

the CLEAN-UP MACHINE



- QUALITY
- RELIABILITY
- SERVICE



Picking up debris in Culvert.



Self unloading with hydraulic door.



Picking up leaves in hedgerow.

THE BROUWER-VAC . . . largest capacity Vac on today's market. The powerful suction head and blower provide the latest technique for vacuuming turf and hard surface areas.

It provides an economical method of picking up grass clippings, leaves, twigs, pine needles and thatch from verti-cutting on sod farms, golf courses, parks and recreation areas and also trash and litter from hard surfaces in airports, parking lots, stadiums and highway shoulders. It vacuums acre after acre without wasteful frequent unloading stops. Fast easy self-unloading is via hydraulically operated door and conveyor. The optional Vac extension hose is spring balanced for ease of handling and allows the operator access in hard to reach areas around trees, flower beds, fences and culverts.

The Brouwer-Vac, designed to provide an economical, fast, efficient and reliable way to "clean-up", it enhances the beauty and cleanliness of turf and hard surface areas.

FEATURES:

- Large load capacity
- Light weight construction
- Dual flotation tires
- Easy to operate finger tip controls
- Unloads in seconds with hydraulic driven conveyor
- 80 in. floating suction head (Opt. extension to 120 in.)
- P.T.O. Driven
- Only requires standard tractor 35-45 hp

BROUWER
TURF EQUIPMENT LIMITED
An Outboard Marine Corporation Company

7320 Haggerty Rd./Canton, MI. 48187 Telephone (313) 459-3700

Woodbine Avenue/Keswick, Ontario, Canada L4P 3E9 Telex 065-24161 Telephone: (416) 476-4311

THE FRONT OFFICE

OPINION PAGE

BETWEEN A ROCK AND A HARD PLACE



Imagine for a moment that you're a bright student studying turfgrass science at a major state university. Your professor pulls you aside after class and says, "How would you like to go into turfgrass research? You won't get rich and I can't promise you a permanent position, but the industry needs you and I think you can make some very important contributions."

First you think of time. You could be earning a paycheck within a couple of years if you finish school with a bachelor's or associate's degree. If you stay on to get a Ph.D., you're talking about another four years.

Now think about money. As a graduate teaching assistant you might earn \$9,000 a year while you complete your studies and write at least two theses. Any research you do will depend on funding from outside sources, so you'll have to be a salesman as well as a student and teacher. If you are married, your spouse will have to work to help support the family.

All goes according to plan and you land an assistant professor position at a university for \$30,000. To earn this salary you'll have to teach in addition to research. Now your goal is to get tenure, a status which provides you and your family some amount of job security. If you hang in there for another five to ten years, you might rake in \$35,000 to \$60,000.

Your buddies from undergraduate school have been climbing the ladder at a golf course, park district, or contracting firm for more than ten years. While you were in school, they were earning more than you, buying houses and cars and taking vacations.

The thought of going into private industry is very tempting. Research funds are harder to come by. State turf research grants seem to be drying up. All the grant money is going toward biotechnology so you have to fight for every dollar you need for turf research.

The "publish or perish" rule at most universities forces you to undertake research projects that are different from your main interest. Much of the research you can get private funding for is not acceptable to professional journals. You're caught between a rock and a hard place. What do you do?

Now you know why two universities have unfilled full professorships in turf science. Now you know why many of our Ph.D.s are joining private industry. And perhaps we will all understand why state and federal funding of turfgrass research is so important.

Major issues facing us now can only be solved through research. State associations and private industry can't pick up the whole tab for research on subjects such as pesticide fate, water conservation, and development of biological controls. We still have a huge amount of testing to do on root zones for golf and sports turf, cultural practices as they relate to wear, and what makes our turf durable and safe.

It's not only a matter of money. As Dr. Jim Beard at Texas A&M points out, it's a matter of attracting gifted scientists who are interested in turf to carry on the work of those who are beginning to retire or leave our universities for private industry. These people aren't monks. They need support, encouragement, and job security.

Unless the turf industry and state and federal agencies (which benefit from taxes on our industry) start supporting turf research wholeheartedly, we may enter the 21st century with a tremendous investment in recreational facilities and little to back it up.

