

The Kawasaki 2520 Mule™

A heavyweight investment deserves every ounce of protection you can muster. Enough power to move substantial loads comes courtesy of a big, 617cc liquid-cooled V-Twin engine. You'll make fewer trips, too, because the Mule™ 2520's big, tilting cargo bed can carry up to 800 pounds per load. If that doesn't cut it, you can hook up a trailer and more than double your carrying power. And best of all, the Mule™ 2520 cruises over your turf on wide, turf-application tires, disturbing little more than the early-morning dew.



Kawasaki
UTILITY VEHICLES



- Liquid-cooled, V-Twin engine
- Air intake system overhead
- 800 lb. capacity cargo bed, pick-up style
- Rack & pinion steering
- Sound-insulated and extra-quiet muffler
- Governed to 16 mph for safety
- Lock-out differential for minimum ground disturbance
- Full line of accessories available

Call Tim Commers today....

(612) 333-3487 or

Toll Free 1 (800) 759-5343

CUSHMAN MOTOR CO., INC.

2909 EAST FRANKLIN AVENUE • MINNEAPOLIS, MINNESOTA 55406 • (612) 333-3487 • FAX (612) 333-5903 • TOLL FREE 1-800-759-5343

HOLE NOTES

Official Publication
of the
Minnesota Golf Course
Superintendents' Association

2000 MGCSA Board of Directors

Officers

President.....E. Paul Eckholm CGCS
Heritage Links CC
952/440-6494 Fax: 952/440-4655
E-mail: epeckholm@msn.com

Vice President..Rick Fredericksen, CGCS
Woodhill CC
952/473-5811 Fax: 952/473-0113
E-mail: r_fredericksen@msn.com

Secretary.....Mike Brower
Hillcrest CC
651/777-5186 Fax: 651/777-7463

Treasurer.....Rob Panuska
Waseca Lakeside Club
507/837-5996 Fax: 507/835-3472
E-mail: rpanuska@prairielakes.com

Ex- Officio.....Tom Fischer, CGCS
Edinburgh USA
763/315-8582 Fax: 763/315-8585

Directors

James Bade.....Somerset CC
651/457-1161 Fax: 651/455-2282
E-mail: jbade@aol.com

Michael Brual.....Faribault G & CC
507/334-8101 Fax: 507/334-9653
E-mail: mikebrual@faribaultgolf.com

Kerry Glader.....Plaisted Companies, Inc.
612/441-1100 Fax: 612/441-7782
E-mail: kbglader@aol.com

Jeff Johnson.....The Minikahda Club
952/926-4167 Fax: 952/926-0602

Tom Meier.....Worthington CC
507/376-9250 Fax: 507/372-2597
E-mail: wccgolf@mn.frontiernet.net

John Queensland.....Cedar River CC
507/582-3595 Fax: 507/582-3133

Steve Shumansky.....Perham Lakeside CC
218/346-6071 Fax: 218/346-6079
E-mail: plcc@eot.com

Bob Simondet.....Lesco, Inc.
320/327-2929 Fax: 320/327-2929
E-mail: sls368@lesco.com

Richard Traver Jr., CGCS.....Monticello CC
763/295-3323
E-mail: supytrav@soncom.com

Editor

Steve Shumansky
E-mail: plcc@eot.com

Editorial and Business Office:

Scott Turtinen, Executive Director
Minnesota Golf Course
Superintendents' Association
240 Minnetonka Avenue South
P.O. Box 617
Wayzata, Minnesota 55391-1617
Tel: 952/473-0557 Fax: 952/473-0576
Toll Free: 1-800-642-7227
E-mail: scott@mgcsa.org
Web Site: mgcsa.org

From Your President's Desk

Fall is Again Upon Us, Golf Course Closings Cannot Be Far Behind



Fall is again upon us and the close of the golf course can not be far behind. I heard last night that the National Weather Service predicts a colder winter. Of course they didn't say colder than what. I am sure that I am not alone in looking forward to the end. It has been a long season.

