# EXPLORING EQUIPMENT

# Renovation Equipment Maintenance

everal different kinds of equipment are used during renovation of sports fields. Properly maintained equipment will give you better results agronomically and cause you fewer downtime headaches.

In general, renovation includes aerators, spreaders, slit seeders and sprayers. Here's a few of the maintenance basics for each.

#### Aerators

There are five basic areas to proper aerator maintenance, beginning with the cleaning. Aerators must be cleaned thoroughly after each use. Make sure that tines are completely clean. With closedspoon tines, make sure all soil is removed from each tine. Remember, once the soil has hardened, especially in claybased areas, it becomes difficult to clean from the tine.

The next step is to inspect the tines themselves. To ensure proper penetration depth, make sure the tines are not excessively worn. Tine points should be maintained by properly filing or grinding them. Bent or broken tines should be replaced.

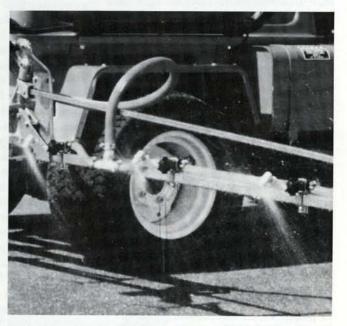
Aerator lubrication is imperative. Check your operator's manual to be certain you are lubricating each point of the machine as specified. Keep in mind that lubrication is cheap insurance for machine performance and longevity. When lubricating all grease points, check all bearIn-line strainers and nozzles of boom sprayers should be cleaned before each use.

ings and bushings for wear. Try to move the shafts up, down and sideways — excessive motion in these areas could determine premature bearing or bushing wear. Replacing worn bearings or bush-

ings at this point will save downtime in the field.

Maintenance adjustments, such as on chains and belts, are also critical. Check your operator's manual for proper tension specifications. If your machine has a chain drive, it must be properly lubricated. If the chain must be replaced, remember to check your operator's manual — your machine may require timing of the chain drive system.

Drive mechanisms are fairly simple. There are three basic types: grounddriven, gasoline engine-driven and PTOdriven. Again, refer to your operator's manual for gasoline engine maintenance schedules, but be sure to regularly



check the air filter and oil levels. If your aerator is equipped with a PTO shaft, check that the universal joints on the shaft are tight and properly lubricated. Also, be sure that safety shields are in place.

## Spreaders

Cleaning is essential on pendulum spreaders. The environments in which they're used are often dusty and can cause problems if left to accumulate. Both the spreader hopper and transmission should be thoroughly cleaned. In addition, the transmission has several lubrication points. These points must be

continued on page 22

### **Exploring Equipment**

continued from page 21

lubricated routinely. This will help remove any fine dust particles that may have worked their way into bearing areas — the lubrication will flush out debris.

Check that the shut-off plate mechanism is working properly and the calibration adjuster is moving freely. Lubrication in these areas will help maintain ease of movement.

If your spreader is equipped with an agitator extension, make certain it is properly adjusted so the top of the agitator doesn't wear into the side of the hopper. You want approximately 1 inch of clearance between the agitator extension and the hopper sides.

The PTO shaft should also be checked. Check the universal joints for play and make sure they're properly lubricated. If your piece of equipment has a slip clutch, make sure the bolts are tightened to their proper torque specifications. Check that your safety shields are intact. It is a wise idea on a pendulum spreader to inspect the spout daily when the spreader is being used. Check the attaching hardware and tighten as needed.

If your spreader is a three-pointhitch type, PTO rpm speed should be 540 rotations per minute. Excessive speed will cause damage to the transmission, while too slow a speed will cause improper distribution of the product.

### Slit Seeders

The environment in which a slit seeder operates makes proper cleaning of the machine essential. Neglecting cleaning will cause premature mechanical parts failure. It can also lead to uneven seed distribution, caused primarily by clogged or plugged seed distribution ports. After thorough cleaning these units, inspect the seed gate to make it opens properly and is adjusted to move freely.

