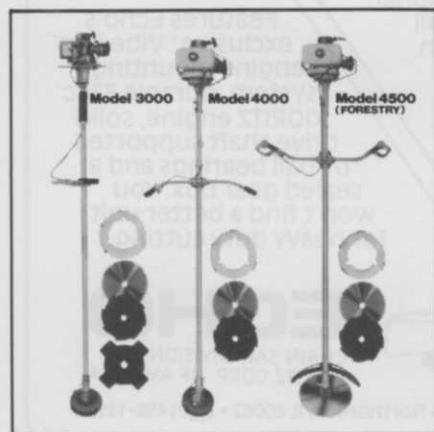


# Finally, a tap-for-cord string-trimmer built for the pro.



A light tap on the ground provides fresh string — automatically.

RAC™ "Ram Air Cooling" ports for longer string life.



Now, more than ever, The Green Machine® is the profit-making machine. We've added the first TFC™ (Tap-For-Cord) head designed specifically for the commercial user. A light tap on the ground releases fresh cord in 1½-inch increments — while the engine continues to run at full trimming speed. There's no time lost pulling out cord. No profit-wasting time-outs. Your crews work fast and efficiently.

We've also increased cord life. With a unique cooling port design that directs air to the cord outlets, where flexing and heat build-up occur.

Of course you can still also use our quick-change blades for fast, efficient tree pruning and brush cutting — versatility features that have helped make The Green Machine the world leader in commercial trimmers.

See the new TFC head and latest Green Machine models at your dealer or write direct for details. HMC, INC., Torrance, California 90502.

**Now, more than ever, you can't afford to be without it.**

## **The Green Machine**®

weed and grass trimmer/brush cutter

## Vegetation Management from page 80

**Q:** Please advise best treatment for Japanese weeping cherry for borers.

**A:** I do not have any phytotoxicity information specific for Japanese weeping cherry, but you might try lindane which is the standard recommendation for borers. Follow the instructions on the label and spray on a day with low humidity, preferably when the temperature is below 85° F.

**Q:** It has been said that an evergreen's roots should never be allowed to freeze. To what extent or when is that true?

**A:** Evergreens, particularly broadleaf evergreens, can lose a considerable amount of water through the foliage (transpiration) during the winter. Plants grown on locations exposed to the afternoon sun and/or drying winds are especially susceptible to water loss. If soil water in the root zone is frozen, the root system of the plant cannot absorb enough to replace the amount lost through transpiration. The resultant water deficit is evidenced by winter scorch on the leaves and, under extreme conditions, death of stem tissue or even the entire plant.

To prevent or minimize the potential for winter scorch, plant susceptible evergreens in areas protected from the winter sun and winds. Antidesiccants can be sprayed on the foliage in late November to suppress water loss, and the root area can be thoroughly irrigated to increase soil water.

**Q:** How would you eliminate night crawlers (long earthworms) from a lawn? This lawn is about 10,000 square feet and has thousands of holes that are caused by these earthworms; they make the lawn too bumpy to mow.

**A:** There are no compounds that I am aware of labeled for earthworm control. However, chemicals applied for white grub control have reportedly also controlled earthworms.

---

VEGETATION MANAGEMENT is a free problem solving service for any residential, industrial, municipal, or golf course landscaping topic. Write your questions for VEGETATION MANAGEMENT on the postpaid reader question card in this issue.

# ECHO

## 452VL



The finest "Vibe-less" lightweight you can buy for commercial cutting

Here's plenty of cutting muscle in a smooth running, "Vibe-less" 45cc lightweight with isolation-mounted engine, auto and manual oilers and comfortably grouped controls.

**ECHO**  
CHAIN SAW DIVISION  
KIORITZ CORP. OF AMERICA

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# ECHO

## 302ADX

### Weed & Brush Cutter



Powerful professional cutting tool for tall grass, heavy brush or scrub trees.

Features Echo's exclusive "Vibe-less" engine mounting system, durable 30cc KIORITZ engine, solid drive shaft supported by ball bearings and a sealed gear box. You won't find a better unit for heavy duty cutting.

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## PROSCAPE

By Michael Hurdzan, Ph.D., Kidwell and Hurdzan, Inc.,  
golf course architects and consultants.

**Q:** What is the best all-around fertilizer, and what is the best method of application for small trees about 2-3 inches in diameter.

