



Synthetic Turf Groomer with GreensSlicer® Spring Tine Rake.

**Fast, Efficient Grooming
of all filled synthetic
sports fields!**



FEATURES and BENEFITS

- Synthetic Sports Turf Groomer works with all fill material currently used, in both wet and dry conditions.
- Patented brush design lifts turf fibers leaving them in a plush, upright position. Brushes move fill to low spots or depressions left after play.
- Synthetic Super Duty Blue Brushes retain their original shape, resist wear, and will not rot.
- GreensSlicer Spring Tine Rake consists of 3 rows of 28 tines spaced 7/8 inch apart for thorough coverage.
- Each row of tines may be adjusted to the desired level of aggressiveness.
- The GreensSlicer combs through the fill material, relieving compaction and assuring a soft, level playing surface.



Synthetic Super Duty Blue Brushes
Resist wear and will not deteriorate from moisture.



GreensSlicer Spring Tine Rake
3 rows of 28 tines.



**Call for additional information on our line of Synthetic Turf,
Natural Turf, and Clay surface Groomers**

888-298-8852 Fax 317-298-8852

www.greensgroomer.com

GreensGroomer WorldWide, Inc., Indianapolis, IN

Copyright © 2003 GreensGroomer WorldWide, Inc. All rights reserved.
U.S. Patent No. 5833013. Other Patents Pending.

Circle 158 on card or
www.oners.ims.ca/2915-158





Toro at Indy

A group of FFA students from Indianapolis' STAR Academy listens in as a member of the Indianapolis Motor Speedway grounds crew discusses turf and grounds management principles and careers during a career and safety day sponsored by The Toro Company, the official provider of turf equipment for the IMS's 750-acre grounds.



GAME ON

Game On is a brand new sports field soil conditioner that is a lightweight, expanded shale product that absorbs more than 20 percent of its weight in water. Product is durable and doesn't break down into fine particles, and includes soil conditioner, topdressing, warning track, and drying agent. Distributors wanted.

Hydraulic Press Brick Co./888-593-0395
For information, circle 097 or
see <http://www.oners.ims.ca/2915-097>

MODULAR SOCCER GOALMOUTH

GreenTech's patented modular system is an innovative technology that provides solutions to problems associated with the design, construction and maintenance of horticulture and turfgrass projects. Here we illustrate the GreenTech Modular System used as a soccer goalmouth.

Modular construction allows new mature, well-rooted turf, to be replaced, in worn, high-traffic areas, such as goalmouths. This eliminates the need to constantly re-grass the area with sod that does not have time to become fully established.

Modular Soccer Goalmouths...by GreenTech!



GreenTech

1301 Macy Drive : Roswell, GA 30076
tel.770.587.2522 : fax.770.587.2445
1-866-587-2522 toll free
www.greentechitm.com
info@greentechitm.com



MOUND & BATTERS BOX MIX

Klawog is not just packing clay, it's a patented natural clay based product that makes your work easier. Natural clay repairs tend to laminate rather than blend with the base material thus the same hole is created over and over. Klawog mix fuses with itself to allow players to customize their individual footing with each game played.

Wessco Inc/800-650-9322

For information, circle 106 or

see <http://www.oners.ims.ca/2915-106>



"DIAMOND" CONDITIONERS

Mar-Co Clay Products makes a wide variety of ball diamond conditioners. The company offers a free Materials Assessment Program to analyze your existing field material and determine your precise needs. Mar-Co can then prepare an Infield Custom Blend that delivers optimal performance for your field. Also available is Diamond Clay Conditioner, an orange-red clay product designed specifically as a conditioner for heavy clays and to provide the correct drainage, texture and color.

Mar-Co Clay Products Inc

519-684-7594

For information, circle 091 or

see <http://www.oners.ims.ca/2915-091>



NATURAL SOIL BINDER

Stabilizer is nature's soil amendment that enhances the equilibrium of the soil and crushed stone surfaces in all climatic conditions. Stabilizer Solutions' patented process naturally binds crushed stone trails, driveways, and parking areas and provides an affordable and aesthetically pleasing alternative to concrete, asphalt, and other hardscape surface materials.

