater either. You'll never have wear-tolerant turf if you keep the soil wet. You have to approach traffic tolerance from a total turf management perspective."

Other management practices that can improve turf density are frequent mowing at moderate heights, proper drainage, well-

planned aeration, overseeding, and late-season fertilization. Dr. Richard Schmidt at Virginia Polytechnic Institute, says that fall fertilization does not increase winterkill of bermudagrass. He also has shown that spring traffic causes more compaction than autumn or winter traffic on dormant bermuda.

Carrow has revealed that nitrogen avail-

sulfur-coated potassium. It provides the same benefits as slow-release nitrogen sources, such as reduced leaching and continuous availability during the playing season.

Most research on the relationship between fertility and traffic tolerance has been conducted in England, Germany, and the Netherlands. For the past ten years there has been limited evaluation in the United States. The primary limitation has been the lack of a standard, scientific method to artificially create traffic on turf.

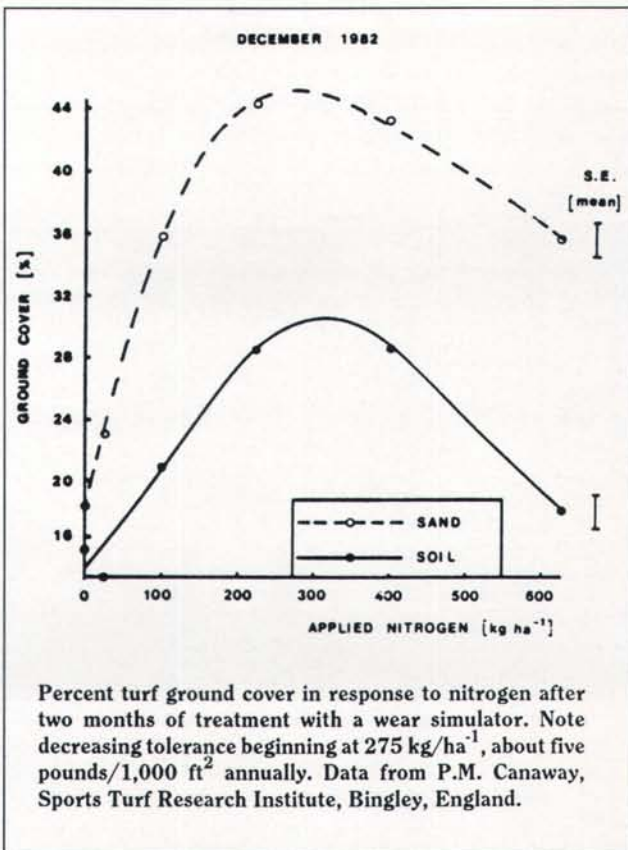
To solve this problem, Steve Cockerham and D. J. Brinkman at the University of California in Riverside (UCR) developed the Brinkman Traffic Simulator illustrated on the previous page. This device simulates wear from friction and scuffing, compaction slightly greater than that caused by an average football player, and lateral shear injury. Hex nuts the size and shape of shoe cleats are welded on two rollers which turn at different rates. The rollers are mounted on a frame which is pulled by a tractor or utility vehicle.

With the traffic simulator, turf plots at different fertilizer rates can be compared for traffic tolerance. Most of the work at UCR has centered around evaluation of traffic tolerance between different turf species and varieties. "We are seeing differences in traffic tolerance and

fertility levels," Cockerham points out. Cockerham has helped Dr. Stan Brauen at Washington State University, Dr. David Minner at the University of Missouri, and John Rogers at Michigan State University build their own simulators. "We are beginning to reach a point where we can conduct fertility research on all types of turf and root zones," adds Cockerham.

In Hubbard, OR, Dr. William Meyer has had his own traffic simulator since 1981 to assist his breeding work for Turf Seed, Inc. "We now have the technology to identify turfgrasses which withstand traffic better than others," Meyer says. "By crossing cultivars with greater tolerance we can genetically create superior turfgrasses."

As Reike pointed out, traffic tolerance requires a total management perspective. Closer attention to fertility is one of many cultural practices that can be adjusted to improve the durability, playability, and safety of golf and sports turf. ☺



Percent turf ground cover in response to nitrogen after two months of treatment with a wear simulator. Note decreasing tolerance beginning at 275 kg/ha⁻¹, about five pounds/1,000 ft² annually. Data from P.M. Canaway, Sports Turf Research Institute, Bingley, England.

ability is influenced by compaction. "The underlying problem is often compaction, not a lack of nitrogen," he reveals. "The solution should be to take steps to relieve compaction instead of applying more nitrogen. More fertilizer can make matters worse since high nitrogen levels and compaction combine to markedly reduce root systems." Carrow adds that compaction does not have the same effect on potassium or phosphorus.

One potential problem with reducing nitrogen levels to more moderate levels is an equivalent reduction in potassium and/or phosphorous when using complete fertilizers. Since many turf managers use complete fertilizers to supply all three major nutrients, they should switch to fertilizers with a higher analysis of potassium during periods of heavy use and phosphorous when overseeding.