Check slicing blades to ensure good working condition. Replace worn or broken blades and carefully straighten any bent blades. Double-check all blades for security. While you're inspecting the blades, check the safety shields to make sure they're intact and functioning properly. Do not operate the machine if the safety shields are not intact.

Check for proper tension on chains and belts. Make sure that chains are properly lubricated. Lubricate all grease points as specified in your operator's manual. While lubricating grease points,



Working conditions for slit seeders make regular cleaning and adjustment essential.

check bearings and bushings for wear and replace as needed. If your piece of equipment has a gear box, make sure it is filled to the proper level.

There are two types of slit seeder drives — PTO and gasoline engine-driven. As mentioned previously, it is imperative to check the U-joints and the slip clutch on the PTO shaft. Refer to the engine manual for proper service intervals. Because the operating is often dusty and dirty, the air filter should be checked and cleaned frequently.

Maintenance of rotary and drop spreaders is very simple — they should be cleaned thoroughly after each use. On a rotary spreader, it is imperative to clean the impeller. Any caked-on buildup should be removed. If your spreader is equipped with grease fittings, these points should be lubricated frequently to expel dust particles. Again, check these areas for wear. Replace bearings or bushings that appear overly worn. Check and adjust shut-off plates to ensure proper operation. A sticking shut-off plate could alter product distribution rates, which adversely affect seeding results.

### Sprayers

Before using your sprayer, make sure it is clean. Check all filters and the inside of the tank to ensure it is free of debris. After sprayer use, proper cleaning with a neutralizing product is desirable. Be sure to flush out any lines, hoses or booms.

Sprayers equipped with a boom have several areas that need to be checked, depending on the particular setup. Start with the check valves to make sure that they are clean and move freely. Next, check the in-line strainers in the nozzle bodies to make sure they are not clogged. Replace any clogged or non-cleanable strainer assemblies.

Next, check the spray tips. First, remove and clean all tips. Use only a nylon brush, such as a toothbrush. Never use anything else, even a toothpick, to clean nozzle tips — this can result in damaging the tip and cause alterations to the distribution pattern of the tip. After all these areas have been cleaned, reinstall the check valves, strainers and tips. Then check for proper flow and distribution pattern of each nozzle assembly. Replace worn tips as needed.

In sprayer plumbing systems, check all hose and fittings. Hoses should be checked for cracks and signs of wear and any questionable hoses should be replaced. Inspect and clean strainer assemblies. When checking strainer assemblies, don't forget to reinstall the strainer gasket. This is one of the most commonly overlooked areas that causes sprayers to malfunction.

Sprayer pump systems include a pump, a regulator and an engine, if so equipped. Refer to your operator's manual for properly scheduled maintenance intervals for the engine and pump. Oil levels on both should be checked daily.

The goal of athletic field renovation is to reinvigorate or refresh the turf. Proper maintenance of the tools involved plays an integral role in the overall success of the project.  $\Box$ 

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# **PRODUCT SHOWCASE**

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# PRESIDENT'S MESSAGE

#### By Gil Landry Jr.

A s editor Matt Trulio so aptly noted in the April issue of *s p or t s T URF*, "Recognition is vital, both for the individuals honored and the profession itself." The sports turf



industry is lacking recognition. Because turf areas may be part of a total recreational facility, our industry is not well-defined or eas-

our industry is not well-defined or easily quantified. One way to help resolve this is to answer questions we do not know right now, questions such as:

• How many sports fields exist in America?

 How many dollars are spent developing and maintaining sports turfs?

• How many people are employed directly or indirectly in the industry?

• How many people are served by the industry?

Once we have these answers, we need to get them to the right people

through media relations, direct-mail, advertising, seminars and so on.