* * * *

The October meeting at Tanner's Brook was a huge success. Thanks go out to host superintendent Kevin Clunis, CGCS for providing a beautiful course for us to play. Meteorologist Marty McKeown gave us some insights into weather prediction. All in all a very good monthly meeting.

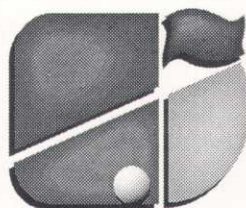
* * * *

On the phosphorous issue we have come to agreement with the Department of Agriculture. Professional turfgrass managers will have an alternate path to follow if they choose to continue to use phosphorous. They will have the opportunity to either soil test to show a need or attend a training session at our annual conference on the best use of phosphorous. This compromise allows us to continue to use phosphorous and satisfies the intent of the legislation of reducing the improper application of this essential plant nutrient.

* * * *

The annual conference has been finalized and should be in your hands shortly if not already. James Bade and the Education Committee have done an excellent job for the golf portion of the program. The annual meeting will contain a discussion and vote on the GCSAA PDI issue. The GCSAA web site has a PDI area with all of the details. Support or oppose, it is up to you the members to let us know your feelings. I look forward to seeing you all at the conference.

-- Respectfully,
Paul Eckholm, CGCS



**GILL
MILLER INC.**
Golf Course Architects

Design • Renovation • Master Planning • Practice Centers

122 North 2nd Street • River Falls, WI 54022 • 715-425-9511 • e-mail: info@gillmiller.com
visit our website www.gillmiller.com

Member: American Society of Golf Course Architects

HOLE NOTES (ISSN 108-27994) is published monthly except bi-monthly December/January, February/March for \$2 an issue or \$20 per year by the Minnesota Golf Course Superintendents' Association, 240 Minnetonka Avenue South, Wayzata, MN 55391-1617. Scott Turtinen, publisher. Periodicals postage paid at Wayzata, MN. POSTMASTER: Send address changes to HOLE NOTES, 240 Minnetonka Avenue South, Wayzata, MN 55391-1617.

Table of Contents

1	Clunis/Moris Win Fall Scramble at Tanner's Brook By Scott Turtinen
5	7th Annual MTGF Conference & Trade Show By Larry Vetter
7	Processing Cores After Aeration By John Cisar
11	Special Sessions at the MTGF Conference By Larry Vetter
13	Mowing at the Speed of Light
15	Tee Construction With Laser Technology By Patrick O'Brien
16	North Central Regional Update By Bob Brame and Bob Vavrek
21	To Infinity and Beyond By Frank Andorka, Jr.
23	Comparing the New Bents By Dave Huff and Peter Landschoot
24	Control Those Shrinking Greens By Keith Happ
26	American Heroes Headline Dallas Conference GCSAA
27	Getting Attached to Versatility By Mike Kennedy

Departments

3	From the President By E. Paul Eckholm, CGCS
11	Industry News
31	Membership Report By Rick Traver, Jr., CGCS
34	Editor's Corner By Steve Shumansky



METEOROLOGIST MARTY McKEOWN gave an informative talk about the weather at the October Meeting at Tanner's Brook.

Advertisers

Century Rain Aid.....	6
Classified Ads.....	30
Country Club Turf.....	BC
Cushman Motor Co., Inc.....	IFC
Double Eagle Golf Construction.....	16
E-Z-GO Textron.....	28
Gill Miller, Inc.....	3
Glenn Rehbein.....	13
GreenImage.....	17
Hartman.....	21
Herfort Norby.....	24
Hydrologic.....	12
Hydrologic.....	20
Leitner Company.....	26
MTI Distributing Co., Inc.....	18
MIT Distributing Co., Inc.....	19
North Star Turf.....	8
North Star Turf.....	IBC
Novartis Turf Ornamental.....	9
Par Aide Products Co.....	5
Paskvan Consulting.....	34
Plaisted Companies Incorporated.....	33
Precision Turf.....	10
Prinsco.....	15
Simplot Partners.....	14
Sustane.....	22

7TH ANNUAL MTGF CONFERENCE
SET DECEMBER 6, 7 AND 8
AT THE MINNEAPOLIS CONVENTION CENTER

PLAN TO ATTEND!

