

6V  
75  
A1  
P3  
78

January 1978



*SERIALS  
FEB 6 1978  
MICHIGAN STATE UNIVERSITY  
LIBRARIES*

# A PATCH of GREEN

Official Publication of the  
Michigan & Border Cities Golf Course Superintendents Association

# **We have the most complete line of turf chemicals in the midwest.**

Weed-Killers • IBDU-fertilizers • Foggers  
Diquat • Acti-Dione • Caddy • Cadminate  
PMAS • Malathion • Microgreen • Dursban  
Kelthane • Diazinon • Sevin • Proxol  
Aqua-Gro • Spot-Kleen • Daconil  
Hydro-Wet • Thiram • Dacthal  
Fungo • Dyrene • Cleary 3336  
Tersan 1991, LSP, SP  
Calo-gran • Nemacur



**J.J. DILL  
COMPANY**

**CHEMICALS • PESTICIDES • EQUIPMENT**  
P.O. BOX 778 KALAMAZOO, MICH. 49005

*Representing many reputable companies:*

American Cyanamid  
Diamond-Shamrock  
Geigy  
Amchem

E.I. DuPont  
Swift  
FMC  
Kalo Labs

Elanco  
Mallinckrodt  
Upjohn  
Velsicol

Delavan  
Dow  
Rhodia  
Chemagro

**IN MICHIGAN CALL TOLL FREE  
FOR FURTHER INFORMATION  
800 - 632-4057**

**OTHER STATES CALL (616) 349-7755**

*Truckload distributor and formulator insuring competitive  
prices and prompt delivery.*

**We feature custom building of spray apparatus  
by our trained service technician.**



**MICHIGAN & BORDER  
CITIES GOLF COURSE  
SUPERINTENDENTS  
ASSOCIATION**

**PRESIDENT**

**CLEM WOLFROM**  
DETROIT GOLF CLUB  
530 Kendry  
Bloomfield Hills, Michigan 48013  
Off. 345-4589, Res: 334-0140

**VICE PRESIDENT**

**BRUCE WOLFROM, CGCS**  
BARTON HILLS COUNTRY CLUB  
639 Barber Street  
Ann Arbor, Michigan 48105  
Off. 662-8359, Res. 663-9213

**SECRETARY-TREASURER**

**ROBERT HOPE, CGCS**  
THE LOCHMOOR CLUB  
20740 Marter Road  
Grosse Pointe Woods, Michigan 48236  
Off. 881-8112, Res. 884-8684

**BOARD OF DIRECTORS**

**JAY DELCAMP**  
GOWANIE GOLF CLUB  
19957 Great Oaks Circle South  
Mt. Clemens, Michigan 48043  
Off. 468-1432, Res. 791-8481

**ED HEINEMAN**  
WATERS EDGE COUNTRY CLUB  
10531 Bellevue  
Grosse Ile, Michigan 48138  
Off. 675-0927, Res. 676-3095

**ROGER O'CONNELL, CGCS**  
RED RUN GOLF CLUB  
P.O. Box 38  
Royal Oak, Michigan 48068  
Off. 541-3184, Res. 399-6916

**WARD SWANSON**  
PLUM HOLLOW GOLF CLUB  
29642 Westfield  
Livonia, Michigan 48150  
Off. 352-2436, Res. 421-8049

**JAMES TIMMERMAN**  
ORCHARD LAKE COUNTRY CLUB  
2474 Lafay  
Orchard Lake, Michigan 48033  
Off. 682-2150, Res. 682-7234

**WALTER TROMBLEY, CGCS**  
ARROWHEAD GOLF CLUB  
3130 Orion Road  
Lake Orion, Michigan 48035  
Off. 373-5240, Res. 693-2924

**PRESIDENT EMERITUS**

**GEORGE W. PRIESKORN**  
BURROUGHS FARM GOLF CLUB  
5341 Brighton Road  
Brighton, Michigan 48116  
Off. 227-1381, Res. 229-9437

**"A PATCH OF GREEN"**

*Published monthly by the*  
**MICHIGAN AND BORDER CITIES GOLF  
COURSE SUPERINTENDENTS ASSOCIATION**

Circulation: 1,250

**Ted Woehrl, CGCS, Oakland Hills C.C.**  
**James Timmerman, Orchard Lakes C.C.**  
**CO-EDITORS**

*Printed At*  
**BLAKEMAN PRINTING COMPANY**  
31823 Utica Road  
Fraser, Michigan 48026  
Phone: (313) 293-3540

**MONTHLY ADVERTISING RATES**

Double Page Spread.....	\$100.00
Back Outside Page.....	65.00
Full Page.....	55.00
Half Page.....	35.00
Quarter Page.....	25.00
Eighth Page.....	12.50
Sixteenth Page.....	7.50
Classified Ad (per column inch).....	5.00

**DISCOUNT RATE: One Year 10%**

Note: Advertising fees may not be deducted  
from the above rates.

***This Month's  
Advertisers...***

Century Supply Company  
J. J. Dill Company  
FDS Fertilizers  
Golf Car Distributors  
Lakeshore Equipment Corporation  
Lawn Equipment Corporation  
Lebanon/Agrico  
W. F. Miller Garden  
Northrup King & Co.  
O. M. Scott & Sons Company  
Sprinkler Irrigation Supply  
Terminal Sales Corporation  
Turfgrass, Inc.  
Turf Supplies, Inc.  
USS Agri-Chemicals  
Wilkie Turf Equipment Company

# USS Vertagreen 17-0-8 with Balan... We'll help you weed and feed!



Your local USS Vertagreen distributor has a proven fertilizer for professional turf that performs two jobs at once. USS Vertagreen 17-0-8 with Balan gives your fairways a healthy shot of quick-acting nitrogen — and the supply continues because 25% of the nitrogen is derived from urea-formaldehyde. It also controls Poa Annua, crabgrass, goose grass, water grass and foxtail — thanks to Balan, the highly effec-

tive pre-emergence herbicide.