Stabilizer Solutions/602-225-5900

For information, circle 092 or

see <http://www.oners.ims.ca/2915-092>



Calibrated
Seed and
Fertilizer
in a Roll

Rapid
Uniform Turf
Establishment

Make Green

Natural
Weed
Suppression

Minimal Risk
of Erosion
or Leaching

Make Green

Fast and
Simple
Installation

Quickly
Ready
for Play

Make Green



The Smartest Way
to Make Green.



BlueYellow is a
registered trademark
of Koch Cellulose LLC



RAKE



ROLL



RAIN



RELAX

www.blueyellowpro.com • 800-667-3268

Circle 160 on card or www.oners.ims.ca/2915-160

Only a decade after their introduction, turf-conditioning systems have become state of the art in new and newly renovated stadiums throughout the National Football League. Two powerful trends spur the demand for green and pliable playing surfaces, even as the NFL season skids into December: owner concern for player health and safety, as well as the drive to maximize the game's visual impact.

Stadiums from Baltimore to Chicago to Green Bay and Denver, among others, now feature turf-conditioning systems. But even groundskeepers in warmer climates are curious about the benefits of underground warming.

"We recently had an inquiry from Florida stadium operator," says Jeff Wiedemann, strategic products development manager for Uponor Wirsbo, Apple Valley, MN. Wirsbo has provided turf-conditioning systems in eight different NFL stadiums, including the very first at Mile High Stadium in Denver in 1994. Wiedemann himself has been the chief designer and engineer on all but that inaugural effort.

Why would a stadium in the South be interested in a heated field? "Because they were intrigued that M&T Bank Stadium (nearly 1,000 miles to the north in Baltimore) can grow Bermudagrass year-round," Wiedemann says. Even in Florida, the temperature will often hit 40 degrees. When it does, depending on the grass-type, their fields may go dormant."

Most turf-conditioning systems will provide some snow melting as the temperatures hover around the freezing mark, making it easier for spectators to follow the action. But protecting falling players against frozen playing surfaces is an equal or greater priority. "The players are the game," says Ken Mrock, head groundskeeper with the Chicago Bears, which moved into its new, turf-conditioned Soldier Field in September 2003. "By keeping the root zone beneath the grass at a temperature well



Underneath Soldier Field: turf-conditioning system



above 32 degrees, we will make sure the players have a safe and relatively soft playing surface, even in sub-zero conditions."

30-40 miles of tubing

Installed on pea gravel 10-12 inches below the field surface, a turf-conditioning system consists of thousands of feet of high-quality plastic tubing laid in a series of loops on six-inch to nine-inch centers (the spacing depends on the design specifications) and covering the entire gridiron. For most applications, these long loops usually span sideline to sideline, although in Soldier Field they run end zone to end zone. A typical football stadium footprint measures 100,000 square feet, which would require 150,000 to 200,000 linear feet of 3/4-inch or 5/8-inch cross-linked polyethylene (PEX) tubing. Installation generally runs six to 12 days, depending upon the size of the installation crew.

This gigantic loop field is connected through a series of manifolds and heat exchangers to some type of heating plant, usually a staged series of hot water boilers. (Boilers fire one at a time, in "stages," depending on demand.) Pumps move heated water (around 120 degrees) from the boilers through the PEX, which radiates the heat into the root zone above, warming it to a temperature of between 55 and 80 degrees, depending on system parameters. Called "design conditions," these parameters define a root zone temperature (RZT) during a worst-case, winter scenario; e.g., "80 degrees

Sports Turf Managers Association

3 Months FREE Membership.



Join STMA in October and receive a 15-month membership for the price of 12 months.

That's just six dollars and change per month for unparalleled:

Networking

Access to your peers for problem solving and information sharing.

Resources

- Find help with your day-to-day challenges via a content-rich web site.
- Attend *educational sessions* at your chapter events and the annual conference and show.
- Receive the industry's premier publication, SPORTSTURF magazine.
- Find relevant information on Michigan State's Turfgrass Information File (TGIF), the "green" industry's leading source for turfgrass research articles in an easy-to-use database, a \$100 value if purchased separately (professional members benefit).



Recognition

By joining STMA you will stay on the leading edge of technology and showcase your *professionalism* to your employer and the sports industry.



"My STMA membership helps me succeed in my job every day. I have met many other sports turf managers who have shared information that has helped me solve problems and create safe and attractive playing fields."

