



likewise

drive wheels to hug the ground. While a foot-operated differential lock kicks in still greater traction. And rest assured, when it comes to cutting performance, you've found mecca. The F735's 20.5-hp diesel engine has plenty of torque to cut through thick and thin. Enough to drive

heavy-duty 48- and 54-inch decks, all the way up to the new (and unique) John Deere 60-inch-high-lift, seven-gauge stamped steel deck. Interested? Visit your local John Deere dealer (call 1-800-537-8233 to find one near you). See why John Deere has been an oasis of good ideas for the past 162 years.

Call 1 (800) 817-1889 use **Fast Fax #1181099** and/or Circle **118** on Inquiry Card



Nothing Runs Like a Deere®

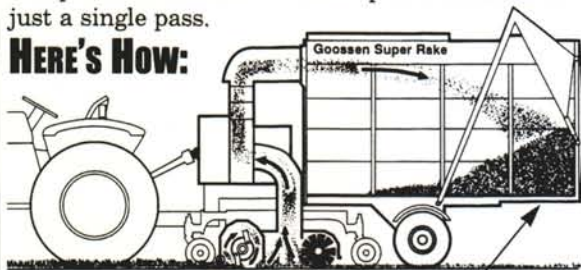
At Goossen...

1+2+3=1

It all adds up

to one-pass cleanup of aerator cores with the Super Rake from Goossen Industries. The Super Rake combines the 1-2-3 action of its rotating flails, counter rotating brush and powerful vacuum to clean up aerator cores in just a single pass.

HERE'S HOW:



1 Rotating flails pulverize cores separating thatch from the soil.

2 Counter rotating brush lifts thatch into vacuum throat providing efficient removal of thatch while leaving fine soil residue behind as a top dressing.

3 Vacuumed material is blown into a 150-bushel 4' x 6' x 8' trailer which can be hydraulically emptied when full.

Interchangeable decks are also available for mowing, sweeping and vacuuming. Let the Super Rake meet all your turf care needs.

Call Toll-Free: 1-800-228-6542
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Fax: 402-223-2245

Goossen INDUSTRIES

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Athletic Field Marking Paint



Trusted by professionals,
Colleges and Universities
when the game
is on the line.

- Bright, Weather Resistant Finish
- Specializing in Custom Colors
- Competitively Priced

Game Day 8010 Field Marking Paint is a latex product that provides a bright weather resistant finish. It is a specially formulated, non-toxic, and environmentally friendly product that contains no ingredients that are harmful to grass. **Grass easily and quickly grows back after use allowing the field to remain vibrant and healthy.**

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→ **When Your Game is on the Line.** ←

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Continued from pg. 18



• Personnel

To calculate the total work hours required to maintain your facilities, think of everything your people do on your fields and add up all the work hours. You'll need to adjust that number up to account for bad weather, vacations, sick days, warehousing of material, and equipment breakdowns. I use a 50 percent factor.

Proceed to divide this number by the total work hours in your organization's work year. For example, my organization's work year is 2,080 hours. You will now have a work year number, which is the number of people needed to perform at your desired standard. You then multiply your organization's personnel cost by each level of employee to compute your personnel budget. Pretty easy isn't it?

To take things one step further, you should break the figures down month by month to determine necessary personnel for peak periods.

• Materials

Material needs should be figured on a square foot basis. Measure your maintainable area. In many cases, this will simply involve multiplying length times width. In the worst case, you may have to remember your high school geometry.

You now have a base number for materials needed. For example, if you have 250,000 square feet (5.74 acres) and you are going to apply one pound of nitrogen per 1000 square feet in a starter formulation (say 18-24-12) in September, and five pounds of seed per 1000 square feet, you will need 28 bags of fertilizer and 25 50-pound bags of seed.

Budget for every material application, and for everything you may have to apply. These materials, multiplied by their cost will give you your materials budget.

You should increase that number by a small percentage to account for any fluctuations in price and any unforeseen circumstances. I generally use 20%, but you will want to set yours according to your own comfort zone.

• Equipment II

You have already determined the equipment you need. You now need to budget dollars for that equipment. First, figure purchasing costs. Obtain this information from equipment dealers, they're always willing to provide prices for budgeting purposes. Depending on the cost of the equipment, this money may come out of a capital outlay budget instead of your operating budget.

Your operating budget will generally include costs such as fuel and preventative maintenance, as well as repairs. You can determine fuel costs from manufacturers' specifications. Preventative maintenance costs can be estimated from your own program.