Bruce Shank

EVENTS

CALENDAR

SEPTEMBER

18-21 43rd Northwest Turfgrass Conference and Exhibition, Sheraton Tacoma Hotel & Bicentennial Pavilion, Tacoma, WA. Contact: Blair Patrick, Northwest Turfgrass Association, P.O. Box 1367, Olympia, WA 98507, (206) 754-0825.

19-21 Institute of Groundsmanship Sports & Leisure World Trade Exhibition, Windsor Racecourse, Windsor, England. Contact: Institute of Groundsmanship, 19-23 Church Street, The Agora, Wolverton, Milton Keynes, England MK12 5LG.

26 New England Sports Turf Facilities Management Seminar, College of the Holy Cross, Worcester, MA. Contact: James Long, Holy Cross, College St., Worcester, MA 01610, (508) 793-3477.

OCTOBER

3 GCSA of New Jersey Annual Turfgrass Equipment, Supplies and Irrigation Field Day, Rutgers Stadium, Piscataway, NJ. Contact: Dr. Henry Indyk, Crop Science Dept., P.O. Box 231, Cook College, New Brunswick, NJ 08903, (201) 932-9453.

4-5 Southern California Turfgrass Expo, Orange County Fairgrounds, Costa Mesa, CA. Contact: Southern California Turfgrass Council, 26442 Vera Cruz, Mission Viejo, CA 92691, (714) 951-8547.

4-6 Golf Course Europe 1989, Rhein/Main Halls, Wiesbaden, West Germany. Contact: Expoconsult, Toby M. Rijks, Straatweg 33, Box 200, 3600 AE, Maarssen, Holland, phone (03465) 73777 or FAX (03465) 73811.

8-11 Florida Turfgrass Annual Conference and Show, Curtis Hixon Convention Center, Tampa, FL. Contact: Florida Turfgrass Association, 302 S. Graham Ave., Orlando, FL 32803-6332, (407) 898-6721.

NOVEMBER

7-10 NYSTA Turf and Grounds Exposition, Rochester Riverside Convention Center, Rochester, NY. Contact: New York State Turfgrass Association, P.O. Box 612, Latham, NY 12110, (800) 873-TURF.

7-8 Guelph Turfgrass Institute, College Inn, Guelph, Ontario. Contact: Division of Continuing Education, University of Guelph, Room 160, Johnston Hall, Guelph, Ontario, Canada N1G 2W1, (519) 824-4120.

10-12 Green Team Conference and Trade Show, Sheridan Hotel, St. Louis, MO. Contact: PGMS, 12 Galloway Ave., Suite 1E, Cockeysville, MD 21030, (301) 667-1833.

13-15 Penn State Golf Turf Conference, Keller Conference Center, Pennsylvania State University, University Park, PA. Contact: Dr. Joseph Duich, Dept. of Agronomy, 405 Agric. Admin. Bldg., University Park, PA 16802, (814) 865-9853.

28-30 Turfgrass and Ornamental Chemical Seminar, Purdue University, West Lafayette, IN. Contact Barb Meyer, Purdue University, Dept. of Agronomy, Lilly Hall, West Lafayette, IN 47907-7899, (317) 494-4772.

DECEMBER

4-7 New Jersey Turfgrass Expo '89. Resorts International Hotel, Atlantic City, NJ. Contact: Dr. Henry Indyk, Crop Science Dept., P.O. Box 231, Cook College, New Brunswick, NJ 08903, (201) 932-9453.

4-7 Ohio Turfgrass Conference & Show,

The Ohio Center, Columbus, OH. Contact: Ohio Turfgrass Foundation, 2021 Coffey Rd., Columbus, OH 43201, (614) 292-2601.

10-13 41st Annual Canadian Turfgrass Conference and Show, Metro Toronto Convention Centre, Toronto, Ontario. Contact: Canadian Golf Course Superintendents Association, 2000 Weston Road, Suite 203, Weston, Ontario, Canada, M9N 1X3, (416) 249-7304.