This versatile and economical product contains sulfate of potash for lush, green color and is rounded out with vital secondary and micro-nutrients including chelated iron. USS Vertagreen with Balan is another reason we say, "see the best, for the best" — and that's your local Vertagreen distributor. He can help you weed and feed.



**Agri-Chemicals**  
Division of United States Steel  
P.O. Box 1685, Atlanta, Ga. 30301

# Sand Topdressing Requires Caution

Much has been written about topdressing with pure sand. Those advocating this program claim you can:

- Reduce Thatch
- Prevent & Cure Compaction
- Improve Putting Surface
- Reduce Ball Bruising
- Eliminate Coring

They have been careful to ask you only to consider this program - not necessarily to buy it. If it appeals to you, try it experimentally on a limited test area.

Eliminating thatch helps to reduce diseases - improves air and water movement.

The sand program consists of light frequent topdressing with sand.

**Warning No. 1.** It is critical to use proper sized particles, .05 to 1.0 mm. It will drop into thatch with little work on your part.

**Warning No. 2.** Use round particles, not sharp sand.

Results do not always appear the first year. Often it will take two



years. An overall improvement in vigor should improve stress tolerance.

**Warning No. 3.** Topdress every three to four weeks (3 cu ft. per 1000 ft<sup>2</sup>) 1/28" per treatment. You may want to add chemicals and fertilizers. Check with your University for recommendations.

Amounts and frequency are critical. You do not want to create layers.

**Warning No. 4.** Do not aerify. (core). Once you are into program, your coring machine should be prohibited. You may want to use the machine during or before your first sand application to break up any layering that may be present.

This information is the result of a USGA Grant to University of California - Drs. Madison and Davis.

Remember, this does work for some clubs but do not go into this without trying it on a small basis first. Once you start, you cannot stop.

This is an old program used over forty years ago by many Superintendents. For some reason, it was abandoned. Perhaps they didn't understand what they were doing. Or maybe they cured their problems and figured they didn't have to continue. This layer is still visible about 2½ inches below surface. The roots seldom penetrate this sand layer, so look out.



Modern method of topdressing greens. Three cu. ft. sand per 1000 sq. ft.

## WHAT'S NEW FOR 1978

All indications are that prices will continue to spiral but suppliers have stated that most golf course products will only increase by 5%.

There is no apparent shortage of supplies. Fertilizers and chemicals are all in good supply. Fuel is not as critical as it was in the past.

The drought seems to be easing in the west, and this winter's temperatures are warmer than last year's.

Keep your eye on the new House bill that proposes to limit the use of fertilizers within 500 feet of any water - streams, ponds, lakes.

We may have to mount a campaign to create public awareness of our position. MSU has statistics to show that fertilizers are very stable and should not pollute streams.



## Look Out for Winter

Remember to break up the ice!

A closer look at the ice accumulation of March 1978. Are you ready for ice this year? Did you prune your trees to strengthen them?





# TURF TRUCKSTER SYSTEM.

Because the flexibility of the Cushman Turf-Care System saves you time and money. Here's how!

The System is built around the rugged, versatile 18 hp Turf-Truckster, 3- or 4-wheel model. With this one power source and options, you can haul, spray, spike, spread and top dress. And

save as much as 35% on equipment in the process.

Because, instead of buying separately powered units for each job, you buy only the Turf-Truckster and the modular Cushman accessories you need. So you pay less in total for equipment... and have only one power unit to maintain.



## CUSHMAN TURF-CARE EQUIPMENT

OMC-Lincoln, a Division of  
Outboard Marine Corporation  
6201 Cushman Drive  
P.O. Box 82409  
Lincoln, Nebraska 68501

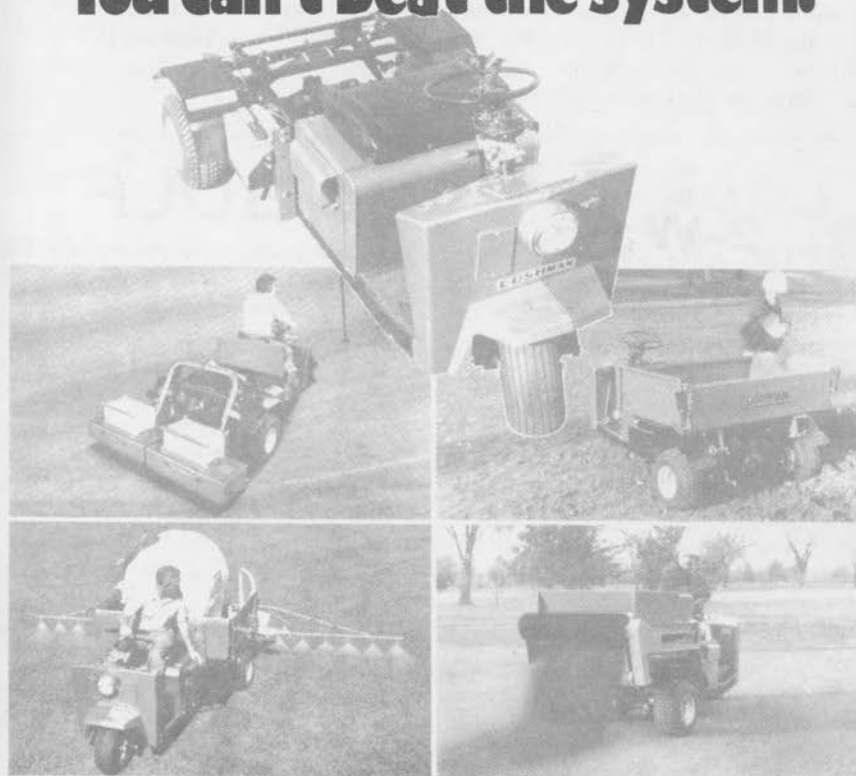
But that's not all.