#### There Are Estimates of Our Size

In a 1992 issue of Turfgrass Monograph, Dr. Jim Watson of the Toro Company estimates that sports turf surfaces cover more than 1,125,000 acres of land in the United States. He also says more than 2.2 million youngsters play little league baseball and more than one million play in other baseball and softball leagues. More than 22 million adults play softball in 173,000 leagues and several million play soccer. With football, Watson estimates more than 1.5 million players. That's a total of 25.7 million players! Then there are millions more that use sports turf facilities for non-organized recreational sports activities.

A survey of our 1992 conference attendees found their average annual budget to be more than \$1.2 million. Of the attendees, 37.5 percent represent school and park districts; 37.5 percent represented colleges and universities; and 18.8 percent represented profes-



sional facilities. Obviously, our conference attendees represent significant operational facilities.

#### **First Things First**

In order to keep our industry in the public eye, there are some steps we need to take:

• Do research. We need to define and identify the value of the sports turf industry as well as answer the above questions.

• Analyze our results. What is this information telling us? How can we use it to our benefit?

• Develop a plan. Once we have all the information, we can develop a plan to implement it.

Step one is already underway the need to quantify and define the sports turf industry is one of the objectives of STMA. We have already begun working with Bruce Shank of our official publication, *sportsTURF*, to develop and conduct a survey. Such a survey is obviously going to take time and money. But we feel it is a commitment we cannot afford to ignore.

## **Chapter News**

Midwest Chapter, STMA: On June 30, the Midwest Chapter, STMA, in cooperation with Wheaton College, is sponsoring the National Midwest Regional Sports Turf Institute. Attendees are invited to the pre-meeting "Meet the Board" evening social from 7 to 9 p.m., June 29, at the Holiday Inn, Carol Stream. Take this opportunity to meet the National STMA board members and the Midwest Regional Sports Turf Managers.

Registration opens at 7:30 a.m. on June 30 at Wheaton College campus, Wheaton, IL. The institute begins with an 8:30 a.m. welcome of activities presented by John Anderson. Morning sessions include: "Getting to Know Soils," presented by James A. Fizell, president, James A. Fizell & Associates; "Drainage Dynamics," presented by Matt Heiss, sports field specialist, Turf Services Inc.; "Irrigation: Possibilities for the '90s," presented by Jeff Wiegel, sales and design, Chicago Turf & Irrigation; "Getting to Know Turfgrass," presented by Tom Voight, extension specialist, University of Illinois; "Planning Out Your Calendar," presented by Eugene Mayer, training manager, The Scotts Company; and "Grounds Management Teamwork," presented by the Naperville North High School grounds team: Athletic Director Neil McCauley, Facilities Manager Mark Cloutier and Groundsman John Filipiak.

After a lunch break, the Infield Rodeo begins. New for 1993, the Infield Rodeo is a two-person team competition on infield dragging and line marking to determine who's the best in the Midwest. Competition will include dragging of the skinned infield area and line marking of one baseline. Dragging equipment and line marking equipment will be provided. Competition per team will be limited to 10 minutes. Judging will be based on team speed in dragging the skinned obstacle infield and straightness of chalking a baseline with no string.

Keynote Speaker, Dr. William Daniels, professor emeritus, Purdue University, wraps up the institute with a presentation from 2:30 p.m. to 3 p.m.

For further information on the institute or to enter the Infield Rodeo competition, contact: John Anderson (708) 717-0855, Jesse Felix (708) 293-0770 or STMA Headquarters at (312) 644-6610. For information on the chapter or other chapter activities call: the Chapter Hotline (708) 439-4727.

Colorado Chapter, STMA: The Colorado Sports Turf Managers Association invites everyone to attend the June 18th Institute at the Sky Sox Stadium in Colorado Springs, CO. The Sky Sox are the AAA farm club for the Colorado Rockies. Events for the day include: an equipment show (you try the equipment); a tour of the stadium with Sky Sox Manager, Brad Mills; an opportunity to listen to speakers from the Sky Sox and the Rockies; and an evening Sky Sox ballgame. Your registration fee will cover the entire institute package, including the game, lunch and dinner.