11-13 Georgia Turfgrass Conference and Trade Show, Hyatt Atlanta Airport, College Park, GA. Contact: East Georgia Extension Center, (912) 681-5189.

JANUARY

10-12 Eastern Pennsylvania Turf Conference & Trade Show, Valley Forge Convention Center, 1200 First Ave., King of Prussia, PA. Contact: Dr. Thomas Watschke, Dept. of Agronomy, 405 Agric. Admin. Bldg., University Park, PA 16802, (814) 863-1613.



TRENCHMASTER

Take the sweat out of trenching with Trenchmaster. Sturdy steel construction, but light enough for easy loading and operation by one man. Ease of cleanup, no compaction and no turf damage means fewer customer complaints. Trenchmasters trench up to 7" or 12" deep and from 10 to 30 feet per minute. Your choice of three makes of industrial engines. New rotors are available for trenching in hard clay and rocky soil.

For further product or dealer information, call or write:

 **BROWN**
MANUFACTURING CORPORATION
Route 3 • Ozark, Alabama • 36360
(205) 795-6603



Rails are moved frequently to spread out wear on the turf. Photos courtesy: O.M. Scott & Sons.



Hoof marks are repaired daily.

Turf Track Maintenance

There's something a little hypnotic about thoroughbred turf track racing. The trance begins slowly, subtly, with colors that catch the eye; the emerald-green track dotted with the circus-like hues worn by jockeys atop perfect horses walking, almost floating, to the gate.

One would expect the spell to break once the 2,000-lb steeds explode from the gate, but if anything it intensifies. Both the occasional fan and the experienced handicapper can be seen rocking, at first slowly, in their seats as the horses approach the first turn.

Like the horses and the jockeys, the spectators lean slightly into the corner, trying to gain an edge, while tufts of green fly from the horses' hooves. It would take a week for the practice tee of a busy

municipal golf course to produce the type of divots that a thoroughbred race can kick up in a little more than a minute.

The rhythmic motion of a full gallop creates an illusion; the thoroughbreds' legs are moving slowly through a tiny minefield, where chunks of turf are blown into the air with each step. If colors and adrenalin induce the trance, it is the gallop, and the small explosion of green it causes, which cement it. Turf racing is sheer delight.

It is unless you happen to be a track superintendent at one of the few horse racing facilities in the United States or Canada that have turf. Of course, track superintendents love turf racing as much as the fans, but the fans don't have to keep a turf track operational for a season.

Not that maintaining a dirt track is effort-

less. Nobody fusses over dirt like the field crew at a horse race track. The process of mixing, screening, dragging, rolling, brushing, and wetting the dirt is endless. Before every race, the track surface is loosened with a harrow and then dragged smooth. The rocks that invariably pop up have to be collected. But turf, unlike dirt, has to be kept alive.

High maintenance and the cost it incurs have kept turf tracks something of a rarity in the United States and Canada, although in Western Europe they are more common than dirt tracks. This is due in part to the preference among European breeders to train their horses on turf, and the brief duration of the "meet" or racing season. While the turf meet season in the U.S. and Canada can be as long as six months, the

Horses racing on the Marshall course must cross the dirt track.



Main track is used for six months each year.

Both The Marshall and the Main, Kentucky bluegrass tracks, are 80 feet wide. The practice track is 120 feet wide.

The turf track racing season runs for six months, from May 24 to the end of October, which is just slightly shorter than the dirt track racing season. An average of 1½ races are run on the turf each day during racing season.

The practice track is not spared from the pounding. As many as 200 thoroughbreds can travel, often flat out, across it during the four days it is open each week of the season.

"Horsemen love to run their horses on turf," said Ron Aspden, superintendent of the race course. "The demand for the track is high."

Aspden, a 32-year-old Ontario native, has worked at Woodbine for ten years, the last four as superintendent. He grew up on a breeding farm in the area, where his family raised thoroughbred horses. While in college studying mathematics, Aspden took a job as a driver at Woodbine. After finishing school, he began to work at the track full-time.

It took six years of hands-on learning for Aspden to reach his position. He works closely with Bill Partridge, grounds supervisor, and a 35-man crew of drivers and laborers. Partridge, 30, is also an Ontario native. He began working at the track when he was 15 years old.