Equipment repairs are more difficult to budget. Consider using 10% of the original purchase price.

Depending on your level of management, you will also need to budget for such other things as administrative services, communications, and training.

Tim Moore is park and sports turf manager for the Maryland National Capital Park & Planning Commission. He is based in the Wheaton, MD, Maintenance Facility. He's the National STMA board member for Category IV and is president of the Association's MAFMO Chapter.

TURF SEED'S PREMIUM PERENNIAL

RYEGRASS

FOR PERMANENT TURF AND WINTER OVERSEEDING

Variety name: Characteristics:

BrightStar II

A unique variety with leafy, decumbent growth habit. In the top group of the 1996 NTEP trials. Medium late maturity for less stemmy Spring turf.

Catalina

Low growth profile with reduced clippings. Good overall disease resistance. In the top ten in the 1996 NTEP trials. Catalina contains 78% endophyte.

Charger II

Dark, dense, dwarf turf ranks especially high in dormant bermudagrass winter overseeding trials. Good cold tolerance.

Citation III

Rich, dark green color. Excellent heat and wear tolerance. Reduced stemminess and vertical growth in spring and summer. Contains endophyte.

Manhattan 3

Lush, dark green variety. Very dense growth habit. Manhattan 3 has good overall disease resistance and turf quality. Contains 94% endophyte.

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Turf-Seed, Inc. uses the full recommended rate of Apron XL™ LS seed treatment. Help your grass seed get a good, healthy start.

14th hole, OGA Members Club at Tukwila, Woodburn, OR

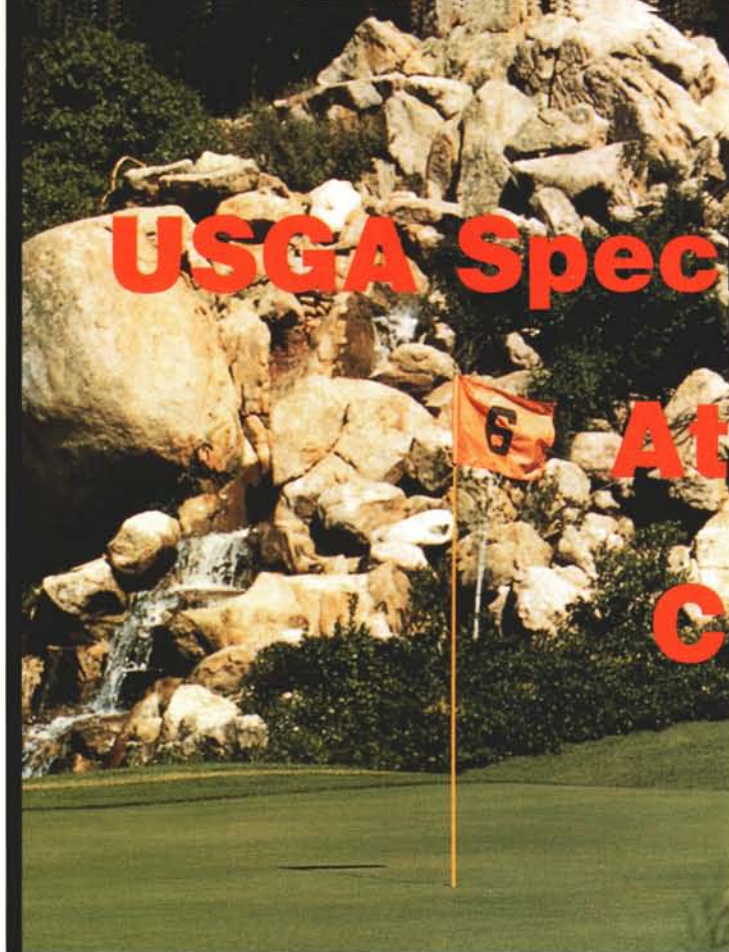
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USGA Specifications in Athletic Field Construction

by Jim Puballa

United States Golf Association (USGA) specifications for the construction of putting greens have been used for sports field projects on many occasions. These specifications rely on sand that is amended with organic material such as peat. With some appropriate modifications, USGA specs can create a field that maintains its playability under a wide variety of weather conditions.

Originally developed for greens only, USGA specs aim to provide a growing medium that drains quickly and allows air to move to the roots of the plants. USGA greens also need to resist compaction caused by foot and equipment traffic.