For additional information on the institute or to register, contact Mark Leasure, executive secretary at (719) 338-0381 or (719) 597-1449. For information on the chapter or other activities contact Ron Marten, Falcon Colorado School District 49, at (719) 495-3601.

The New England Chapter, STMA: The New England Chapter, STMA, plans a day-long meeting for August 11 at Forest Park in Springfield, MA. This event will include: educational sessions; equipment demonstrations; and a trade show; and the annual business meeting and election of officers. Further details will be announced soon.

For information on the meeting, trade show exhibit space or other chapter activities contact Mary Owen, University of Massachusetts Cooperative Extension System, at (508) 831-1225.

**Chesapeake Chapter, STMA:** Special reminder: A field day for training in softball field renovations will be held from 8:30 a.m. to 4 p.m. on June 16 at Meadows Park in Chevy Chase, MD. Meet at the Meadowbrook maintenance facility at 8000 Meadowbrook Lane. Chapter members and non-members are urged to bring the entire groundskeeping crew for sessions on "Skinning Infields and Laying Sod"; "Trenching and Installing Vertidrain; Grading and Leveling Techniques"; and "Measuring and Setting Bases and Home Plate." For further information, contact Tim Moore (301) 650-2631 or Art Downing (410) 313-7254.

Chapter members are always invited to attend chapter board meetings, held on the first Wednesday of each month. The July 7 board meeting will be held at Oriole Park at Camden Yards in Baltimore, MD. The August 4 board meeting will be held at Cedar Lane Park in Columbia, MD.

The Chesapeake Chapter will host the national STMA meeting in November 6-9 at Camden Yards. A great schedule of events is in the works. As an added benefit, the chapter is putting together an information packet for those who would like to spend a few extra days in the Baltimore area or nearby Washington D.C. Contact the hotline for details.

For information on the field day, the chapter and other activities, contact the Chapter Hotline (301) 865-0667.

**Carolina Chapter, STMA:** For information on the Carolina Chapter and its activities, contact Marc Farha, facilities manager for the Charlotte Knights, (704) 332-3746.

**Iowa Sports Turf Association:** ISTMA will hold a hands-on workshop on August 4 in Des Moines, IA, at Sec Taylor Stadium, home of the Chicago Cubs AAA affiliate. Registration for this full-day workshop begins at 8 a.m.

The program will be directed by two sports turf leaders: Mike Andresen, head groundskeeper of the Iowa Cubs; and Jesse Cuevas, stadium superintendent of Rosenblatt Stadium, home of the Kansas City Royals AAA affiliate — and site of the annual College World Series.

This workshop will start off with a 9 a.m. tour of the stadium and "cover the field" on baseball field maintenance. Scheduled sessions include: "Maintaining Infield Lips, Post-game Repairs of the Mound/Homeplate/Bullpens and Measuring the Mound Specifications"; "Proper Infield Dragging and Pre-Game Infield Set-Up"; and "Drying Puddles and Wet Areas." An exhibit area will be included and time allowed to visit the booths and talk with exhibitors.

For information on this workshop or other Iowa chapter activities contact Gary Peterson (515) 791-0765.

**Florida Chapter #1, STMA** : The International Turfgrass Show will take place July 18 through 24 in Palm Beach, FL, with headquarters at the Breakers Hotel. Further details on this event will be announced shortly.

For information on the South Florida Chapter or for details on this meeting or other chapter activities, contact John Mascaro (305) 938-7477 or Ed Birch (305) 938-0217.

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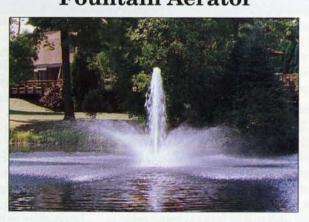


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# RIDING ROTARY MOWER SELECTION: Making the Cut

By Peter Whurr

eciding on the type of mower best-suited to your specific needs can be difficult and even confusing. You want a unit that will make your crew productive. It should be versatile, reliable and easy to maintain. It should fit into your budget. The choices are almost limitless.