"My father-in-law was superintendent of the grandstands," said Partridge. "At the time I started, I was really young and just wanted to get out into the work force and make some money. I stayed—it's a really nice environment to work in—learned as I went along, and took the short course in turf management at Guelph University in Ontario."

Partridge's day at the track begins at 7:30 a.m. and usually ends by 5 p.m. He tries to work five or six days a week, but it is not uncommon for him to go straight through the week during the busiest periods in the racing season. "We sort of divide up the work," said Aspden.

There is plenty of work to divide, and although the pre-season preparation begins in March, two months before the first hoof hits the turf, it could be said that preparation for the upcoming racing season

continued on page 16

meet season of certain European facilities can be as short as two weeks, or even a few days. Shorter meet seasons translate into less maintenance and lower costs.

While there are several turf tracks in the U.S., such as Suffolk Downs in Massachusetts and Santa Anita in California, there are only two facilities that have turf tracks in Canada. Both of these, Woodbine and Fort Erie, are in Ontario, and are owned by the century-old Ontario Jockey Club. The organization owns and operates four horse racing facilities in Canada. Woodbine is the site of one of the country's most prestigious races, the \$750,000 Rothman International. As many as 10,000 fans visit the track during each day of racing season.

Woodbine has a total of four tracks, one

dirt and three turf. One of these turf tracks is used only for practice. Surrounded by the dirt track is a turf oval called the Main Track. On the outside of the dirt track is a J-shaped turf course called The Marshall, which begins beyond the exit chute of the dirt track's first corner, wraps around the backstretch, actually crosses the dirt track, and finishes on the frontstretch turf of the Main Track.

The configuration of The Marshall is unique, to say the least. Before a thoroughbred is allowed to race on the Marshall, it must qualify by running the track alone. If it is unable to cross the dirt section cleanly, then it is not permitted to race on the course. To help the horses prepare, a dirt section was recently added to the training track.

Turf Track Maintenance

continued from page 15

begins at the end of the old one. After the final turf race is run in October, the turf, which during the season is cut to a height of six inches for the horses' footing, jockey safety, and aesthetic considerations, is trimmed to three or four inches. The turf is topdressed, using a mixture of one bucket of sand to two or three buckets of topsoil. The topdressing is fed through a shredder, and then dragged into the ground using a metal mat pulled behind a tractor.

The turf is then verticut with Olathe equipment, aerated to a depth of eight inches using either a core- or spoon-type aerator, and any remaining damages are repaired.

In March, the turf is aerated and verticut again. Reseeding, with a mixture of Baron and Nugget Kentucky bluegrass and ryegrass, is performed in the spring. The crew uses a Jacobsen drill seeder for the job. "Since the track is used so much, we also seed whenever we get the chance to do it," added Partridge.

Irrigation on all three tracks is controlled through 18-station, Rain Bird Control Boards. Sprinkler heads have been installed both on the outside and inside borders of the tracks and they are activated in groups of six; three on the outside, and three on the inside. All the watering is done at night.

"All of our irrigation is on timers," said Aspden. "All 87 heads on the Marshall are Rain Bird."

During the season, the practice track and the Main Track are watered for four minutes nightly. The Marshall is watered for 12 minutes. Aspden added that they also adjust the irrigation according to the weather. For example, he said, June and July had low rainfall, while August was fairly wet, and the system was adjusted accordingly.

The difference in watering requirements lies underneath the turf. For The Marshall, and a portion of the training track, it is sand and gravel over clay. For the older Main Track and most of the practice course, it is topsoil over clay. Partridge said that he doesn't worry about disease outbreaks due to night watering, because when the grass is healthy and growing it takes care of itself, and disease has little chance of getting a hold. However, they have used Scotts FFII to control snow mold outbreaks.

Watering is done accurately and carefully, to prevent the creation of soft spots which could throw a horse off its stride. Should a soft spot occur, the turf in the spot and all the wet topsoil or sand (depending on the track) are dug out completely. The hole is then filled with the required medium and sodded from on-site plots. Adequate drainage plays a substantial role in preventing these soft spots, as well as turf diseases.

