

THREE TOOLS THAT WILL OPEN YOUR EYES

In operations such as seeding, fertilizing, or the application of liquid chemicals, accurate measurement is essential to minimizing waste and achieving quality results. Yet, most operators have been forced to run "blind" because of a lack of affordable, reliable instrumentation. Micro-Trak is changing that with a line of low cost monitors that provide a clear picture of the work performed.



FLOWTRAK™

SPRAYER MONITOR

Provides a direct readout of ground speed with tenth of a mile per hour accuracy, distance in feet, acres worked, gallons applied per acre and total gallons used. Includes stainless steel flowmeter.

\$595

CALC-AN-ACRE™

SPEED, AREA, AND DISTANCE MONITOR

A basic, very easy to use system that provides measurement of acres, MPH and feet.

\$189.95



FLO-PRO™

MULTIPLE INPUT GALLON COUNTER

Monitors the flow of chemicals from up to three separate tanks at the same time. Features set keys and built-in relay for notifying the operator when a desired application volume is reached.

All systems feature easy push-button operation, an illuminated display and electronic memory for storing daily totals.



FOR COMPLETE INFORMATION
CALL TOLL FREE
1-800-328-9613
(Collect in MN (507) 257-3600)

**A NEW VISION IN GROUNDS
CARE AND MAINTENANCE**



MFD. IN U.S.A. BY:
MICRO-TRAK™
SYSTEMS, INC.

P.O. Box 3699 Mankato, MN 56002
© Copyright 1984

Circle No. 136 on Reader Inquiry Card





Jacobsen. Designed to meet your growing needs.

Name your challenge, then look us over.

If your job were simple, ours would be, too. But, it isn't. That's why our line is so broad. And growing. Jacobsen engineers are working on the design, development and improvement of turf-care equipment for the future.

Our objective, on the other hand, *is* simple. To make the strongest, most efficient and cost-effective turf maintenance equipment possible. Simple objectives with sophisticated solutions. From Jacobsen. The line that keeps on growing.

Lease and finance plans are available.

Jacobsen Division of Textron Inc., 1721 Packard Avenue, Racine, Wisconsin 53403.

JACOBSEN
TEXTRON

Engineered from the ground up.

©Jacobsen Division of Textron Inc. 1985 J-1-5

Circle No. 128 on Reader Inquiry Card

GROUP 1 —Low oxygen tolerant trees which require full sun

Alnus glutinosa (European Alder)
Fraxinus americana (White Ash) (after it has passed the juvenile stage)
Fraxinus pennsylvanica (Green Ash)
Larix laricina (American Larch)
Platanus acerifolia (London Planetree)
Quercus imbricaria (Shingle Oak)
Quercus palustris (Pin Oak)
Salix spp. (Willow)
Sassafras albidum (Common Sassafras)
Taxodium distichum (Common Baldcypress).

GROUP 1A —Low oxygen-tolerant species preferring shade

Acer saccharinum (Silver Maple)
Aesculus hippocastanum (Common Horsechestnut)
Carpinus caroliniana (Am. Hornbeam)
Crataegus spp. (Hawthorn)
Juniperus virginiana (Eastern Redbud)
Larix decidua (European Larch)
Ostrya virginiana (Am. Hophornbeam).

GROUP 2 —High water table trees

Acer negundo (boxelder)
Acer pseudoplatanus (Planetree Maple)
Acer rubrum (Red Maple)
Aesculus glabra (Ohio Buckeye)
Castanea dentata (American Chestnut)
Chionanthus virginicus (White Fringetree)
Fagus grandiflora (American Beech)
Fagus sylvatica (European Beech)
Gleditsia triacanthos (Thornless Common Honeylocust)
Juglans nigra (Black Walnut)
Magnolia acuminata (Cucumber tree Magnolia)
Ostrya virginiana (American Hophornbeam)
Pinus albicaulis (White Bark Pine)
Pinus flexilis (Limber Pine)
Pinus jeffreyi (Jeffrey Pine)
Pinus resinosa (Red Pine)
Platanus occidentalis (Am. Planetree)
Quercus coccinea (Scarlet Oak)
Quercus imbricaria (Shingle Oak)
Quercus palustris (Pin Oak)
Quercus robur (English Oak)
Tilia americana (American Linden)