In the proper environment, riding rotary mowers can improve cutting timeefficiency and productivity over their walk-behind counterparts. Reel mowers deliver the highest cutting quality — the kind demanded in many sports turf situations — and will never be obsolete, but rotary mower cutting has improved over the years to the point where it's worth considering for athletic fields. Plus, rotary mowers are extremely versatile.

These and other factors account for the increase in rotary mower popularity among professional turf managers, as well as the industry trend toward units with larger mowing decks. While the norm is still in the 36-inch-plus range, decks of more than 100 inches are becoming more popular and available for the riding mower market.

#### **Fundamental Decision Factors**

Ultimately, the primary advantage of having large, multiblade decks on a riding rotary mower is improved productivity. A wider cutting swath reduces the number of "passes" required to cut a given turf area. However, keep in mind that a larger unit can be less maneuverable in tight spaces. In confined areas, walkbehind may be more efficient.

Versatility is another factor to consider in your decision. Determining how and where the unit will be used is crucial.

Will it be used solely on sports fields? Will it be used for cutting in parks and other green spaces? Will it have to work around landscaped areas? Tractor units, which accept a variety of attachments, are something to consider if the mower will used in multiple applications. Whereas "dedicated" mowers, those with the cutting deck permanently attached, are designed exclusively for mowing, tractor units are not.

### Features to Keep in Mind

After defining your work demands, consider the size of the engine the unit will require to do the job. An underpowered rotary riding mower can be inefficient, which could defeat the purpose of a substantial financial investment. While your dealer or manufacturer can offer suggestions and information regarding needed horsepower for your situation, be ready to ask questions regarding engine options, cooling systems, drive systems, and so on.

The engine is the heart and soul of any mower, so choose it wisely. Many manufacturers offer an array of engine choices: air-cooled or liquid-cooled, gasoline or diesel. In general, diesel engines are the most economical to operate. They tend to last longer and are better-suited to heavy-use applications.

When considering engine options, check out:

• Transport speed. How quickly can the mower move from site to site?

• Cutting speed. This is generally measured in acres per hour.

These two factors help determine overall productivity of the unit.

Operating terrain should also be taken into account in the rotary rider mower selection process. Hilly or undulating sites might warrant a four-wheeldrive machine, roll-over protection, and heavy-duty parking brakes. The mower's turning radius and number of cutting decks should be considered, particularly if the unit will work around trees, shrubs and planting beds.

High-flotation tires are yet another consideration. They decrease soil compaction and, combined with sturdy springs and shock absorbers, enhance operator comfort. Fatigued operators are less productive. An adequately padded seat and easy-to-reach controls can also help reduce operator fatigue. Simple routine maintenance, such as oil, oil filter and air filter changes and cleaning, is one of the main ingredients for long-term product reliability. The easier these tasks are to be performed, the more likely it is they will be. That means accessibility to key routine service points is crucial. Design simplicity makes maintenance and in-house repairs easy.

Occasionally, a repair may require the dealer or manufacturer. Conveniently located dealer service departments and the availability of warranties and service contracts can be worth their weight in gold if your riding rotary mower needs major repairs.

Clipping collection is another point to consider. A number of riding rotary mowers feature optional grass catchers. This feature is valuable as long as you have a place to dispose of the gathered clippings. However, since the trend with landfills nationwide is to refuse green waste, you may want to look at other options, such as mulching and composting.

At sports turf facilities, grass clippings have traditionally been left on the ground after cutting, provided the facility is mowed often enough so that no more than 20 percent of the grass blade is cut off at one time. This process will naturally fertilize the soil, without significantly contributing to thatch.

The purchase of any piece of equipment should be seen as a long-term investment. In the case of a riding rotary mower that investment can be substantial. Ask other sports turf managers about their riding rotary mowers. Ask the dealer in your area for referrals, and use them to gather knowledge. The few hours you spend researching before you buy can amount to months and even years of riding rotary mower performance and productivity.

Editor's note: Peter Whurr is the product manager for Ransomes America Corporation.