"The Marshall has drainage lines at 35-foot intervals, running laterally around the track," said Aspden. "We do have to cancel



Bill Partridge (left) and Ron Aspden.

the turf race, if we get a lot of rain. The horses just damage the turf too much."

About eight years ago, Dave Dick, technical representative for O.M. Scott & Sons Company, began working with Woodbine maintenance officials to develop a fertilization and maintenance program. Dick, an Ontario native and former golf course superintendent of 12 years, had long been aware of the track, and decided to give them a call when he joined Scotts. He now enjoys working closely with both Partridge and Aspden.

"Over a period of time, we developed a fertilization and maintenance program based on soil tests," said Dick. He added that the tests done each year have shown the soil to be slightly alkaline and high in phosphorus. Partridge explained the fertilization program for the 1989 turf racing season, which with little exception was not different from that of the previous year.

"We put down about six pounds of nitrogen per 1,000 square feet on the older track, which has a topsoil base, with monthly applications of ProTurf Super Fairway Fertilizer, April through September," he said. "On the Marshall, which has a sand base, we also put down six pounds of nitrogen per 1,000 square feet, using a combination of ProTurf Super Fairway, Super Greens and High K fertilizers."

Partridge added that although the fertilization program is monthly, the crew will fertilize whenever it appears to be needed. "When the turf needs it, we'll also give it a little shot of urea," he said.

To keep the tracks' turf six inches high, they use a Woods 15-foot rotary mower. The tracks are mowed every three days; by the time one is finished, the next is ready to be mowed again. With each mowing, the pattern is alternated. If on one track they mowed from the outside to the inside, they'll start its next mowing from the inside and work to the outside. In this way, said Partridge, they avoid turf wear from tire marks. They also drag the turf with the mat when necessary, to lift matted-down areas.

To keep what Aspden called "a problem with thatch" from running away from them, they use a Brouwer turf vacuum to pick up the clippings every time they cut. As the season cools and there is less stress on the grass, the turf is mowed to a height of 4½ or five inches.

As if all this weren't enough for Aspden, Partridge, and their crew to worry about, it's important to remember that the tracks they topdress, aerate, verticut, irrigate, drain, fertilize, and cut are pounded and gouged almost daily by thoroughbreds. It would be like a golf course superintendent making sure that the greens are as smooth and even as a billiard table, and then welcoming a pack of motocross racers.

One of the solutions to the daily beating taken by the turf racing tracks at Woodbine has been the installation of an adjustable, portable fiberglass rail system. Because most of the races are run in about a 15-foot wide strip, and the tracks are 80 feet wide, moving the rails allows them to distribute the track wear evenly. Once the lane for the race has been determined, one of five that they use, it is laser-sighted for precision placement of the rail, which slides over goosenecks that are placed in the turf.

"We measure out our lane and mark it with a pin," said Partridge. "We place the laser there, which shoots a beam of light down the track to a beam receiver mounted on a tractor. We're accurate to 1/8 of an inch."

After every race, the crew goes out on the track to replace or fold down divots and pack the turf where the horses ran. The track is patched and then rolled. Turf tracks are rolled in the opposite direction of horse traffic to smooth out ridges and push down divots. If several races are run in a day, the crew waits for the evening to begin repair work.

"Once the turf starts to get worn down, we go out and spread seed [the same blend used in reseeding] mixed with soil," said Aspden.

Far from being content to simply lie back and watch the grass grow, Aspden and Partridge continue to pursue methods of improving turf track racing conditions at Woodbine. Aspden recently traveled to Santa Anita Race Track in Arcadia, CA, where he saw Netlon—plastic mixed with the sand under the turf. Netlon reportedly provides greater turf strength and stability for the horses. They are currently working on test plots using this method on one of the practice tracks.

"Sand has worked great on golf courses [under turf], but horses have a hard time getting stability on it," said Aspden. "If the track is wet, a lot of the horsemen will scratch their horses from the race. A lot of the handicappers won't bet if they came to see a turf race and it was canceled. They get disappointed."