GROUP 3 —Well-drained fertile soil trees

Acer saccharum (Sugar Maple)
Carya ovata (Shagbark Hickory)
Celtis occidentalis (Common Hackberry)
Cercis canadensis (Eastern Redbud)
Cornus florida (Flowering Dogwood)
Liriodendron tulipifera (Tuliptree)
Malus spp. (crab apple)
Ostrya virginiana (Am. Hophornbeam)
Pinus strobus (Eastern White Pine)
Pinus sylvestris (Scotch Pine)
Platanus occidentalis (Am. Planetree)
Quercus coccinea (Scarlet Oak)
Quercus rubra (Red Oak)
Tsuga canadensis (Canadian Hemlock).

GROUP 4 —Droughty site trees

Abies concolor (White Fir)
Betula papyrifera (Paper Birch)
Catalpa spp. (catalpa)
Elaeagnus angustifolia (Russian Olive)
Ginkgo biloba (Ginkgo)
Gleditsia triacanthos (Thornless Common Honeylocust)
Gymnocladus dioica (Kentucky Coffeetree)
Malus spp. (crab apple) (to a lesser extent)
Nyssa sylvatica (Black Tupelo)
Pinus ponderosa (Ponderosa Pine)
Quercus macrocarpa (Bur Oak)
Quercus velutina (Black Oak)
Robinia pseudoacacia (Black Locust).

nage. These two groups of trees will essentially grow under a wide range of soil conditions but thrive in low oxygen soils.

Group 2: High Water Table

Another broad group of plants of particular importance to golf course superintendents are trees that grow in high water table soils but require a well-drained upper 18 inches of the soil profile. These trees do not tolerate flooding but require moisture within several feet of the surface.

It is particularly important to

Ponderosa pine is extremely drought tolerant and adapts well to much of the United States.

review this list of trees for their adaptation or need for a relatively high water table; that is, water within the upper several feet. Many of these trees grow well along the shore of ponds, water hazards, and/or streams.

Group 3: Well-Drained Fertile Soils

The next group of trees are quality trees for large-area, intensely maintained landscapes. They require fertile, well-drained soils. These trees are the most sensitive to a quality environment while being specific in their requirements.

Group 4: Droughty, Sandy Sites

There are a reasonable number of trees that grow on droughty sites. These plants will thrive as companions with turf while tolerating sandy, extremely well-drained, droughty sites.

This doesn't mean they won't tolerate additional moisture, but they do seem to tolerate droughty sites through a deep root system or as efficient extractors of water.

Other golf course trees

A few types of trees are particularly important because they have contrasting environmental requirements. These include the maples, beech, larch, ash, pine, and oak.

The maple site requirement ranges from trees requiring well-drained, fertile soils to those that survive heavy, low oxygen soils with a relatively high water table.

Acer saccharum, Sugar Maple, requires a slightly acid soil, being partially well-drained and fertile. It does not tolerate salt or air pollutants but is a regal specimen. Silver Maple and/or boxelders grow in a

wide range of soils, thrive in a high water table site, tolerate flooding for various periods of time, and exist in low oxygen situations. Contrastingly, Red, Sycamore, and Norway Maples will grow in a wide range of soils, from fertile to heavy clays yet prefer frequent rains normally received throughout the Great Lakes and Northeast areas.

American and European Beech are similar yet have dramatically different pH requirements. American Beech prefers a slightly acid, well-drained soil, tolerating high water tables. European Beech grows best in a slightly alkaline soil but on a broad range of soil types. American Beech transplants with great difficulty and grows best in the Northeast on acid soils, where European Beech transplants quite readily and will tolerate a much broader soil range.

Further, all of the improved beech cultivars, such as weeping ('Pendula'), copper leaf ('Riversii'), and fern leaf ('Asplenifolia') forms, are of European Beech. There are no cultivars of American Beech.

European and American Larch grow in a wide range of soils and flourish in high water tables. European Larch is less sensitive to air pollutants yet will not tolerate chlorides. American Larch is extremely sensitive to many air pollutants.