The System is also a time saver that can cut your labor costs. Accessories mount on the back of the Turf-Truckster. Your men do their work quickly, efficiently... and then move on to the next job at speeds up to 22 mph. There's less wasted traveling time, so you get more work out of each hour of labor cost.

The Cushman Turf-Care System. Versatility, superior performance, economy. It's a tough system to beat.

Write today for your free Cushman Turf Care Catalog.

# You can't beat the system.



CALL NOW FOR A  
DEMONSTRATION  
AND  
PRICE QUOTATION



CUSHMAN  
TURF-CARE  
EQUIPMENT

## GOLF CAR DISTRIBUTORS

1980 W. Wide Track Drive (U.S. 10)

Pontiac, Michigan 48058

Phone: (313) 338-0425

Free to GCSAA Members!

Many turfgrass maintenance operations are dependent on mathematical calculations. To help you understand and execute the basic mathematics for these operations, GCSAA has prepared a 58-page, 8½ X 11 inch manual on

**THE**

## **MATHEMATICS**

### **OF TURFGRASS MAINTENANCE**

This handy reference manual and workbook is a step-by-step explanation of the basic mathematics used in daily maintenance procedures. Included are sections on area and volume measurement, application of pesticides and fertilizers, steps to determine seeding rates, and irrigation application

calculations. The manual also contains a ready-reference guide to metric conversions and answers to numerous sample problems.

To get your copy of this valuable publication, just mail and ask for it. Each GCSAA member is allowed one free copy of **THE MATHEMATICS OF TURFGRASS MAINTENANCE**; additional copies for members will cost \$2.50. Nonmembers may purchase copies of the manual for \$5.00 each. The price includes postage and handling. Please allow 30 days for delivery.

GCSAA

GCSAA Headquarters  
1617 St. Andrews Dr.  
Lawrence, Kansas 66044

---

## **2-Way Communication**

Communication is a two-way street. Each month **THE GOLF SUPERINTENDENT** presents a large amount of information to GCSAA members and other turfgrass industry leaders. **THE GOLF SUPERINTENDENT** wants to provide its readers newsworthy, informative, entertaining and needed articles.

You can complete the circuit in GCSAA's efforts for two-way communication by sending your ideas, comments, suggestions, articles and photographs on items that interest you or present problems for you. **THE GOLF SUPERINTENDENT** also encourages you to write letters to the editor - it's the best method of keeping the two-way channel of information open.

Send your thoughts to **THE GOLF SUPERINTENDENT**, 1617 St. Andrews Drive, Lawrence, Kansas 66044.

## **GOLF**

It is a science - the study of a lifetime  
In which you may exhaust yourself but  
never the subject.

It is a contest, a duel or a melee  
Calling for courage, skill, strategy and  
self control.

It is a test of temper, a trial of honor,  
a revealer of character.

It affords a chance to play the man and  
act the gentleman.

It means going into God's out of doors,  
Getting close to nature, fresh air,  
exercise,

A sweeping away of the mental  
cobwebs,

Genuine recreation of the tired tissues.  
It is a cure for care, an antidote for  
worry.

It includes companionship with  
friends,

Social intercourse, opportunity for  
courtesy,

Kindliness and generosity to an  
opponent.

It promises not only physical health  
but moral force.

David R. Forgan



# Your Northrup King man is also your Adelphi man.

Adelphi Kentucky Bluegrass,\* the man-made bluegrass, is one of the outstanding turfseed varieties your Northrup King man can offer you.

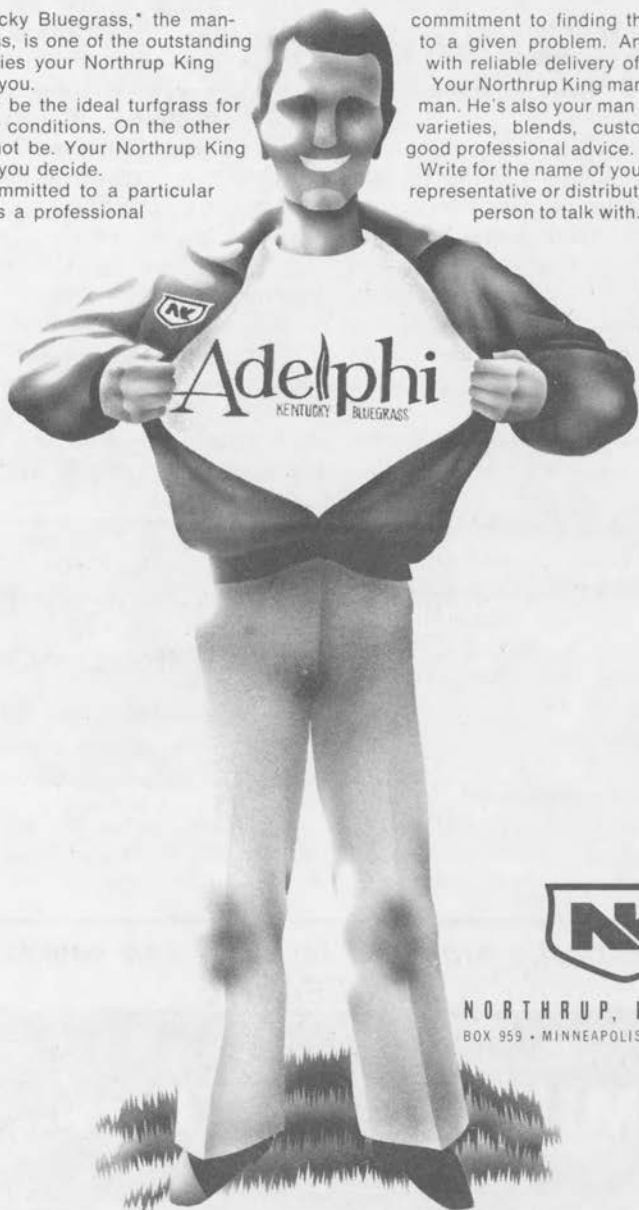
Adelphi may be the ideal turfgrass for your particular conditions. On the other hand, it may not be. Your Northrup King man can help you decide.