In October the Woodbine turf track season will end, and Partridge, Aspden, and their crew will put the turf to bed for a few months. They'll concentrate solely on the dirt track until December, and in March they'll begin to hit the turf again.

For turf racing thoroughbreds, the season is short and the mesmerizing race is brief. Partridge and Aspden have no such luck, but their work seems to pass quickly. Turf track racing is full of illusions. 🐾

Introducing the next generation in full-circle swing joints



Inlet and outlet fittings at no extra cost.

Absolutely no cracked fittings. No leaks. No lost time.

Our new Unitized Swing Joints come fully factory assembled. They're free of solvent welded joints. And the low cost will surprise you.

You get full three-way 360° action, so the standard 12" one-piece molded swing arm easily adapts to all installations.

And you get the reliable Lasco swing joint quality proven since 1982 in all kinds of

climates and conditions in over 250 golf courses worldwide. That kind of quality lets us back all our swing joints with a unique, unmatched Three-Year Performance Warranty.

Choose from 1", 1¼", or 1½" diameters. Your choice of 3 outlets and 4 inlets needed to fit your system — at no extra cost.

Write for details, or ask your distributor. You'll get the facts on the new generation — along with data on our Factory-Assembled and Assembly Kit Swing Joint models, too.

LASCO
the strongest link

Lasco, 3255 East Miraloma Avenue, Anaheim, CA 92806. Warehouses and sales offices nationwide.

Circle 117 on Postage Free Card

NEW BASEBALL LEAGUE OFFERS CITIES NEW HOPE

Since 1916, when the Federal League folded, Major League Baseball has had no competition. Despite pressure from the United States Congress and cities across the country, the Major League has resisted expansion from its 26 teams. According to Baseball Commissioner Bart Giamatti, only two cities will have a chance for expansion franchises in 1992 at the earliest.

That just isn't good enough in the minds of potential franchise owners in Miami, FL, Denver, CO, Washington, DC, or Phoenix, AZ. So for the past two years they have quietly planned a second professional

baseball league with eight to 12 teams. If their hopes become reality, the new league will begin playing a five-month season this coming April.

The league doesn't even have a name yet, and the founders won't identify themselves publicly. Sportswriters digging into the affair however, believe that two lawyers with baseball connections, Richard Moss and David Lefevre, are the primary organizers. Former St. Louis Cardinals pitcher Bob Gibson is said to be the leading candidate for commissioner of the new league. The reporters also have discovered

that NBC and ABC have discussed television rights with league officials.

RANSOMES EXPANDS WITH PURCHASE OF CUSHMAN

The list of companies under the Ransomes America umbrella will take a significant jump this month with the addition of Cushman, Ryan, and Brouwer Turf Equipment Ltd. Helmut Adam, president of Ransomes America, announced in August that his company had reached an agreement with Outboard Marine Corporation to acquire the Cushman group for \$150 million. Ransomes America is a division of Ransomes plc, Ipswich, England.

The Cushman group, which includes Cushman turf vehicles and mowers, Ryan aerators and sod cutters, and Brouwer mowers, vacuums and sod harvesting equipment, will be run as an independent entity under the Ransomes America umbrella.

"Cushman will operate as before," stated Adam. "It is a well-run company with a good name. We are not going to change something that runs as well as Cushman." Manufacturing and marketing of Cushman products will continue to operate out of Lincoln, NE.

"I'm excited about working with Stuart Rafos [Cushman president] and the rest of the management team at Cushman," added Adam. "Its product line complements the Ransomes line of commercial turf equipment extremely well."

Ransomes America, which manufactures and markets commercial turf equipment in North and South America, also acquired a line of turf renovation equipment from Salsco, Cheshire, CT, in August. The line includes aerators, seeders, spreaders, loaders, blowers, and dethatchers.

In 1988, Ransomes America purchased Steiner Turf Equipment of Orrville, OH. Steiner has since operated as an independent subsidiary manufacturing mowing tractors and attachments. The addition of the Cushman, Salsco, and Steiner products gives Ransomes one of the broadest lines of commercial turf equipment in the country.