— Jody Gill, Grounds Coordinator, Blue Valley School District

More information

Fill out the Application for Membership inserted in this issue

SportsTurf
MANAGERS ASSOCIATION

Experts on the Field, Partners in the Game.

800.323.3875

fax: 800.366.0391

www.sportsturfmanager.com

RZT for outdoor conditions of 8 degrees with a 5 mile-per-hour wind."

Heating plant inputs range from 6.5 million BTU to 11 million BTU, with the higher figure delivering proportionately warmer root zone temperatures. A higher RZT, in turn, will keep the ground softer and the snow at least partially melted through all but the bitterest cold.

So far, so good. But there are serious disadvantages to a high RZT. For one, such



Jump Into The Sea



- Most Salt Tolerant Turfgrass • Darker Green Color Than Bermudagrass
- Tolerates Gray Water, Effluent and Many Medium-to-Poor Quality Water Sources
- Low Fertilization Requirements • Handles Wide Range of Soil pH Levels: 4.0-9.8
- Minimal Pesticide Requirements • High Tolerance to Salt Spray, Water Logging and Periodic Inundations • Good Rooting in Sandy, Clay or Muck-Type Soils
 - Can Be Overseeded with Bentgrass-Ryegrass-Alkaligrass Blends
- Root Growth & Functionality Still Maintained in 40-55°F Soil Temperature Range
 - Excellent Low Light Intensity Tolerance

*Providing Excellent Footing & Soft Landings
for Professionals, Amateurs and Beginners*

SeaIsle¹

Certified Seashore Paspalum
www.seaisle1.com

a system involves bigger installation and operating costs, because it demands a larger heating plant, bigger pumps, etc. More importantly, a high RZT can destroy what it was intended to protect, says Wiedemann: "There have been cases in which the RZT ran so high, it actually killed the grass."

Wirsbo invariably defers to the field agronomists on the ultimate root-zone design parameters: "They know what their grasses need and can handle," says Wiedemann, who adds that many turf managers employ other types of protection, such as field covers, to keep the field free of sleet and snow when not in use. High-density tarps trap BTUs in the ground during colder conditions, helping to keep the grass warm.

For their part, the Chicago Bears chose to maintain a relatively cool RZT of 55 degrees. "When I first ran the calculations, I was concerned," says Wiedemann. "With a root zone temperature that low, Soldier Field would probably freeze at design conditions [outdoor temperature of 5 degrees with a bracing 15 mph wind]. Ken was aware of that possibility, but his first priority was to protect the grass."

Wiedemann subsequently built in enough extra boiler capacity to accommodate an RZT of 65 degrees. "That way, Ken still has the option of melting snow in December or January," says Wiedemann, "but without jeopardizing the root system and the grass."

Zone defense

Just like your home heating system, the turf-conditioning system in a football stadium is divided into zones. Wirsbo engineers insist upon four at a minimum, sometimes more, depending on conditions. "We have had people approach us for a single-zone system," says Wiedemann, "but we have always managed to talk them out of it." In doing so, Wiedemann uses a two-fold rationale:

- Better control: Different areas of the field experience different temperatures at any given time, espe-

cially in colder months when the temperature differential between sun and shadow can be substantial. This pursuit of control is why the Bears chose to run the loop field in Chicago end zone to end zone, rather than sideline to sideline. Soldier Field is oriented north to south, with a significant portion of the field shadowed by the western grandstand in November or December. The longitudinal layout of the loop field made it easier to balance temperatures between the sunny and shady sections, as the afternoon sun zips across the winter sky. Zoning facilitates this equalizing effort.

"We install multiple sensors in a zone, which typically measures 25,000 square feet," Wiedemann says. "The system's microprocessor then calculates an average across all of these sensors and adjusts the temperature of the water coming from the boiler accordingly. For example, a sunny section of the field will need lower water temperatures than one in shadow: Supply the same water temperature to both, and you either sacrifice effectiveness or energy efficiency."

- Redundancy: Zoning also prevents disaster in the event of a system breakdown, no small matter on game day. "Let's say a pump malfunctions," Wiedemann says. "With zoning, we would lose control only of the zone that pump serves. We can do our troubleshooting and repairs in that zone without having to shut down the entire field."

Owners of other types of sports facilities are growing curious as. Most such inquiries remain strictly in the "kicking-tires" stage, according to Wiedemann, as these operators weigh the advantages against the per-square-foot cost range of \$4.50 to \$7.50.