**A:** The question of the best fertilizer is at best rhetorical. For even as you scan the advertisements in this magazine you will see little agreement about the best fertilizer analysis for trees. However there is some consensus that the fertilizer ratio should be a 3-2-1 or a 3-1-1. These ratios are similar enough to those recommended for turfgrass that it may be simplest to fertilize your young trees with a turf fertilizer. The first word of caution is be certain that the fertilizer is not mixed with any herbicide especially Dicamba. Then if you accept that your turf fertilizer is adequate for your trees, the next question is what is the best method of application?


When fertilizer is applied to your turf area much of it may not reach the roots of the intended plant. Part of the applied fertilizer is lost to leaching and volatilization. Some may be chemically tied up in the soil. Some is used by soil

organisms. Much of it is utilized by the turf or weed species growing there, and only a fraction of it may be available for the tree roots. Therefore, it is recommended that you simply apply more fertilizer inside the drip-line of the trees by making an extra pass with your fertilizer spreader at normal rate. Some horticulturists recommend applying the fertilizer in the spring on frozen ground so that the chemicals become dissolved in the melt water, enter the soil, and pass by the inactive turf roots to the tree root depth. As trees get larger, you may wish to investigate the more sophisticated means of tree fertilization.

**Q:** When we receive a soil sample report, everything is given in "parts per million" (PPM). Is there a chart showing all the major elements and giving the best PPM for maximum grass growth?

**A:** "Parts per million" (PPM) is a scientific measure that allows testing of small samples with

*Continues on page 87*



**ECHO**  
**200D**  
Weed & Brush  
Cutter

Easy-to-handle  
lightweight for  
home or farm.  
Features rugged,  
fast starting 21cc  
KIORITZ engine and  
ball-bearing mounted  
solid drive shaft with  
sealed gear box. Cuts  
with nylon line or steel  
blades.

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**ECHO**  
**PB-9**  
Power  
Blower

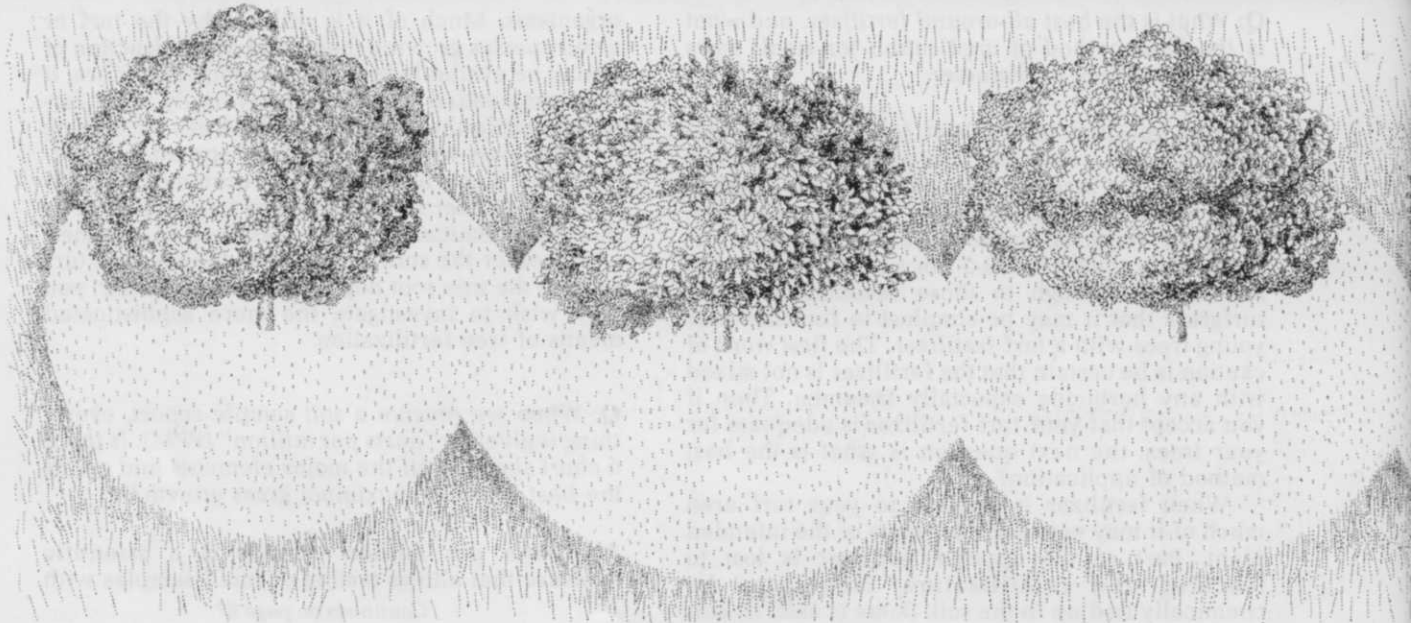
Here's one sure  
way to speed up  
commercial clean-up.  
Echo's PB-9 Power Blower cleans up faster  
than a rake, broom or snow shovel. Moves out  
leaves, twigs, litter or snow with a 200 MPH jet  
blast. Packs on your back like a knapsack for  
high-speed, effortless cleaning. Features: fast-  
starting KIORITZ engine; solid throttle linkage  
with 10 precise speed settings; comfortable  
padded back rest.