7th Annual MTGF Conference & Trade Show Set December 6, 7, 8 in Minneapolis

By **LARRY VETTER**
MTGF Executive Director

The 7th Annual Minnesota Turf & Grounds Foundation Conference & Trade Show will be held at the Minneapolis Convention Center December 6-8, 2000. Attendees, exhibitors and educators representing most segments of the Green Industry will be participating, including golf courses, schools, parks, arborists, cemeteries, sod growers and sports turf areas.

The educational sessions include presentations by a number of researchers and educators from across the country. University personnel from Minnesota, South Dakota State, Iowa State, Georgia, Ohio State, Massachusetts, Wisconsin and Nebraska will be present sharing the latest information and research data. Topics will include selection, establishment, renovation and maintenance of turf areas, flowers, trees, shrubs and other plant materials. Weed, insect, disease and other problems affecting various plant materials will be discussed. Additional topics in the areas of personnel and budget management, hard surfaces, environmental considerations, weather and safety are also included in the program.

Again this year, the MTGF Conference offers professionals in various fields the opportunity to attend pesticide recertification training sponsored in conjunction with the Minnesota Department of Agriculture. This portion of the Conference begins with registration at 6:30 a.m. on Thursday, December 7th and runs throughout much of the day. A special session, "Phosphorus in the Urban Environment" will be presented from 10:00 a.m. through 3:30 p.m. on Friday, December 8th. This is a very timely topic as legislation is being considered that will certainly impact the use of phosphorus fertilizers throughout our industry.

This year's Conference will offer hands-on diagnostic opportunities for managers and their key personnel. An introductory turfgrass management session for staff technicians will be presented on Thursday from 9:30 a.m. - 11:30 a.m. A three-hour session Thursday afternoon from 12:30 to 3:30 will be presented featuring topics that mechanics will find both informative and enjoyable. Also Friday afternoon there will be a two-hour presentation on Spanish Culture from 1:30 to 3:30. Dr. Jon Powell's Turf Diagnostic Workshop will again be held from 1:30 to 3:30 on Friday. A special opportunity for networking and relaxation will be the All Industry Reception held again this year on the Trade Show Floor from 4:30 to 6:30 on Wednesday evening.

A wide range of products and services supporting many of the topics covered in the educational portion of the conference will be on display. Trade Show hours will be from 11:00 a.m. - 6:30 p.m. on Wednesday and from 11:00 a.m. - 4:30 p.m. on Thursday. Please support our vendors who are exhibiting at this year's conference. This event could not take place without their generous support.

Advance registration is now available. Registration at the door begins at 7:00 a.m. on Wednesday, December 6th and continues throughout the three days of the conference. For more information, please contact the MGCSA office at (952) 473-0557.



Without you, who knows where we'd be.

Thanks for placing our products where they belong. On your golf course. 1-888-893-2433

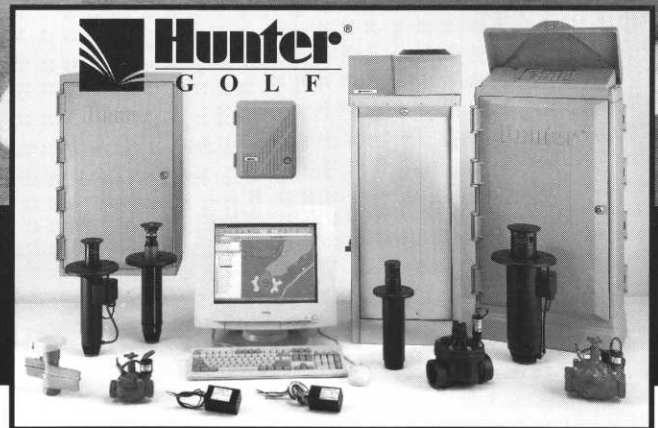


EARNING YOUR RESPECT



Advanced Products Reliable Service

Golf course irrigation is a new game of sophisticated products and advanced technologies. At Century Rain Aid, we are proud to represent Hunter Golf, the leader in innovative control systems and manufacturer of the world's best-selling rotors. Century Golf professionals can show you how Hunter's complete line of irrigation products, including new Vista software with automated programming and real-world visual control, can help save water, labor and energy costs.