He's not committed to a particular variety. He has a professional

commitment to finding the best solution to a given problem. And following up with reliable delivery of quality seed.

Your Northrup King man is your Adelphi man. He's also your man for a lot of other varieties, blends, custom blends and good professional advice.

Write for the name of your Northrup King representative or distributor. He's a super person to talk with.



NORTHROP, KING & CO.  
BOX 959 • MINNEAPOLIS, MINNESOTA 55440

\*P.P. 3150

## Rhodia Announces New Preemergent Herbicide

The registration of a new pre-emergent herbicide, Chipco® Ronstar® G, for application in turf and ornamentals has been announced by J. E. Davies, General Manager, Rhodia Inc. Agricultural Division.

Chipco Ronstar G is a selective, preemergent herbicide for the control of many annual grasses and broadleaf weeds in established perennial bluegrass and bermudagrass turf and container and field grown woody ornamental shrubs, vines and trees.

According to Mr. Davies, tests indicate that the herbicide provides broader control of annual broadleaf weeds and grasses as well as longer residual than a number of other herbicides.

In ornamentals, the herbicide can be applied on newly planted field and container stock; it controls a number of annuals that are not susceptible to other herbicides, and due to its insolubility, very little horizontal or lateral leaching occurs.

In turf applications, such as fairways, parks and lawns, Chipco Ronstar G is recommended for pre-emergent control of germinating crabgrass, spring germinating poa annua, goosegrass (silver crabgrass),

Florida pusley, oxalis, stinging nettle, carpetgrass and pigweed.

In turf, the application rate is 200 lbs. per acre (or 4½ lbs. per 1,000 sq. ft.). For woody ornamental shrubs, vines and trees, it is recommended that Chipco Ronstar G be applied broadcast to container or field grown ornamentals at 100 to 200 lbs. per acre (or 2¼ to 4½ lbs. per 1,000 sq. ft.) depending on the weeds to be controlled.

Chipco Ronstar G is available as a 2% granular formulation in 50 pound bags. Additional information may be obtained by contacting Rhodia Inc. Agricultural Division, P. O. Box 125, Monmouth Junction, N. J. 08852.

GCSAA

### 49th International Turfgrass CONFERENCE AND SHOW

February 12-17, 1978  
San Antonio, Texas

"The income tax has made more liars out of the American people than golf has." — Will Rogers

***No synthetically produced fertilizer can compare with  
MILORGANITE***

Golf Courses Use More

**MILORGANITE**

Than Any Other Fertilizer



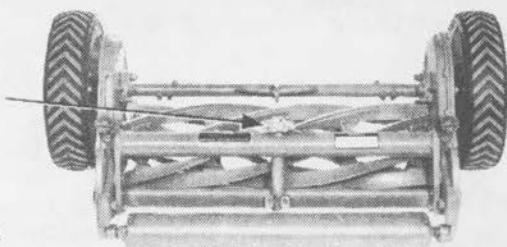
**TERMINAL SALES CORP.**

12871 EATON AVE.  
DETROIT, MICH. 48227  
(313) 491-0606

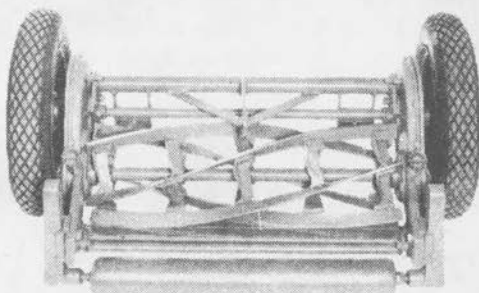
# SPARTAN<sup>®</sup> AND ROUGHMASTER<sup>®</sup>



SINGLE KNOB, BEDKNIFE-TO-REEL  
ADJUSTMENT



Spartan (above) and Roughmaster (below) gangs go to work in the Toro hydraulic Parkmaster<sup>®</sup> and in other Toro frames



Features and benefits of these gang mowers include:

For the SPARTAN — a rugged new reel construction with seven steel spiders welded to a heavier 1½ inch diameter reel shaft; one hand bedknife-to-reel adjustment gives precision control of cutting quality.

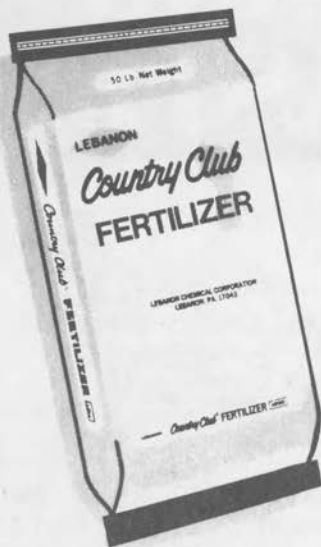
For the ROUGHMASTER — a giant 10 inch diameter reel that lets the tall growth in, clips it off clean. And both of these classic gang mowers are backed by Toro and by the Toro parts and service system.