**ECHO**  
CHAIN SAW DIVISION  
KIORITZ CORP. OF AMERICA

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# THE NEW GRAVELY IT'LL RUN CIRCLES AROUND



With its optional 72" mower and 50" wing, the new Gravelly GMT 9000 cuts a 9', 11" swath, allowing an operator to mow as many as 33 acres in a standard eight-hour day.

But even better than that, the GMT 9000's tight turning radius and the 50" wing enable it to execute a 360° turn, leaving no uncut grass in the circle. As a result, an operator can mow down one side, turn right around and head back the other way without missing a blade of grass in between.

Yet as big and sizeable as the GMT 9000 is, it's also maneuverable enough to cut within an inch of obstacles like fences, shrubs and trees. So you eliminate the need for a lot of costly extra trimming equipment.

Perhaps best of all, besides being able to mow a lot of grass, the new GMT 9000 is designed to keep doing it for a lot of years.

### THE STORY OF OUR LIFE.

You see, beneath that impressive rugged exterior, lies an even more impressive interior. Designed to give each and every GMT 9000 a long, lively life.



The GMT 9000 can cut within one inch of obstacles. So you save on trimming equipment.

The exclusive Gravelly 8-speed transmission is a good example.

The result of years of testing, it delivers the precise speeds and power you need to do a lot of jobs a lot easier. And a lot better.

You get steady power at low ground speeds to handle the muscle jobs. You also get a choice of seven other speeds for mowing, hauling and rapid transit.

What's more, its precision-cut gears run in an oil bath, for less friction and longer life.

### MORE POWER TO YOU.

The engine itself is another excellent example. A water-cooled 4-cycle, 4-cylinder brute, it delivers 26 HP at 3200 RPM. The engine has an oil filter and is pressure lubricated. The crankshaft is spheroid cast iron, counter-weighted, running in three replaceable precision bearings.

The cylinder head is aluminum alloy for lighter weight and better heat dissipation.

The wet-type cylinder liners also help to dissipate heat.

The result is an engine that is built to last. And last. And last.

### HANDLE WITH EASE.

Yet for all the GMT 9000's brute strength, it handles like a pussycat. The instant forward and reverse, by moving one lever, increases maneuverability, reduces operator fatigue. And you have full-time power steering.

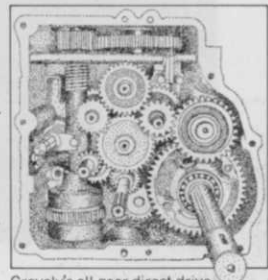
Individual wheel brakes improve steering control. In proper locked position they provide a parking brake for the tractor.

The high-back seat is foam-padded, hydraulically-suspended and fully adjustable for individualized operator comfort.

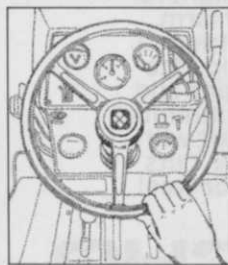
The full instrument panel shows the operator everything from the water temperature, to hours of operation, at a glance.

### THINGS ARE TOUGH ALL OVER.

As you've already seen, every possible part of a Gravelly is built extra tough to stand up to year after year of day-in, day-out grounds maintenance. The transmission housing is cast iron.