"Very few college stadiums have gone to turf-conditioning at this point because the majority host only five or six games annually," says Wiedemann. "Plus, their home seasons end in November rather than late December or January, as in the NFL."

Then again, if a television network is going to pay large sums for the rights to broadcast, its producers will understandably want that product to look first-rate to viewers.

"In addition," says Wiedemann, "many stadiums have become multi-purpose, used for other sports as well as for concerts. Studies have shown that turf-conditioning makes the grass more resilient, so it snaps back much faster after the 100,000 pairs of feet have gone home."

Inevitably, word-of-mouth promotion driven by the early adopters of turf conditioning will spur interest and eventually demand. "We use to

have to fight to get stadium owners and managers to even consider turf-conditioning," Wiedemann recalls. "But now it has become a routine part of the bidding process, not merely an alternative. **ST**

Uponor Wirsbo supplied this article. For more information contact Jeff Wiedemann at jwiedemann@wirsbo.com or 800-321-4739.

Top-Quality Bermudagrass. Excellent Cold-Tolerance.



For Detailed Information
and a List of Licensed Growers Visit:

www.tifsport.com

Circle 162 on card or www.oners.ims.ca/2915-162

FLEXIBLE TUBING

The new Hunter PRO-FLEX is more flexible and easier to work with, and is more resistant to kinks, than any other professional flexible tubing. It's the perfect complement to the Hunter Spiral Barb Elbows for connecting sprinklers to lateral lines at the proper height and position. It also allows for head movement from traffic and equipment, eliminating the chance for broken risers.

Hunter Industries/760-744-5240

For information, circle 067 or

see <http://www.oners.ims.ca/2915-067>



UNIFORM WATERING

Designed specifically for turf applications, ProSport triple nozzle configuration promises uniform watering. Each nozzle throws a graduated pattern of water, providing primary and secondary coverage. The nozzles handle areas ranging from 45 to 75 feet. The triple nozzle configuration yields better coverage

than conventional turf sprinklers and conserves water. A lower application rate greatly reduces runoff and puddling.

K-Rain/561-844-1002

For information, circle 068 or

see <http://www.oners.ims.ca/2915-068>

TORO ROTOR

Toro's TR70XT Series commercial rotor offers a 73-foot radius, a pressure range of 40 to 100 psi and a high-flow nozzle set, making it ideal for sports fields. A unique X-Flow shutoff device in the riser restricts water loss if the nozzle is removed or damaged, allowing for dry nozzle changes or maintenance while the system is running. Plus, Toro's patented TruJectory permits trajectory adjustments from 5 to 25 degrees to compensate for wind, low-hanging branches or other obstacles, and a Smart Arc feature returns the sprinkler to its previously set arc in case of tampering.

The Toro Company, Irrigation Division/800-664-4740

For information, circle 069 or

see <http://www.oners.ims.ca/2915-069>



Hilltopper® Waterless & Dustless

The top performer in Softball infields, Baseball mounds, home plate areas and warning tracks. Improve play without water and extensive rework labor. Fast rain recovery, just brush it dry.

Stabilizer The Standard Worldwide

Our patented process is the standard for durable, all weather, crushed stone playing surfaces, pathways, parking, fire lanes and event staging areas. Call for approved dealers in your area.

www.StabilizerSolutions.com

www.BallyardProducts.com

Stabilizer Solutions, Inc.
205 South 28th Street
Phoenix, Arizona 85034 USA
info@stabilizersolutions.com



USA toll free 800.336-2468
In ARIZONA tel 602.225-5900
fax 602.225-5902

YOUR "ONE-STOP SOURCE" FOR AMERICA'S BASEBALL & SPORTS TURF SURFACES & SUPPLIES!



USED BY OVER 100 PRO TEAMS!
PLUS 8 OF THE LAST 10 WORLD SERIES CHAMPS,
OVER 700 COLLEGES, AND THOUSANDS OF
TOWNS & SCHOOLS WORLDWIDE!

800-247-BEAM

908-637-4191 / FAX 908-637-8421

REGIONAL INFELD MIXES & WARNING TRACKS
BLENDED FOR EVERY STATE & CLIMATE
FROM OVER 20 BULK PLANTS NATIONWIDE!