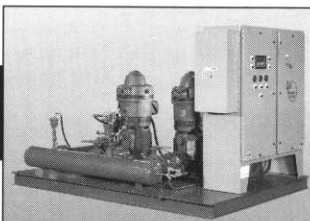
Our golf team can also assist with a wide range of services essential to golf courses: controller board repairs (toll free: 888-855-9132), fountains, pumps, landscape lighting and more. Call today for a free Century Golf Course Supplies Catalog or on-site consultation: **800-642-3706**.

CENTURY RAIN AID

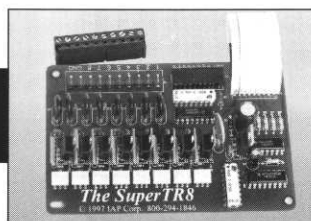
More Than 125 Branches Coast to Coast
www.rainaid.com • email: rainaid@rainaid.com



SyncroFlo, Inc.
SYNCROFLO EAGLE PUMPS



BoardTronics Inc.
CONTROLLER BOARD REPAIRS



AQUA MASTER FOUNTAINS



Processing Cores After Aeration

What You Do With Cores Depends On How Much You Are Trying To Change Your Soil Profile

By JOHN L. CISAR

Providing suitable playing surfaces on heavy play areas such as golf-course greens and athletic fields is a challenge for professional turf managers. Without proper care, heavy-use areas can decline in performance due to compaction, thatch buildup and wear.

What can you do to correct or overcome these problems? One of the most important tools managers have to avoid or correct the "boogie men" of turf is mechanical cultivation of soils.

Aeration, also known as aerification or coring, is a mechanical cultivation in which a small core of soil with turf is removed, leaving a hole in the turf.

Hole diameters range from 0.25 to 0.75 inch. The depth and spacing of the holes vary, depending on the kind of device you use, its speed, the soil type and degree of compaction, and soil moisture. Generally, the depth is 2 to 4 inches, and spacing is between 2 and 6 inches. Deep-drill aerators can open holes up to approximately 12 inches in depth, but do not bring an appreciable amount of soil to the surface.

Pros and Cons

Coring has many benefits. It

- * Relieves soil compaction.
- * Allows deeper and faster penetration of water, air, fertilizer and chemicals.
- * Releases "trapped" gases.
- * Improves surface drainage.
- * Helps relieve localized dry spots.
- * Controls thatch.
- * Increases rooting.
- * Penetrates through soil layers developed by improper topdressing.
- * Helps reseeding during renovations.

Coring can have disadvantages, such as

- * Surface disruption
- * Desiccation
- * Increased insect problems.

The list of problems that aeration tackles is impressive. Clearly, the benefits of coring outweigh any disadvantages. And there are ways you can reduce the disadvantages. For example, use solid tines in place of hollow tines when you must minimize surface disruption. Water-injection aeration is another option that causes little surface disruption.

No pun intended, but aeration should be a "core" part

of a manager's cultural program. Coring should be done when turfgrass is actively growing and when environmental stresses are low to encourage turf "healing."

When to Process Cores

When contemplating coring, turf managers often ask what they should do about the cores that are pulled out of the soil. Should they physically remove the cores or drag them back into the soil and surface horizon?

In general, you do not have to remove cores if the objective is thatch removal and if the underlying soil profile is acceptable. If the soil is okay, you can easily break up cores or drag them directly back into the soil and surface horizon. You can use many devices for this. Dragging with mats, chain links, carpets and brushes are all common approaches.

Wait to reincorporate the cores until a bit of drying has occurred. Mechanically remove thatch puffs that remain after dragging. Core removal often is difficult in large areas. In such cases, you may opt to leave cores on the surface—they will break down over time and become intermingled with the surface horizon.