White and Green Ash differ in one key soil requirement—pH. They both thrive on a wide range of soils, tolerate some flooding, and prefer a relatively high water table. But White Ash grows on acid soils (Northeast U.S.), where Green Ash prefers alkaline pH.

Many pines require extremely well-drained soils with high water tables. Scotch and White Pines grow on a wide range of soil conditions as long as the upper 24 inches are reasonably well drained. White Bark, Jack, Limber, Jeffrey, and Red Pines grow on sandy, infertile soil with a perched water table. In fact, they grow better in infertile than fertile soils, e.g. beachhead sand.

Ponderosa Pine is unique in that it grows on well-drained soils but is extremely drought tolerant. Its native range is the Western U.S., yet it adapts to other areas, e.g. Midwest, Central, and Northeast, as long as the soil is extremely well drained. One should take advantage of the unique characteristic—extreme drought tolerance.

Oaks are as varied as the maples. They grow in a wide range of soil conditions from fertile, well-drained soils (White Oak), to heavy, lower oxygen soils (English, Red, Scarlet, and Pin

Build in control for more than 200 weed and brush species...



DITCHBANKS



UTILITIES



RAILROADS



ROADSIDES

When your vegetation management programs start with Banvel® products.

herbicide

- Banvel® herbicide products give you control for the broadest spectrum of broadleaf weeds, vines and brush (including many hard-to-control species) at a cost-effective price.
- You get control that kills target plants completely—foliage, stems and roots—with environmentally sound chemistry.
- You preserve native grasses.
- Banvel herbicide products also tank mix readily with most other herbicides.
- You can choose from five effective Banvel herbicide formulations that offer flexible application.

Talk to your Velsicol representative. Find out how to build better right-of-way vegetation management on a cornerstone of Banvel herbicide products.



Banvel® is a registered trademark of Velsicol Chemical Corporation. Read and follow label directions carefully.

YOUR CORNERSTONE OF VEGETATION MANAGEMENT

Circle No. 237 on Reader Inquiry Card

Estate Turf Spreader

Model 700

\$365.00

Freight Included



- Spread seed, sand or fertilizer, lime, de-icers
- Big 800 lb. capacity
- Ground driven
- Rugged Steel chassis with Polyethelene hopper
- Unique double-action drag chain prevents clogging while calibration is provided by 0 to 2½ sq. in opening

Model 108

\$217.00

Freight Included



ESTATE "PRESSURE" SPRAYER

Perfect for spraying fruit trees, shrubs, yards, or pastures.

- Heavy duty 15-gal. poly tank.
- Adjustable booms sprays 10-ft. swath.
- Comes with hand held sprayer, and 10 ft. hose.
- Sprayer operates on 12-volt power, with easy access on/off switch.
- Lightweight, easy to store, (41 lbs.)

ESTATE "VERSATILITY" WAGON

Model 300

\$479.00

(5 ft. bed)



(Add \$72.00 for dump option) Freight Included

- 1-ton hauling capacity with hand operated hydraulic dump system
- Heavy structural steel frame
- Removable Side Racks
- High Flotation Tires
- 5 ft., 6 ft. & 7 ft. beds available
- Also, single axle and tandem axle trailers available

Country Manufacturing, Inc.
P.O. Box 104 K-3
Fredericktown, OH 43019
(614) 694-9926

Circle No. 109 on Reader Inquiry Card



Ostrya virginiana, American hophornbeam, grows well in a high water table, but requires a well-drained upper 18 inches of the soil profile.

Oak). Further, Bur Oak (a good companion with turf) has a deep root system while being extremely chloride tolerant.

In fact, Bur Oak, crab apple spp., catalpa, Honey Locust, hickory, and

Bur Oak, crab apples, catalpa, Honey Locust, hickory, and Kentucky Coffeetree compete well with turf without damaging it.

Kentucky Coffeetree are several of the trees to grow in companion with turf as they compete well while not damaging the grass growth.