Ransomes plc, has three other divisions. Ransomes Commercial manufactures and distributes professional mowing machinery outside of North and South America. Ransomes Consumer manufactures consumer garden machinery and recently purchased Westwood, a major producer of garden tractors in the U.K. Ransomes Property is involved in property development and investments. Ransomes plc over the last three years has withdrawn from the production of agricultural equipment to concentrate on turf machinery worldwide.

Locke makes the cut...

at the finest playing fields around the world.



Locke Single



Locke Triplex



Locke Professional

On baseball, football, soccer fields and golf courses, Locke's cutting edge, a unique scissor action, produces a clean and uniform cut unmatched by the competition. While other mowers shatter or sheer the grass, Locke reel mowers actually cut each blade of grass cleanly and consistently. The result is a uniform playing surface that maintains its healthy, green appearance and helps improve the quality of play.

Constructed from forged steel frames, machined cast-iron components and precision carbon steel blades, Locke mowers have been proven season after season. Powered by durable cast-iron engines, Locke mowers are built to last more than 20 years. So make your next cut with a Locke... Choose from the *Locke Single*, when maneuverability is crucial on smaller grounds; the *Locke Triplex*, setting the standard for commercial mower performance, quality and durability for over fifty years; or, a riding mower, the *Locke Professional*, is ideal for the larger sports turf grounds.

For the name of your nearest authorized dealer, contact Locke today.

THE LOCKE CUT VS. A TYPICAL MOWER CUT



Each blade of grass is cut cleanly and at a uniform height, which means healthier, greener turf.



Other mowers shatter the blades of grass, leaving uneven ragged ends which turn brown and expose the turf to disease.



Professional Quality Reel Mowers

Since 1928

Locke Mowers, Inc.

2133 Mountain Industrial Blvd., Tucker, GA 30084

(404) 939-1505 FAX (404) 491-6815

Ask for our Sports Turf Specialist

Dealer Inquiries Invited.



Slow-release nitrogen granules.

Understanding Sports Turf Nutrition

Nitrates and phosphates are words you hear more often today, not just from fertilizer salesmen, but from a growing number of people concerned about water quality in this country. While environmental concern over fertilizers applied to turfgrass is almost completely unjustified, there are other important reasons for sports turf managers and golf course superintendents to have a good understanding of the fertilizers on the market today.

Yet, like an athlete, sports turf requires a special diet. Both must exert tremendous energy to achieve goals set for them, recover from injury, and remain durable. Special attention to nutrition is essential to their performance.

"A plant doesn't care where nutrients come from," says Jim Mello, president of Nice-N-Green Plant Foods, Romeoville, IL. "The main consideration is whether these nutrients are available when needed without harming the plant. The type of fertilizer you buy needs to fit into your maintenance program and budget, and that goes beyond a simple comparison of the price of products."

Today's turf manager has a much broader selection of fertilizer products to choose from than he did just ten years ago. For decades, the choice was simple — natural organic fertilizers for slow-release and

synthetic products for quick-release. Nearly all products were granular, applied with spreaders. If the color or vigor of turf began to fade, the solution was to apply more.

Now there are quick- and slow-release fertilizers in both dry and liquid formulations. In most cases they can be spread or sprayed onto the turf in combination with other chemicals. Different nutrient sources can be mixed to stimulate growth for a period ranging from two weeks to four months. Slow-release fertilizers allow a larger amount of nitrogen to be applied at one time without "burning" or overfeeding the turf. They also regulate the release of nutrients to reduce loss caused by leaching, runoff, or evaporation.

Research over the past 25 years has increased our understanding of turfgrass nutrition. Not only do we have a clearer picture of what the plant requires and when, we also have a greater insight into the effects of soil texture, moisture and chemistry on availability. Now researchers are looking more closely at the fate of fertilizers in the soil. All this information is of value to you whether you are responsible for a golf course, athletic field, park, school, or resort.

Any discussion of fertilizers begins with nitrogen. But experience has shown that equal consideration of all macro- and micronutrients is needed to have adequate control over our fertilization programs. By



A complete fertilizer with micronutrients.

knowing your choices, you can use a combination of fertilizer products to meet the high standards and use placed upon natural sports surfaces today.