— DISTRIBUTED BY —

**WILKIE TURF** Equipment Company

1050 OPDYKE ROAD PONTIAC, MICH. 48057  
(313) 373-8800

# TORO



LEBANON

## COUNTRY CLUB PROFESSIONAL TURF PRODUCTS GIVE YOU MORE!

- ★ Full Weight (High Density) for easy, fast, full width spread.
- ★ A Complete Feeding in every granule of needed turf-grass nutrients.
- ★ A Balanced Fertilizer Ratio with no inert fillers.
- ★ Available only through a network of trained distributors, thus assuring you of lower sales costs, meaning greater value to you.

For More Information, Contact:

**James L. Camp**  
**(219) 485-6828**

## ARE YOU INTERESTED IN JOINING THE MICHIGAN AND BORDER CITIES GOLF COURSE SUPERINTENDENTS ASSOCIATION?

Fill in the questionnaire below and mail to:



**BOB HOPE**  
**The Lochmoor Club**  
**20740 Marter Road**  
**Grosse Pointe Woods, Mi. 48236**  
**Off. 881-8112, Res. 884-8684**



NAME OF INTERESTED PERSON \_\_\_\_\_ DATE \_\_\_\_\_

MAILING ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

*Or you may contact the next golf course supplier who calls on you and give him the information needed for application.*

# THE NEW BREED

## THE NEW BREED (AS OTHERS SEE THEM)

Challenge authority, don't follow orders.

Have no loyalty to their employer.

Are impatient to get ahead.

Care only about money, are less dedicated.

Don't care how they look.

Are arrogant and rebellious.

## THE NEW BREED

### (AS THEY SEE THEMSELVES)

Have no patience for meaningless work.

Are committed to doing their thing.

Are better educated than generations gone by.

Ask questions - the right questions.

Want to get ahead.

Have broader outside interests.

Have as much interest in what's going on at work.

Come to work as motivated as their predecessors.

More likely to become demotivated by what they experience than any group before them.

## HOW TO MANAGE THE NEW BREED

Examine the quality and attractiveness of the jobs.

Bury biases! Take the sexist labels off jobs.

Communicate more effectively.

Sharpen their management of personnel development.

Negotiate and develop new time frames and policies for advancement.

Devise better systems to reward individuals in more direct relationship to their achievement.

Develop better standards of performance

Be tougher.



**FORE-PAR MANUFACTURING  
CHICOPEE MANUFACTURING CO.  
3M ENVIRONMENTAL PRODUCTS  
AGRICOL FERTILIZERS  
FOX VALLEY MARKING SYSTEMS  
E. I. DUPONT**

- DISTRIBUTED BY -

**ACTI-DIONE PRODUCTS  
VELSICOL CHEMICALS  
CONTAINER DEVELOPMENT  
CYCLONE SEEDER COMPANY  
MALLINCKRODT CHEMICALS**



**TURFGRASS, INC.**

Phone: Area 313 437-1427

# KNOW YOUR FACTS AND FIGURES

By Palmer Maples, Jr.

The application of material - sand, topsoil, fertilizer, seed, pesticides - to a golf course must be done properly if the right amount of material is to be applied over a given area. Proper application is like a three-legged table that can't balance on only one or two legs. In this case, the legs are (1) the area to be covered, (2) recommended and desired rates of application and (3) calibration of equipment.

Most spaces can be described as shapes that have predetermined formulas for calculating area, the first legs of the table. The basic shapes are circle, square, rectangle and triangle, which can be used to measure tees, traps, greens and fairways.

Most tees are rectangles. To determine the area of a rectangle, multiply the length by the width ( $A = lw$ ). Fairways also are usually rectangular and their areas can be found by the same formula. Fairways that come to a point on either end should be measured as if they were rectangles, and then a triangle area for the pointed ends added on. The area of a triangle is  $A = \frac{1}{2}bh$ , where  $b$  is the base and  $h$  is the height.

Fairways also can be measured by the offset method. Establish a starting and an ending point on the fairway. At regular intervals along a straight line between the two points, take measurements at right angles (offset) from the line of the edge of the fairway. Be sure there is an even number of offsets and that they are at regular intervals. Add the lengths of all the offset lines together and multiply the total by the length of the straight line. The answer will be the area of the fairway. To determine the area of a mostly circular green, use the formula for the

area of a circle,  $A = \pi r^2$ , where  $\pi = 3.14$  and  $r$  is the radius of the circle. A short cut is  $A = d^2 \times 0.78$ , where  $d$  is the diameter of the circle. Some greens may be long and narrow or shaped like an hourglass or a cloverleaf. To find the area of such a green, use a central point of the green as the basis for measuring radii every 10 degrees around the circle. Square each radius, find the average of the by  $\pi$  (3.14). This is the Maples method of measuring greens.

Sand bunkers can be divided into different shapes, the area of the shapes calculated and the areas added together to find the total bunker area. The area of a bunker is important in calculating the amount of sand needed to fill it.

Finding the volume of a bunker is similar to finding the volume of any solid. First, the area must be found; then it is multiplied by the height or depth. The formula is  $V = Ad$ , where  $A$  is the area and  $d$  is the depth. A rectangular bunker 20 feet long and 15 feet wide, for instance, would have an area of 300 square feet ( $A = lw$ ). If the sand is 6 inches deep, the volume of sand is 300 square feet multiplied by 0.5 (6 inches is half a foot); the volume, therefore, is 15 cubic feet of sand.