Core removal can be most useful when you need to change the profile. For example, if you have heavy soil, you can remove the cores and topdress with a sand-based material to change the physical characteristics of the profile. The other approach to soil modification is complete rebuilding of the profile. Both methods have pluses and minuses. However, when soil modification via coring and topdressing is adequate to create the desired changes, it can be a desirable option because it does not interrupt site use.

Modifying the Soil Profile

In the case of soil modification through mechanical coring, a well-thought-out plan based on the description of the present soil and on how you hope to change the physical properties of the soil will provide the best chance for long-term success.

Typically, soil-profile renovation will require frequent application and larger quantities of topdressing materials than that used for routine topdressing maintenance. Rates range from about 1/8 to 1/4 inch of material per topdressing (2 to 4 cubic yards per 5,000 square feet of surface area).

During a sand-based transition program, you should continue core removal and topdressing at least until the

(Continued on Page 9)

BUY NOW. SAVE UP TO \$2,000!



The Reel Deal.

Jacobsen® Greens King™

Only Jacobsen could offer a riding triplex greens mower with the precision and advanced reel system of the Greens King IV & V. And only from North Star Turf can you take advantage of a deal like this...

Purchase, take delivery and pay for your new Greens King IV or V before November 30 and save up to \$2,000 on any one of eight different models. As always, you may opt to use Textron's "Cash in May" or "No Pay till May" finance programs.

Act now while you can still put your new Greens King to good use yet this season. Contact your NST Rep for details.



3080 Centerville Road
St. Paul, Minnesota 55117
651.484.8411 • Fax: 651.484.8257
800.592.9513

JACOBSEN

TEXTRON

TURF CARE AND SPECIALTY PRODUCTS

Processing Cores--

(Continued from Page 7)

aeration unit can no longer reach the depth of the previous soil type. This will reduce the effects of soil layering.

Selection of appropriate topdressing materials will greatly affect the success of a renovation, so you should consult a soil laboratory for recommendations. However, there are other factors to consider. A successful transition from a heavier-textured profile to a sandy one will encompass changes in watering and fertilization rates and frequencies; acceptance of harder surfaces through the introduction of sand, and water and cultural management practices to avoid the development of water repellency on sand-based systems.

Judicious watering will avoid drought without increasing vulnerability to pests. When fertilizing in a sand-based system, you must take into account the change in the ability of the soil to retain nutrients. Spoon-feeding of turf becomes a more important factor in portion of the management equation. You can avoid or alleviate soil-water repellency, often associated with sands, through the use of prudent irrigation, surfactant/wetting agents and cultivation.

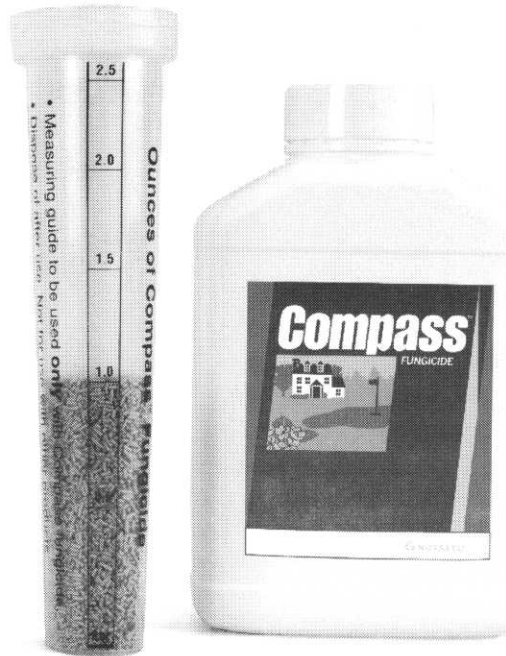
Even on sand-based systems, turf managers will remove cores and use straight sand topdressing (without organic matter) to reduce the organic content of their root-zone mix. Avoiding soil layering is critical when topdressing. Small differences in topdressing materials can cause significant problems due to layering. If the initial root-zone mix is appropriate, you should use a stockpile of the original mix in topdressings. Over time, some managers choose to omit organic amendments to topdressing.