The most basic principle in fertilization is that plants absorb nutrients after they have broken down and been dissolved in water.

continued on page 20

Until this happens, fertilizers are of no immediate benefit to the plant. Anything disrupting this process reduces their effectiveness. For example, root absorption of nutrients is hampered by soils that are either too wet or too dry. Soils that are compacted, too alkaline or too acid also harm fertilizer performance.

Some nutrients can also be absorbed through the leaves. Foliar absorption can occur when the appropriate form of the fertilizer is applied to turf with water or when a dry product comes in contact with moisture on the surface of the leaves. For this reason, soluble, quick-release fertilizers should be applied at low, safe rates or to dry turf.

The most soluble and fastest acting nitrogen sources currently on the market include urea, ammonium nitrate and ammonium sulfate. Urea is actually a man-made organic fertilizer, but it acts more like inorganic products with its high solubility and rapid breakdown to nitrate or ammonia, the forms plants can absorb. Ammonium nitrate and ammonium sulfate are called synthetic inorganics. All three of these nitrogen sources are subject to loss through leaching and volatilization and must be used with caution to avoid burning the turf.

"You have to be careful with soluble fertilizers, especially during hot weather," warns Dr. Paul Sartoretto, technical advisor



Soluble fertilizer packaged in dry form.

for Cleary Chemical in Somerset, NJ. "But the turf manager wants the quick response they provide. Most slow-release products contain some portion of soluble nitrogen for this reason."

Manufacturers have taken two different tacks to extend the nitrogen release period of soluble fertilizers. The first is to coat products such as urea with sulfur or plastic. The urea escapes through holes or cracks in the coating and enters the soil solution over a period of time, often two months or longer. O. M. Scotts, Lesco, and CIL pioneered sulfur-coated ureas. Sierra

Chemical makes plastic-coated products.

The other tactic used to control release of nitrogen is to react urea with other chemicals to make part of the urea insoluble. Instead of a coating, strong chemical bonds tie up the urea until they are broken down over time by microorganisms or soil moisture.

IBDU (Par-Ex) is made from one process. It is broken down slowly by water. Ureaform, manufactured in a slightly different way, is broken down by microorganisms in the soil. These organisms require heat and moisture to do their job. During periods of drought or low temperature, the release of nitrogen from ureaform slows. However, ureaform can be combined with water without breaking down. This has enabled fertilizer manufacturers to develop sprayable formulations of ureaform. A few examples are Blue Chip Nitroform (Nor-Am), Formolene (Georgia Pacific and Nice-N-Green), Fluf (Cleary), N-Sure (Triazone Corp.), and Coron (Coron Corporation).

Both coated products and reaction products enable the turf manager to apply a high rate of nitrogen to turf at one time with relative safety. Furthermore, the insoluble portion is not prone to leaching or volatilization.

Slow release of nitrogen is also available from natural organic fertilizers, such as Milorganite. The primary difference between the synthetic organic products and

Line Your Field Three Times Faster...



...Without Pushing

The All-Pro self-propelled field marker is:

- Fast
- Does not clog
- Uses less paint
- Built to last

NEWSTRIPE Inc.

CALL FOR DETAILS 800-624-6706

P.O. Box 440881
Aurora, CO 80044

PREGERMINATING UNITS



Liquid Sod Corp. introduces a revolutionary new concept in pregerminating a wide variety of grass seeds, the pregermination unit. It markedly increases seed yields while reducing turf establishment time.

The units provide durability and portability with minimum space utilization. Liquid Sod pregerminating units are a low cost, high profit alternative to existing pregerminating methods.

Special features include: Efficient aerating method that reduces fermentation (seed spoilage); Screened drain plug for reduced handling and seed loss; 150 pounds plus capacity; Four models to choose from; Full line of pregermination supplies.

Pregermination is gaining popularity because it provides advantages over conventional seeding methods such as: controlled germinating environment for faster turf establishment, reduced vulnerability to erosion, enhanced competitiveness against weeds, protection against seed consuming predators, and increased customer satisfaction.

**Liquid Sod, 2095 Euler,
Brighton, MI 48116
(313) 227-5066**