"The best infield mix I've ever used!"

— GEORGE TOMA

Gallery of latest walk-behind mower models

JACOBSEN HYDRO

The Jacobsen Hydro commercial walk-behind mower can be equipped with a fully-floating cutting deck ranging in size from 36- to 61-in. wide or fixed decks from 36- to 54-in. wide. All decks feature 10 gauge steel and 7 gauge skirts. Engine choices include 15-, 17- or 21-hp Kawasaki V-Twin OHV gas engines. The patented Z-Control handles deliver true zero-turn radius capability with independent speed controls for each wheel.

Jacobsen/888-922-8873

For information, circle 054 or
see <http://www.oners.ims.ca/2915-054>



HONDA COMMERCIAL MOWER

Honda's HRC216K1HXA Commercial Series mower includes: large capacity rear grass bag; 9-in., ball bearing supported wheels; shaft drive; six mowing height adjustments; and the Roto-Stop blade brake clutch configuration, a 21-inch, heavy-duty stamped steel deck, electronic ignition and recoil start.

Honda Power Equipment/800-426-7701

For information, circle 059 or
see <http://www.oners.ims.ca/2915-059>



Ball Diamond M Conditioner Specialists



Infield Custom Blends



Vitri-Cal Clay



Diamond Clay Conditioner



Calcined Clay (Turface)



Mound Clay Fortifier



Diamond Sands

We've got a conditioner for every application. Which means less maintenance, less rain-outs, less wind erosion, less complaints and safer conditions at any level of play



MAR-CO
CLAY PRODUCTS INC.
1-800-950-2555
www.marcoclay.on.ca

Circle 154 on card or www.oners.ims.ca/2915-154

WHY SETTLE FOR SECOND BEST! VERTI-CUTTER VC-60

BY FIRST PRODUCTS INC



THE VC-60 IS DESIGNED FOR CONTINUOUS HEAVY DUTY OPERATION ON FAIRWAYS, TEES, ETC.

"The First Products VC-60 is outstanding, Salesman should be selling one every demo."

Pat Gradoville C.G.C.S.
Palos Verde's Country Club

"We have two of the First Products Verti-Cutters and they work great."

Ryan Porter
Old Ranch Country Club



First Products 800-363-8780
www.1stproducts.com • sales@1stproducts.com

Circle 160 on card or www.oners.ims.ca/2915-160

Circle 164 on card or www.oners.ims.ca/2915-164

SCAG WALK-BEHINDS

Scag walk-behind mowers feature an exclusive Advantage cutter deck for a clean, finished cut in less time. Scag spindle assemblies sport cast-iron housings and a matched set of Timken tapered roller bearings for more load-carrying capacity than competitive ball bearings. Top-mounted grease fittings make maintenance quick and easy and grease relief poppets prevent overgreasing. Fixed and floating decks available.

Scag/920-387-0100

For information, circle 060 or

see <http://www.oners.ims.ca/2915-060>



TORO GREENSMaster

The Toro Greensmaster 1600 is the walk-behind reel mower used to mow and roll intricate patterns. Features include a 26-in. cutting width, extended height of cut range and a dimpled traction drum for better traction. Units have two rollers across the full width of the cutting unit providing a cleaner cut and more definition in striping.

The Toro Company/800-348-2424

For information, circle 056 or

see <http://www.oners.ims.ca/2915-056>



LOCKE TURF REEL MOWERS

The Commercial Series walk behind reel mowers from Locke Turf have been manufactured since 1928. The CL series come standard with a free floating cutting unit that is independent of the mower chassis, allowing the unit to follow the terrain with great precision. All models have a blade option of 6, 7, 8, or 10-blades for the conventional reel and 8 or 10-blades for the "V" reel. The patented "V" reel from Locke eliminates the daily reel to bedknife adjustment and stays sharp with virtually no grinding.

Locke Turf/800 537-3713

For information, circle 057 or

see <http://www.oners.ims.ca/2915-057>

Because *their* definition of "playable" will never be the same as yours.

Most sport facilities are often faced with very short periods of time between sport seasons to get their fields "playable".

DuPont™ Turf Blankets™ will enhance germination and root growth, allowing for earlier usage and greater survival through seasons.

For more information call:

1-800-289-2448

DuPont™
Turf Blanket™
with Xavan®



The miracles of science®