So, "What is a prime tree for a golf

course?" A prime tree for a golf course is something that grows well along a water hazard (willow, European Beech, Red Maple), flourishes in competition with turf (Kentucky Coffeetree, crab apple, Bur Oak), or just adapts well to high maintenance, adequate moisture, and good drainage frequently found near tees and greens.

It is up to the golf course architect and superintendent to select trees that match the site and maintenance budget. But, remember there is no such thing as a bad tree. When matching biology with environment, each tree species can be best for those conditions.

WT&T

Douglas Chapman is horticulturist, administrator, The Dow Gardens, Midland, MI, and serves on the WT&T editorial advisory board.

ENTER WEEDS TREES & TURF'S "FOLDING GREEN" SWEEPSTAKES



YOUR CHANCES
OF WINNING
\$250, \$500
EVEN \$1,000
ARE FANTASTIC!

THE ODDS ARE
IN YOUR FAVOR...
ENTER AT EACH
PARTICIPATING
BOOTH!

That's because the odds of winning are so favorable. Unlike other contests where millions enter and the odds of winning are astronomical, *WT&T's "Folding Green" Sweepstakes* is just for you Golf Course Superintendents who enter it during the GCSAA Show this February 5-13 in Washington, D.C.! In fact, the more times you enter, the better your chances of winning!

HERE'S ALL YOU HAVE TO DO:

- 1 You must be a Golf Course Superintendent registered at the Show. This Sweepstakes is not open to family members or exhibitors.
- 2 Get either copy of *WEEDS TREES & TURF's Golf Daily* at the Show for listings of participating booths.
- 3 Go to any listed booth, get an entry blank with complete rules/details, fill it out, and drop it in the ballot box.
- 4 Enter as often as you like, but only once at each booth.
- 5 Pick up your prize — if you're one of the lucky winners. Prizes will be mailed if winners are not present.

See you at the Show...and good luck!

WEEDS TREES & TURF

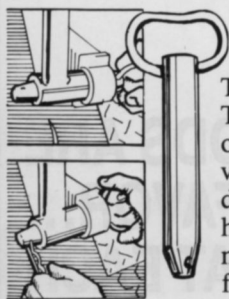
V BPA
A BP

HBJ A HARCOURT BRACE JOVANOVIICH PUBLICATION

7500 Old Oak Boulevard, Cleveland, Ohio 44130

WHAT MAKES THE CUSHMAN TURF-CARE SYSTEM WORTH THE INVESTMENT:

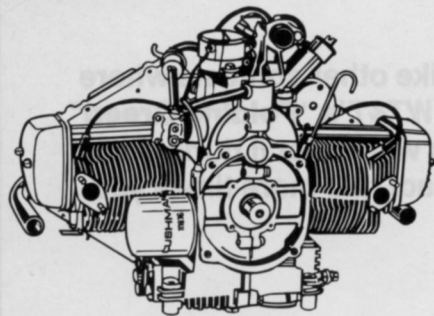
Aerating, hauling, dumping, spraying, seeding, spreading and top dressing — one vehicle does the work of a fleet of machines.



The Cushman Turf-Care System offers you a single vehicle that can do the work of a half dozen machines—at a fraction of the cost.

The exclusive Cushman pin disconnect system lets you attach and remove accessories in minutes.

A NEW 22-HP ENGINE.



The Cushman Turf-Truckster™ is now equipped with a new 22-hp gas engine.

It gives you the power to haul a full load uphill, without straining. It maintains a sure, steady speed while you're spraying or spreading.

And it's built tough. The crankshaft is forged alloy steel. The cylinder heads are reinforced for extra strength under stress. And the hydraulic pump is mounted to the engine for better service life and smooth operation.

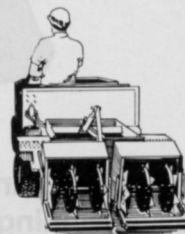
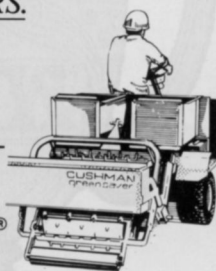
Team up the new 22-hp Turf-Truckster with any of the following accessories for a complete Turf-Care System.

THE AERATORS.