A relatively new solution for those who make infrequent fertilizer applications, is

CHALKBOARD

TIPS FROM THE PROS

A MORE TARGETED APPROACH TO AERATING

By Nigel Rennie, Multitynes, Ltd., Markham

The benefits of aerating a sports field are generally well understood by turf managers. The process involves puncturing the hard upper crust and permitting air and oxygen to reach the root zone. Air and water once again become available in the growing medium. Plants that can breathe and drink water with their roots will thrive and thicken, especially if the aeration process is accompanied by a fertilizer application.

Unfortunately for most groundskeepers, aerating the playing field is a once-a-year operation. The process is too disruptive and cumbersome. It is time-consuming to break up the cores and remove the residues.

Much of this unpleasantness can be avoided by taking a new approach to aeration. It is not necessary to aerate the entire field every time you aerate. There are large

portions of the field that receive very little play, and as a result are not compacted and do not require aeration more than once a year. Instead, aeration should be concentrated on the heavier play area, such as center field and in front of goalposts on football fields.

Don't wait for the grass to die in these areas before bringing out the aerator. Every groundskeeper and turf manager knows the heavy wear areas on a field long before these areas show signs of thinning. I suggest, weeks before the playing season commences, outlining potential wear areas with spray paint to designate them for special treatment. I suggest using a small, self-propelled aerator for these areas, with half-inch tines and two-inch spacings. Aerate to a depth of two to three inches. Before matting in the cores, apply a seed mixture

at a heavy rate of 20 pounds per 1,000 square feet.

This process should be repeated every two or three weeks, well into the playing season. The soil in the heavy play areas will be well cultivated as a result of this treatment and a new crop of seed will constantly germinate to keep the stand of grass thick.

You may eventually lose the battle to keep the field playable at center field, but it may not be until the last game of the season. You can relax in the knowledge that you gave it your best shot. Then, if you're in an area that has one, let an old-fashioned winter, with plenty of freezing and thawing action, aerate the field while you relax in the Caribbean.

Editor's Note: This article was adapted from Sport Turf Newsletter, Volume 3, Issue 4, January, 1991.

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Most commercial mowing operations are using walk-behind mowers because they have concluded no rider mower is compact or maneuverable enough to mow landscaped areas. Now maintenance operators all across the country are discovering the compact, maneuverable *Mid-Size Walker Mower* fits their job and saves labor (usually cuts labor 1/2). The labor saving *Walker* looks good whether your business is trying to produce profit or is operating on a budget. Write or call for a free brochure. Ask for a demonstration.

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ROOKIES

PRODUCT UPDATE

FAIRWAY MOWER



Bunton, which developed the Triplex greensmower in 1988, has now taken the idea a step farther. Its new Lightweight Five Gang Fairway Mower cuts a 100-inch path and is equipped with all-wheel drive, grass catchers, and power steering. Each of these features is standard on every fairway mower.

Ninety percent of the parts for the five gang mower and the Triplex greensmower are interchangeable. Because the fairway mower is 400 pounds lighter than other mowers in its class, it lessens compaction and provides a much better looking fairway.

The five gang mower is propelled by a 20-hp Onan gas engine. It is also available with a 22-hp, four-cylinder Kubota liquid-cooled diesel.

A clean, consistent cut can be achieved, even on close corners, because each of the five reels on the fairway mower can be lifted simultaneously. For close cutting around trees and foliage, the outboard reels may be raised and locked independently of the center reels.

BUNTON COMPANY

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FERTILIZER

Five Iron Plus fertilizer is five percent iron plus sulfur, zinc, manganese, copper, and molybdenum. It is formulated to prevent and correct iron deficiencies in turf and ornamentals.

The product is nonphytotoxic and contains a highly available micronutrient solu-

tion for foliar and soil applications. It comes in 2.5- and 55-gallon sizes.

SPECIAL PRODUCTS COMPANY

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WETTING AGENT

NoburN natural wetting agent and soil penetrant is a steroid saponin extract from the desert yucca plant. It does not have to be watered in after each application and it will not burn or discolor leaf tissue when it is applied in hot or dry weather.

Steroid saponins are natural floccing agents that open the soil to air and water by aggregating soil particles. They increase movement of water through hydrophobic soils, improving water penetration and retention.

The product is recommended for situations where there is risk of injury or burn from synthetic wetting agents and in programs where chemical use is undesirable. It is biodegradable in soil and presents no residue or groundwater contamination problem. It mixes with liquid fertilizers and can be sprayed on soil and foliage, or metered into irrigation water.

ROOTSinc

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ZOYSIAGRASS SEED

Sunrise brand *Zoysia japonica* and *Zoysia sinica* seeds are enhanced with chemical pretreatment to improve germination and reduce establishment time.

The varieties feature exceptional wear, drought, and cold tolerance and require minimal fertilization. They grow slowly, which reduces mowing frequency, and can withstand mowing heights from 3/4 of an inch to two inches.

The grasses have a moderately fine texture and density to crowd out weeds. They can also adapt to various soil conditions. Mixed with turf-type tall fescues, they can provide greener growth during dormant periods.

JACKLIN SEED COMPANY

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