These specifications have some limitations in sports field construction. USGA specs do not include enough fines to provide sufficient soil stability to support football. For the purposes of our discussion, we will define fines as particles small enough to pass through a 100-sieve screen.

Football places heavy mechanical stress on turf. A scrimmage on a golf green would quickly destroy the

Continued on pg. 33

It's a win-win-win-win-win-win-win-win situation.

A successful program is built from the ground up. It starts at the roots and builds until everything is in winning form. Then, once the program's in top shape, you've got to keep it in shape. Practice is one part; but no matter how hard you work, you've gotta have the right chemistry, too.

Building a successful turf program isn't all that different. You've gotta start with strong roots, top conditioning

and proper nutrition, and you've got to maintain it all season long. That's where the Opti-Gro team comes in. Talk about chemistry — Opti-Gro has been a pacesetter in developing the most advanced turf care products and materials. Plus, the Opti-Gro staff will keep your maintenance team sharp with on-site practice. The right products, programs and professionals — the grass really is greener on the Opti-Gro side.



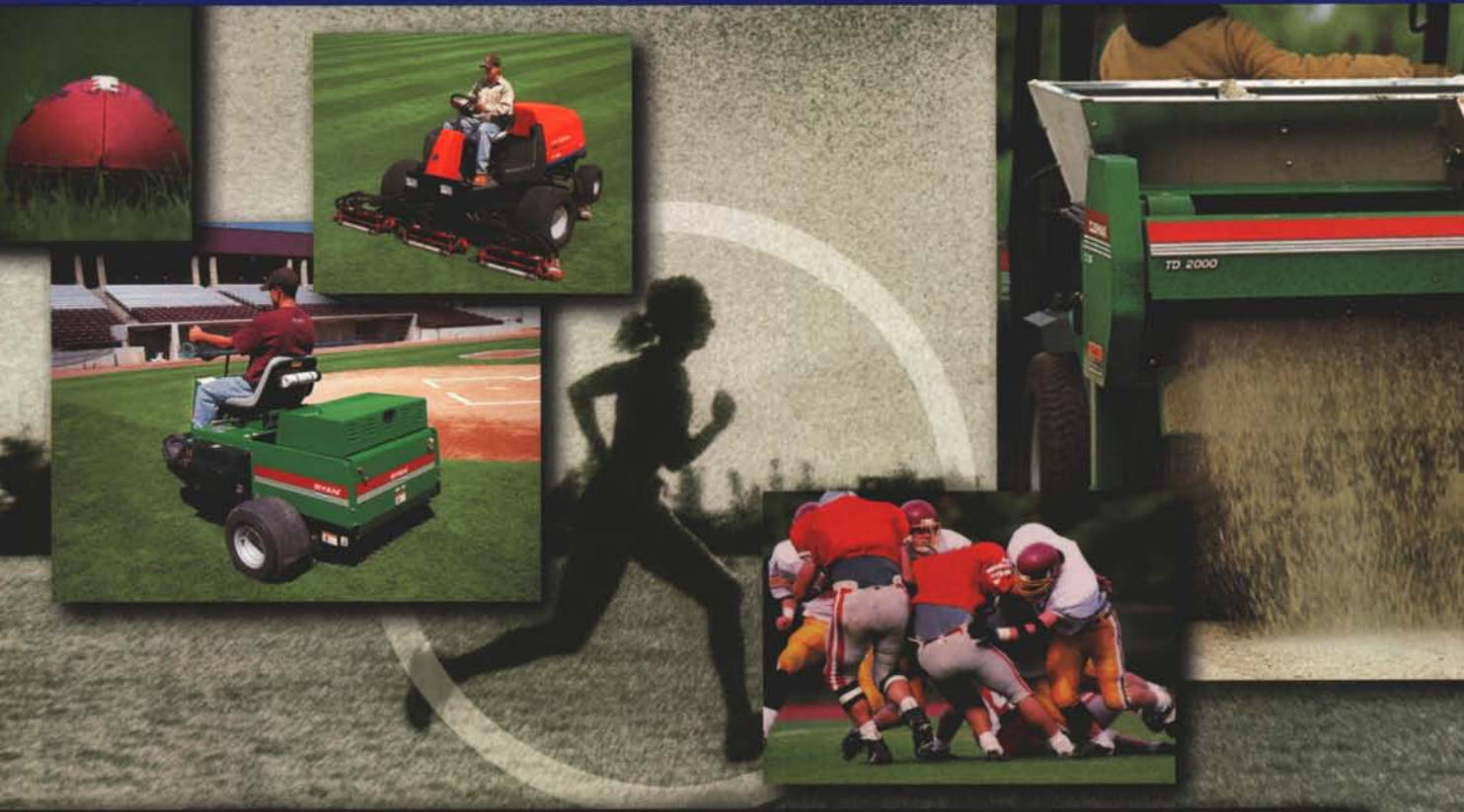
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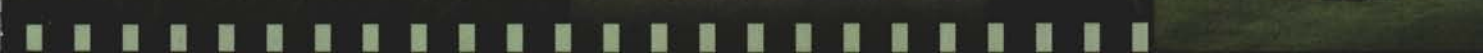
Start a winning tradition. Call for your free soil analysis...