Because you have two types of turf to aerate, Cushman makes two aerator attachments for your Turf-Truckster.

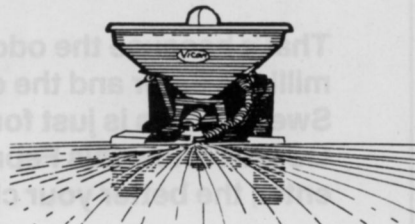
The Greensaver® is ideal for greens and other delicate areas . . . while the Quick Aerator makes short work of big jobs (it covers a 46" swath).

Both can be equipped with interchangeable coring or deep-slicing tines.



THE SPREADERS.

Two choices here, too. The 700-lb. capacity Vicon Spreader with a 45' swath. Or the Spreader/Seeder with a 300-lb. capacity. Both give you smooth, uniform spreading because application rates are controlled by the Turf-Truckster's ground speed governor.



THE DUMP BOXES.



Again, you have a choice! Our Short Box is a high quality dump box . . . and our Flatbed/Box converts from flatbed carrier to dump box just by adding the bolt-on sides and tailgate. Both can be hydraulically dumped right from the driver's seat.

THE SPRAYERS.

Choose the capacity you need . . . our big 150-gallon sprayer or 100-gallon model. Both give you uniform spraying controlled by the Turf-Truckster's ground speed governor.

THE TOP DRESSER.

Everything from rock salt to powdered fertilizer can be uniformly spread across a 31½" swath at a rate of up to 220' per minute.