When sand or rock is delivered, it

Continued on Next Page

## Some Obstacles To Good Human Relations

1. Complacency
2. Insecurity
3. Inadequate Communications
4. Environment
5. Jealousy
6. Personality Complex
7. Irresponsibility
8. Ignorance of Human Nature
9. Disregard of Human Rights
10. People Who Don't Want to Listen





THERE IS SOMETHING NEW UNDER THE SUN

**NS  
56**

THE HIGHEST CONCENTRATION OF SLOW RELEASING TURF NUTRIENTS  
IN A SINGLE PRILL

32% NITROGEN PLUS 24% SULFUR =



For over ten years research and development has been working on perfecting a form of nitrogen for turf that would:

1. Satisfy a large amount of grass' nutritional requirements.
2. Release uniformly from spring through late fall all of the nitrogen in one season.
3. Release in cool weather.
4. Not burn.
5. Not be dependent on soil temperature or bacteria.
6. Not leach beyond the root zone.
7. Be free flowing and spread easily even on breezy days.
8. Not cause nitrate accumulation.
9. Not be adversely affected by soil pH.
10. Be a high concentration to eliminate storage and freight costs.

Now after many tests, changes, experiments and trials we have the answer



NS56 releases in cool, dry, wet or hot weather as the grass needs it. Plus it supplies that very important secondary element now deficient in at least 29 states **SULFUR**

NS56 is available straight, 32-0-0-24, and in mixed uniformly prilled products containing N-P-K plus all other necessary secondary and micronutrients.

Please write us for your special introductory offer and ask any questions you may have.

Yours for better turf,



**FDS FERTILIZERS**

5324 W. Bloomfield Lake  
W. Bloomfield, Mi. 48033  
Phone: (313) 681-9336

## Facts & Figures Cont.

usually is dumped into a cone-shaped pile. To find the volume of this cone, multiply the area of the base by the height and divide by 3:  $V = 1/3Ah$ , where A is the area and h is the height. If a pile of sand is 6 feet high and has a base circumference of 36 feet, the area of its base is the area of a circle:  $d^2 (0.78)$ . The diameter (d) is the circumference (36) divided by pi.  $(3.14)$  so the area is  $(36 \div 3.14)^2 (0.78) = 102.4$  square feet. The volume of the cone, therefore, is  $1/3(102.4)(6) = 204.8$  cubic feet. Formulas for determining volume also can be used to determine the amount of topdressing needed for greens. For example, if the greens average 7,500 square feet and the desired depth of topdressing is 1/8 inch, multiply the surface area (7,500) by the depth (1/8 inch). To convert 1/8 inch to part of a foot, divide 0.125 (1/8 inch) by 12 (inches per foot), which equals 0.01 feet. Then

multiply 7,500 by 0.01; this gives the cubic feet of topdressing required for the average green;  $0.01 \times 7,500$  square feet = 75 cubic feet, or 2.8 cubic yards  $(75 \div 27)$ . There are 27 cubic feet in one cubic yard. Another leg of the table is the rate or amount of material to be used. For fertilizer, seed, pesticides and similar products, the rate or amount is printed on the container. Recommended amounts of sand, topsoil, lime and other bulk items often can be found in books and charts.

Calibration, the third leg, is simply adjusting the equipment to apply the desired amount of material. All equipment used to distribute material must be calibrated, including sprayers, spreaders and even a man with a shovel.

Most equipment used for distribution of materials has a list of instructions on how to accurately calibrate that particular piece of equipment. Items

Continued on Next Page



## Turf Topics

### Going to San Antonio?

Stop in the JM Buckner booth and have Jim Vince, Paul Bando or Austin Miller demonstrate the new ...

### KCS computerized controller for golf course irrigation

KCS is a keyboard controlled, all solid state mini-computer with memory — multiple program — digital display — central processor and many more features.

Control the entire irrigation system from your desk.

The KCS central processor is the only true two-wire system. KCS programs are easy to set up and easy to change.



## Johns-Manville

*Write or call direct*

**Sisco**  
ENGINEERED RAIN  
**Sprinkler Irrigation Supply Co.**  
A division of A. J. Miller Inc.

1316 No. Campbell Rd. Royal Oak, Mi. 48067  
Phone (313) 398-2233

### Facts & Figures Cont.

to consider when calibrating a sprayer include nozzle size, speed of travel and operating pressure of the pumping system. Rates of application can be changed by changing any one or a combination of these three items. A slower speed allows more material to be sprayed on a given area. If the area being treated is extremely rough, it might be desirable to slow the ground speed; if the same distribution of material is desired at the slower speed, there must be a change in the operating pressure or the nozzle size. Small adjustments in the rate of application can be made by changing the pressure. Lower operating pressure reduces the volume of spray delivered. For a major change in application rates, change the nozzle tip size. Larger tips increase the volume; smaller tips decrease it. Once the calibrations and adjustments have been made, this leg becomes a constant value.

Spreaders are usually of two types; drill-, or drop type, and broadcast-, or rotary-type. Broadcast spreaders can be hand-operated, truck- or tractor-mounted or tractor-towed. Calibration of spreaders is usually a matter of adjusting the opening to a manufacturer's established setting. Once a spreader is set to specification, the rate of distribution is determined by ground speed and size of the opening selected.

There is one other point that should be mentioned. Once you have constructed a table of proper application, can you build the table next week, next month or next year? Certainly, if a record of the construction has been kept. This is only one of many daily records the superintendent must keep - it is part of his responsibility.

Within a few years, the metric measurement system will be in use, and most of us will have to adjust our thinking from English to metric

*Continued on Next Page*



## Helping the superintendent through turf research...

- Controlled Release Fertilizers
- Fertilizer/Pesticide Combinations

- Fungicides—Herbicides—Insecticides
- Soil Testing—Weed & Disease Identification

### SCOTTS • LELY • GANDY SPREADERS

Finest quality turfgrass seed—Fairways • Greens • Tees • Roughs  
Scotts Windsor and Victa blends

### Steve Dearborn

Technical Representative  
6152 Cold Spring Trails  
Grand Blanc, Mich. 48439  
Telephone: 313/695-2738

### Facts & Figures Cont.

measurements. Included in this article are some reference charts with conversations from English to metric measurements. This article may present some new information that may be helpful to the superintendent in daily operations. But if it gathers certain facts, presents them in a useful fashion and can be used as a reference, then it has accomplished its purpose.