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Teamwork



The number-one brands in the business are now the top team in turf. Textron Turf Care And Specialty Products may seem new to the sports turf market, but our brands are seasoned veterans. Individually, Bob-Cat®, Bunton®, Cushman®, Jacobsen®, Ransomes® and Ryan® have been all-star performers for years. Together, they're the most experienced lineup around.

When it comes to sports turf, we're not only strong—we're deep. Textron Turf Care And Specialty Products offers the most comprehensive line of equipment in the industry. From mowers, aerators and infield rakes to utility vehicles, seeders and sprayers, we have a player for every position.

Take the Field with an All-Star Lineup



On the field, these all-stars put up the winning numbers you need, day in and day out. Off the field, easy maintenance and robust design will keep them running smoothly for years. And if they ever do get sidelined, you can count on your Textron Turf Care And Specialty Products dealer to help you get them back on the field in no time.

If you're ready to get into the ball game, Textron Turf Care And Specialty Products is ready to put some real winners on your field.

Call 1-888-922-TURF today or visit us at www.ttcsp.textron.com

TEXTRON
TURF CARE AND SPECIALTY PRODUCTS

BOB-CAT BUNTON CUSHMAN JACOBSEN RANSOMES RYAN



ROTARY MOWERS

- 1 Jacobsen Turfcat® 500 Series**
 - Four engine options and seven deck options
 - Easily adjustable deck mounting arms
 - Simple maintenance access
- 2 Jacobsen HR-4600 Turbo™**
 - Powered by a 44-hp Kubota turbo diesel engine
 - 92-inch cutting width and 60-inch transport width
 - Two- and four-wheel drive models available
- 3 Ransomes 700 Series**
 - Six different rotary cutting decks
 - Snow blade, snow blower, sweeper and cab enclosure options
- 4 Ransomes AR-250**
 - Five steerable, floating cutting units
 - 4-inch rear roller simplifies striping
 - 98-inch cutting width enhances productivity

5 Bob-Cat 21™ Commercial Push Mower

- Powerful 5-hp Briggs & Stratton engine
- 1/2-inch to 3 1/2-inch deck height adjustments
- Optional rear-mounted grass catchers

6 Bob-Cat ZT 200

- True zero-turning performance
- Covers up to 3.7 acres per hour
- Six anti-scalp rollers

7 Bunton Hydrostatic Walk-Behind

- Cutting width up to 61 inches
- Independent wheel power control
- Four engine options

REEL MOWERS

1 Jacobsen Greens King™ V

- Fully floating, steerable wheels
- Exclusive FlashAttach™ mounting system
- Patented Turf Groomer™ turf conditioner

2 Jacobsen Tri-King™ 1900D

- Powerful 19-hp Kubota diesel engine
- 3-wheel drive
- 5-, 7- and 10-blade reels

3 Ransomes E-Plex™ II

- Electric greens mower
- Quiet, dependable operation
- Easy-to-service, swing-out center reel

4 Jacobsen Greens King™ 500 Series

- 11-blade electronically balanced reels
- Turf Groomer™ turf conditioner
- Perfect balance for superior cut

5 Jacobsen PGM 22™

- Cut down to 5/64ths of an inch
- Cast aluminum drive drum
- Light weight protects younger turf

6 Jacobsen LF 3400™

- Features 7-blade, 5-inch diameter reels
- Delivers a 100-inch mowing swath
- FlashAttach™ reel-mounting system