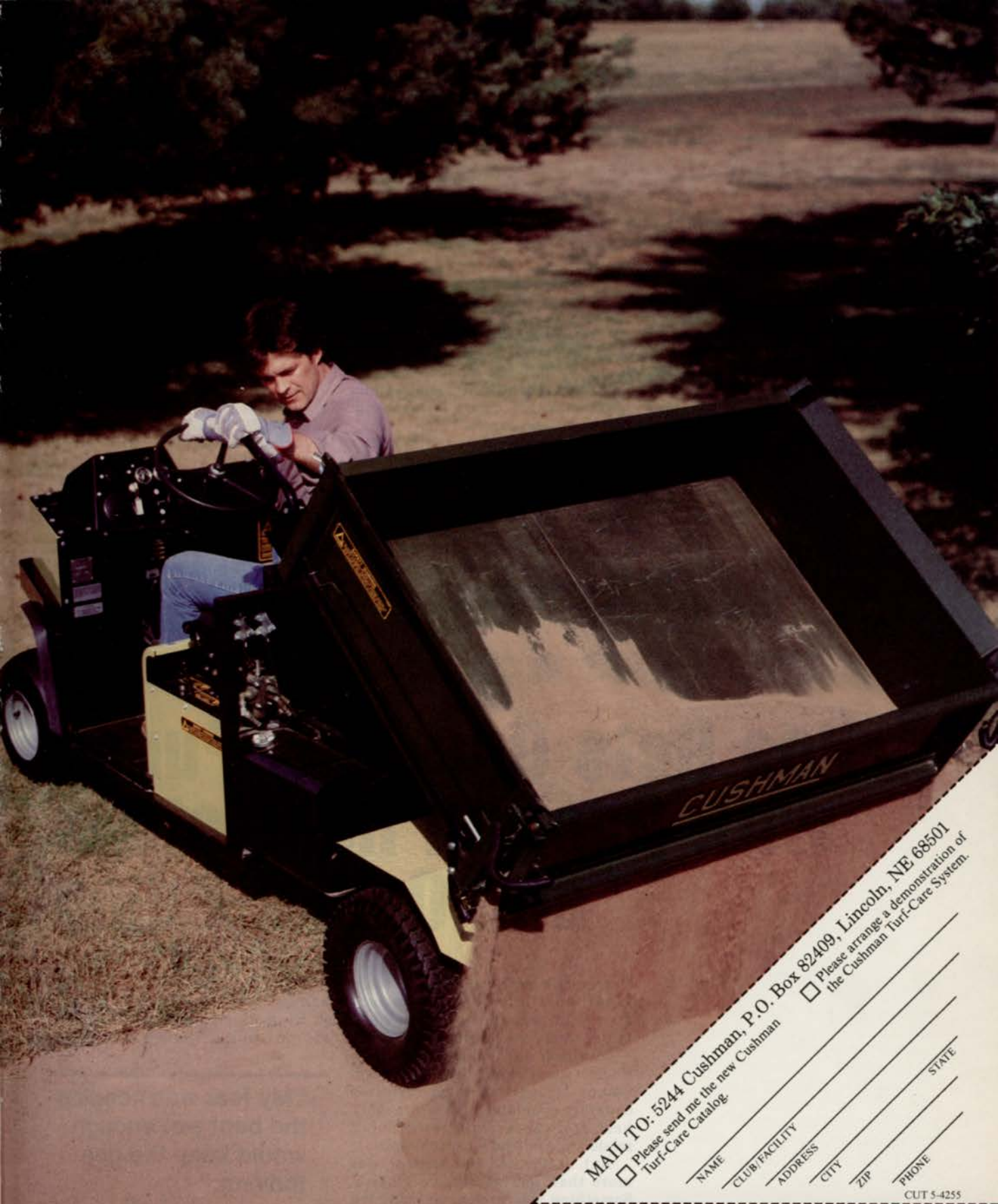


A FREE DEMONSTRATION

See the Cushman Turf-Care System in action. Call toll-free:

1-800-228-4444.

Circle No. 112 on Reader Inquiry Card



MAIL TO: 5244 Cushman, P.O. Box 82409, Lincoln, NE 68501

Please send me the new Cushman Turf-Care Catalog

Please arrange a demonstration of the Cushman Turf-Care System.

NAME _____

CLUB/FACILITY _____

ADDRESS _____

CITY _____

STATE _____

ZIP _____

PHONE _____

CUT 5-4255

CUSHMAN®

©Outboard Marine Corporation, 1983.
All rights reserved.

It works harder because it's built better.

Bob Musbach was up against a wall. As superintendent of North Hills Country Club, Menomonee Fall, WI, he'd observed the spread and summer kill of annual bluegrass. It was an epidemic with no cure.

His course has steep southern-facing slopes that soak up the hot sun. Clay soil prohibits water infiltration, and syringing fairways, up to five times a day in the summer stress period, created unacceptable, mushy playing conditions.

After trying bensulide compounds, maleic hydrazide, chloroflurenol compounds, and arsenicals with limited success, Musbach was up against a wall.

"The members were sick of wet fairways from syringing. My fear was

nomenal success. We overseeded with rye because it only takes three to five days to establish in our clay soil."

Red Roskopf of Wisconsin Turf Equipment Corp., Dick Baade from Elanco, Dr. Gale Worf of Wisconsin Extension Service, and Marc Grundman of Northrup King have been promoting the growth regulator/overseeding concept, along with light-weight fairway mowers and clipping removal, to other Wisconsin superintendents.

Wayne Otto of Ozaukee Country Club, an 18-hole private course in Mequon, WI, has used a program similar to Musbach's with equal success on fairways.

"We used Cutless on our No. 17 fairway which is about 1.2 acres and a

Poa Gets One-Two Punch with Growth Regulators and Overseeding

to keep the bent wet enough would keep the poa thriving. We had to come up with a witches brew of turf to adapt to the situation," Musbach revealed.

Musbach and his assistant Mark Kienert spent a great deal of time and money trying improved turfgrass cultivars evaluating color, drought/heat resistance and crown depth related to cold and wear tolerance.

But, it seemed the answer was more than just aggressive grasses. Something was needed to stunt the annual bluegrass until the the perennial grasses were established.

What Musbach and Kienert discovered has greatly increased the sales of two products in their area, Rubigan and perennial ryegrass. "The Rubigan suppresses with phe-

50/50 mix of bentgrass and poa annua," says Otto.

His maintenance routine included mowing with a Toro GM3 with bas-

"My fear was keeping the bent wet enough would keep the poa thriving."

—Musbach

kets at 1/2-inch from one to three times a week as needed. He aerified in June and September and overseeded in the same months with Emerald