Moreover, layers of organic matter and soil can occur if not enough topdressing is applied. Lighter topdressings are encouraged for thatch control, generally 1/16 of an inch (1 cubic yard per 5,000 square feet).

Successful aeration practices begin with communication. Consulting with your greens committee or employer to review the options and costs is the first crucial step, along with a characterization of your soil profile by a qualified soil ph.

(Editor's Note: Dr. John Cisar is professor of turfgrass science and turfgrass coordinator at the University of Florida (Fort Lauderdale, Fla.).

New Compass™
A fairway fungicide so advanced
it combines the best of contacts and systemics
at the lowest rates ever.



- Unsurpassed control of Brown Patch, Anthracnose, Gray Leaf Spot, and 10 other diseases.
- Tank mix with Banner® MAXX™ for Dollar Spot control and Subdue® MAXX™ for Pythium control.
- Affordable on fairways, yet effective on greens.
- Mesostemic power delivers locked-in, rainfast control up to 21 days.
- Lowest rates ever reduce chemical load up to 95%.

Todd Loecke
Novartis Turf & Ornamental
515-225-8715

www.cp.us.novartis.com

 **NOVARTIS**

Important: Always read and follow label instructions before buying or using these products. ©1999 Novartis Crop Protection, Inc., Turf & Ornamental Products, Greensboro, NC 27419. Compass™, MAXX™, the Mesostemic device logo, and the Novartis logo are trademarks; Banner® and Subdue® are registered trademarks of Novartis.

Why choose AQUA CONTROL?



Geyser Fountains

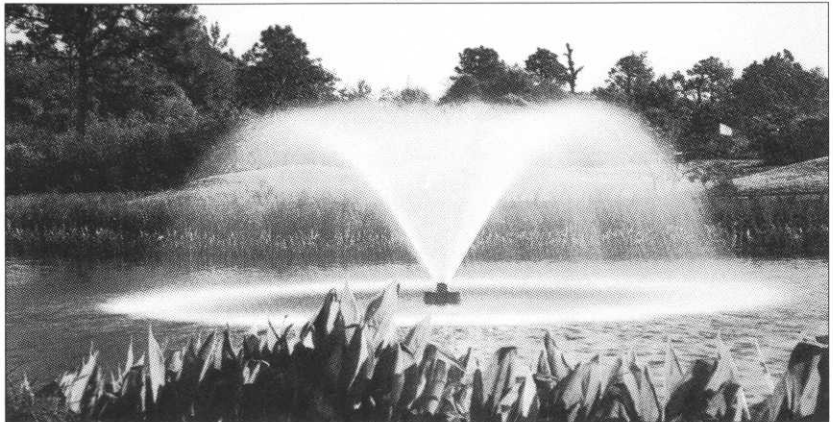
½ to 5 HP — max. heights from 20 to 60 ft.

AQUA CONTROL[®]

Only AQUA CONTROL Aerator Fountain Systems combine:

- * **unique water-intake tube design** [standard] that extends several feet below the surface and can be equipped with extensions to reach virtually any depth in your lake or pond.
- * **stainless steel propellers** with specially contoured, high efficiency blade forms.
- * **precision machined ducted shrouds** that surround the propellers to boost pressure generation and increase discharge pattern height for optimal aeration and circulation.
- * **rugged UL-Registered drive motors** that are water cooled and water lubricated [no oil to leak].
- * **an exclusive pump design** that uses low-cost, interchangeable components to let you switch from an aerator fountain ... to a decorative fountain ... and back to an aerator fountain *any time you wish.*

Aerator Fountains ½ to 5 HP — capacities from 360,000 to 1,500,000 gal/day



- * Your new AQUA CONTROL Aerator Fountain System is a 'ready-to-run package.'
- * You get everything you need to install it yourself.
- * Typical installation time is just a few hours.

**Ask your
Precision Turf Representative
for more information!**



Your Precision Turf Sales Rep is just a phone call away.

1-800-925-8873 or 763-477-5885