#### FORMULA

##### Area

Triangle—Multiply length of base by height and divide by 2

Square—Square the length of one side

Rectangle—Multiply base by height

Pentagon (5-sided)—Square the length of one side and multiply by 1.72

Hexagon (6-sided)—Square the length of one side and multiply by 2.598

Octagon (8-sided)—Square the length of one side and multiply by 4.828

Circle—Multiply the square of the radius by 3.14

Ellipse—Multiply long diameter by short diameter by 0.78

Sphere—Multiply square of diameter by 3.14

Cube—Square length of one side and multiply by 6

##### Circumference

Circle—Multiply diameter by 3.14

##### Volume

Pyramid—Multiply area of base by height and divide by 3

Cube—Cube the length of one side

Rectangular Solid—Multiply length by width by height

Cone—Multiply square of radius of base by 3.14, multiply that by height and divide the total by 3

#### PARTS PER MILLION

1 percent = 10,000 ppm = 10 grams per liter = 10 grams per kilogram

1 percent = 1.33 ounces by weight per gallon of water = 8.34 pounds per 100 gallons of water

.1 percent = 1,000 ppm = 1,000 milligrams per liter

.01 per cent = 100 ppm = 100 milligrams per liter

.001 percent = 10 ppm = 10 milligrams per liter

.0001 percent = 1 ppm = 1 milligram per liter

Continued on Next Page

## TURF SUPPLIES INC.

6900 Pardee Rd., Taylor, Michigan  
(313) 291-1200

DON'T EVEN THINK  
OF BUYING . . . . .

GRASS SEED  
FERTILIZERS  
FUNGICIDES

WITHOUT CALLING

291-1200

## TURF SUPPLIES INC.

6900 Pardee Rd., Taylor, Michigan  
(313) 291-1200

## LAKE SHORE

EQUIPMENT & SUPPLY CO.

DISTRIBUTOR & FORMULATOR

GRASS SEED - FERTILIZERS

INSECTICIDES - FUNGICIDES - HERBICIDES

REPLACEMENT MOWER PARTS

REPLACEMENT TIRES

LESCO Products

Price Quotation On Request

CALL OUR NEW OFFICE

300 So. Abbe Rd., Elyria, Ohio 44035

(216) 323-7544

MICHIGAN CUSTOMERS

Call Toll Free: (800) 321-7423

When you talk irrigation,  
talk to us . . .

**we're the  
answer people**

**We've  
got systems**

An engineering staff  
to consult with you  
on irrigation systems design  
& specifications,  
and budget estimates.

**We've  
got supplies**

The largest  
selection & stock  
in the midwest:

**PIPES & FITTINGS:**

PVC • Sewer & Drain (Corr.)  
Polyethylene • Galvanized  
Copper • Aluminum

Pressure Reg. Valves • Elec. Valves  
Pressure & Flow Switches  
Controllers

**PUMPS & PUMPING STATIONS**

**EXCLUSIVE FRANCHISED DISTRIBUTOR**

**RAIN BIRD**

**CenturyRain aid**

**WHOLESALE DISTRIBUTORS**

31691 Dequindre  
Madison Hts., MI 48071  
(313) 588-2990

341 Lively Blvd.  
Elk Grove Vill., Ill. 60007  
(312) 640-6660

**Facts & Figures Cont.**

**AREA**

- 1 square foot = 144 square inches
- 1 square yard = 9 square feet
- 1 acre = 43,560 square feet = 4,840 square yards
- 1 acre is a square with a side of 208.7 feet
- 1 are = 100 square meters
- 1 hectare = 10,000 square meters
- 1 square kilometer = 100 hectares

**LENGTH**

- 1 foot = 12 inches
- 1 yard = 3 feet
- 1 mile = 1,760 yards = 5,280 feet
- 1 meter = 10 decimeters = 100 centimeters = 1,000 millimeters
- 1 kilometer = 1,000 meters
- 1 millimeter = 1,000 microns

**VOLUME**

- 1 cubic foot = 1,728 cubic inches = 7.48 gallons
- 1 cubic yard = 27 cubic feet = 0.7645 cubic meters
- 1 cubic meter = 35.314 cubic feet = 1.308 cubic yards

**WEIGHT**

- 1 cubic yard of sand or gravel = about 2,800 pounds
- 1 ton = about 0.72 (¾) cubic yard
- 1 pound = 16 ounces = 453.59 (454 grams)
- 1 acre-inch of water = 226,875 pounds = about 27,000 gallons

**LIQUID MEASURE**

- 1 gallon (U.S.) of water = 4 quarts = 8 pints = 128 cups = 128 fluid ounces
- 1 gallon (U.S.) of water = 3.785 milliliters = 256 table spoons = 231 cubic inches = 0.133 cubic foot = 8.33 (8½) pounds
- 1 cubic foot of water = 62.43 (62½) pounds = 7.48 (7½) gallons