AERATORS

- 1 Ryan GA™ - 30**
 - Variable core spacing adds versatility
 - Aerates up to 3 3/4 inches
 - Solid tine aeration kit available
- 2 Ryan GA™ - 60**
 - Tractor-pulled fairway aerator
 - Delivers 60-inch coring width
 - Reciprocating heads cover 1.5 acres per hour
- 3 Ryan Tow-Behind Lawnaier®**
 - Highly efficient on 1 to 5 acres
 - Coring, slicing or open-spoon tines
 - Aeration width of 36 inches
- 4 Ryan Tracaire®**
 - Tractor-towed aerator for category "1" 3-point hitch
 - Aerating width of 6 feet
- 5 Ryan Renovaire®**
 - Tractor-drawn, "true-contour" aerator
 - 6-foot aerating width covers up to 3 acres per hour

6 3-Pt. Hitch Lawnaier® Aerator

- 36-inch model pulled by category "0" or "1" hitch
- 48-inch model pulled by category "1" hitch

7 Ryan Lawnaire® IV

- High quality roll-type aerator
- Covers 21,000 square feet per hour
- Penetration of up to 2.75 inches

8 Ryan Lawnaire® 28

- Professional vertical coring action
- Aerating width of 28 inches
- Tricycle front wheel simplifies turning

SAND RAKES

1 Jacobsen SandScorpion™

- Full-width contoured raking design
- Smooth hydrostatic drive
- Rake, plow, scarify and more

2 Cushman Groom Master™

- Choice of 2- or 3-wheel drive
- Cultivate, scarify, level, groom, fan and smooth

VEHICLES

1 Jacobsen 1110 Hauler™

- 13.3 cubic-foot bed with removable side panels
- Helty 1,200 pound total capacity

2 Cushman Hawk™

- 14-hp gas engine or 6.5-hp electric motor
- 1,200 pound rated payload
- Rack-and-pinion steering for easy maneuvering

3 Cushman Jr. Turf-Truckster®

- Smaller, 3-wheel version of Turf-Truckster
- 2,000 pound rated capacity
- Broad line of attachments including a Core Harvester®, aerators, top dressers, spreaders and sprayers

4 Cushman Turf-Truckster®

- Only fully-automatic transmission in its class
- 3- or 4-wheel versions available
- Rated capacity of 2,850 pounds
- Broad line of attachments including a Core Harvester®, aerators, top dressers, spreaders and sprayers



SPRAYERS

- 1 Cushman 125 and 160**
 - Available with 125- and 160-gallon tanks
 - Precisely controlled applications
 - Low ground pressure of 11 psi
- 2 Cushman SprayTek™ DS-175**
 - Built on reliable Turf-Truckster chassis
 - Lightweight 175-gallon tank
 - Precision SDI sprayer
- 3 Cushman Turf Master™ 225**
 - Molded fiberglass tank, 225 gallon capacity
 - SDI Electronic Boom Spray Control
 - Triple Venturi jet agitation

LIQUID INJECTION SYSTEM

- 1 Cushman Envirojet™**
 - Subsurface chemical injection system
 - Applies at or below the root zone
 - Eliminates runoff and overspray

SEEDERS

- 1 Thompsen Spreader/Seeder**
 - Designed as attachment for Turf-Truckster
 - Speed governor ensures uniform distribution
 - Rotary agitators ensure constant flow
- 2 Ryan Mataway® Overseeder**
 - Dethatch, overseed or do both
 - Overseeds in one pass
 - Feeds seed directly into slits

TOP DRESSERS

- 1 Cushman Top Dresser 1500**
 - Mounts on the Turf-Truckster
 - Conveyor belt distributes evenly
 - Up to 1,900 pounds capacity
- 2 Cushman Top Dresser 2000**
 - 5th wheel for large areas
 - Hopper holds 2,500 pounds
 - 60-inch spreading swath

SPECIAL UTILITY PRODUCTS

- 1 Jacobsen B-40 PLUS™ Blower**
 - Mounts to 25-hp, 540 rpm, three-point PTO linkage
 - Blows leaves and clippings into windrows
- 2 Ryan Ren-O-Thin®**
 - Breaks up cores and dethatches
 - Easy-to-operate height adjustment
 - Contains four interchangeable reels
- 3 Ryan Jr. Sod Cutter**
 - Available in 12- and 18-inch cutting widths
 - Cuts up to 135 feet of sod per minute
 - Self-propelled for easy operation



"Not only does Textron equipment allow our grounds crew to be more productive, it delivers the kind of performance that has won us 'Field of the Year' honors for three years running."

Gary Mayse,
Assistant General Manager
Fox Cities Stadium
Home of the Wisconsin Timber Rattlers