**ENGLISH-METRIC EQUIVALENTS**

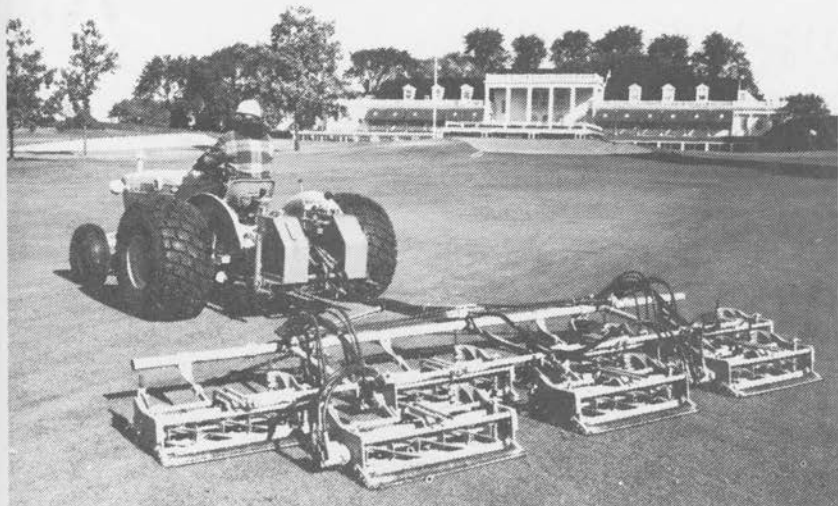
- |                               |                              |
|-------------------------------|------------------------------|
| 1 inch (in)                   | = 2.54 centimeters (cm)      |
| 1 foot (ft)                   | = 0.3 meter (m)              |
| 3.29 feet (ft)                | = 1 meter (m)                |
| 1 yard (yd)                   | = 0.91 meter (m)             |
| 1 mile (mi)                   | = 1.6 kilometers (km)        |
| .62 mile (mi)                 | = 1 kilometer (km)           |
| 1 U.S. liquid ounce (oz)      | = 29.6 milliliters (ml)      |
| 1 U.S. liquid quart (qt)      | = .95 liter (L)              |
| 1 U.S. liquid gallon (gal)    | = 3.78 liters (L)            |
| 1 ounce (oz.) of mass         | = 28.35 grams (g or gm)      |
| 1 pound (lb)                  | = 0.45 kilogram (kg)         |
| 2.20 pounds (lbs)             | = 1 kilogram (kg)            |
| 1 pound per acre              | = 1.20 kilograms per hectare |
| 1 pound per 1,000 square feet | = 48.8 kilograms per hectare |
| 0.8922 pounds per acre        | = 1 kilogram per hectare     |
| 2.471 acres                   | = 1 hectare                  |
| 1 acre                        | = 0.4047 hectare             |
| 32° F                         | = 0° C                       |
| 122° F                        | = 50° C                      |
| 212° F                        | = 100° C                     |

**ADDITIONAL FACTS**

- To square any number ( $x^2$ ), multiply the number by itself ( $4^2 = 4 \times 4 = 16$ )
- To cube any number ( $x^3$ ), multiply the number by itself twice ( $4^3 = 4 \times 4 \times 4 = 64$ )
- The radius of a circle is one-half the diameter
- Degrees Celsius = ( $^{\circ}\text{F} - 32$ )  $\div$  1.8
- Degrees Fahrenheit = ( $^{\circ}\text{C} \times 1.8$ ) + 32

From the August 1977 issue of the  
GCSAA Golf Superintendent

# ROSEMAN TOW-TYPE HYDRAGANG



## HEIGHT OF CUT

$\frac{1}{2}$ " to  $3\frac{1}{4}$ " in any desired increment. 6" front caster wheels  $\frac{1}{2}$ " to  $2\frac{1}{2}$ ". 8" front caster wheels  $1\frac{1}{4}$ " to  $3\frac{1}{4}$ ". Cutting height is gauged by ground reference to provide even cut over undulations.

## WIDTH OF CUT

30" per unit. Cutting swath varies for 3, 4, 5 & 6 mowers with maximum of 15' for 7 gang.

## TRANSPORTATION WIDTH

From operator's position all mowers are quickly raised and locked into 8' transport width. Overall length 12'.

## TRANSPORT CONTROL

Five control levers raise or lower number 4, 5, 6 or 7 units individually and the three center units simultaneously.

## REEL

$7\frac{1}{2}$ " diameter 4-blade or 6-blade. Heavy duty chrome-nickel alloy.

**REEL POWER** — Each reel mounted directly to individual hydraulic motors.

**POWER SHARPENING** — Back lapping by reversal of control valve handle.

**BEARINGS** — Anti-friction reel & roller. **MOWER FRAME** — All steel welded.

**ADJUSTMENT** — Hand, no tools needed.

**BED KNIFE** — Oil-hardened alloy steel.



## LAWN EQUIPMENT CORPORATION

520 W. 11 MILE ROAD ROYAL OAK, MICH. 48068  
TELEPHONE: 313-398-3636

JACOBSEN  
**UV4**

**4-WHEEL DRIVE TRUCK**

**the articulated, 4-wheel drive  
truck that goes everywhere**



Powered by a 16 HP engine, the UV4 features a rugged torque converter transmission with 2 forward speeds, plus reverse, along with powerful hydraulic brakes. The box handles items 5 feet long and 4 feet wide. The tailgate hinges at the top and bottom for your choice of loading and dumping (dumping is done hydraulically with the flip of a lever).

Test drive the UV4 for yourself. Have W.F. Miller arrange a demonstration on your obstacle course. And have 2000 pounds of something handy to take along for the ride. Four 500-pound canaries ought to do it.

**W.F. Miller** Garden & Lawn  
Equipment Company

1593 S. WOODWARD AVE. BIRMINGHAM, MICHIGAN 48011

TELEPHONE: (313) 647-7700

**"A Patch of Green"**

31823 UTICA ROAD

FRASER, MICHIGAN 48026

MICHIGAN STATE UNIVERSITY  
LIBRARY - SERIALS  
EAST LANSING, MICH. 48823