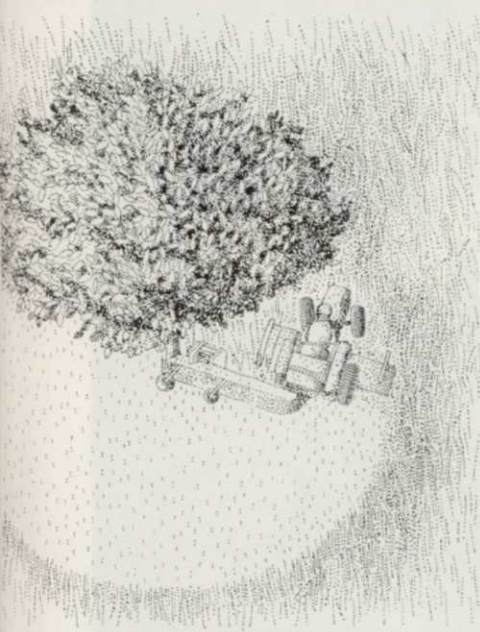


Gravelly's all-gear direct drive. A transmission with a lot of teeth in it.



Full-time power steering makes a full day of mowing easy, and practically everything's right before your eyes on the full instrument panel.

# GRAVELY GMT 9000. BEAT THE COMPETITION.



been prone to break, slip or wear out.  
WITH ALL YOU CAN ATTACH TO A  
GMT 9000, YOU'RE GOING TO  
BECOME VERY ATTACHED TO IT.

You've already seen how the 72" mower and 50" wing attachments make the GMT 9000 unsurpassed in mowing efficiency.

What's more, its optional live and independent rear PTO and category 1, 3-point hitch enable it to utilize a number of other attachments as well.



How to keep your tractor from going into hibernation for the winter.

Attachments like plows, cultivators, carts, sweeper and snowblower. As well as equipment like a seeder, sprayer, snow blade, aerator and enclosed cab.

As a result, the GMT 9000 can handle just about every grounds maintenance job imaginable.

In addition to building tractors to last, Gravelly wants its attachments to last, too. That's why most Gravelly attachments are engineered to be completely compatible.

IT CUTS COSTS NICELY, TOO.

Thanks to its greater performance, durability and versatility

over most single purpose mowers, a GMT 9000 should result in a lower total cost ownership in the long run.

And, as you know, Gravellys do run a long, long time. Which brings us to yet another important point.

With as well as a Gravelly performs, you won't want to replace it.

With as well as a Gravelly is built, you probably won't have to.

If you've got a lot of grounds to maintain, let us show you a lot of grounds maintenance tractor.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**GRAVELLY**

Clarke-Gravelly Corporation. A Studebaker-Worthington Company.

The pivoting front axle is welded steel construction and comes with rugged king-pin bushings. Precision bearings are used at major wear points.

ALL-GEAR DIRECT DRIVE.

The Gravelly all-gear direct drive from engine through the transmission and to the PTOs vastly improves power transmission.

And because it's all-gear, it completely eliminates the bothersome belts in the power train which have always



FOR THE GRAVELLY DEALER NEAREST YOU, OR FOR MORE INFORMATION, CALL TOLL-FREE 1-800-528-6050 EXT. 280. OR FILL OUT THE ABOVE COUPON AND SEND IT TO: GRAVELLY, 0424 GRAVELLY LANE, CLEMMONS, NORTH CAROLINA 27012.

**Glade**  
**Glade**  
KENTUCKY BLUEGRASS

grows  
great  
in  
sun



For football fields and/or shady glens  
Glade Kentucky bluegrass is the seed  
to specify for excellent performance.

In full sun or cool shade (up to 60%)  
you can depend on Glade to germinate quickly,  
establish fast. Forms a thick rhizome and root  
system, dense, low-growing, fine-textured turf  
of medium to deep green in color.

Glade Kentucky bluegrass has proven resis-  
tance to many troublesome diseases including  
stripe smut and leaf rust. Better than average  
resistance to today's Fusarium blight has made  
Glade a vital fortifying ingredient in many pro-  
fessional turf grass mixtures. A higher level of  
resistance to powdery mildew in moderate shade.  
A Rutgers University selection (tested as P-29),  
Glade Kentucky bluegrass is your guarantee of  
physically pure and genetically true seed.

Specify the sun-n-shade elite Glade Kentucky  
bluegrass seed for your next lawn seed mix,  
available at your local wholesale seed distributor.

or in shade.



**Glade**  
**Glade**

KENTUCKY BLUEGRASS

U.S. Plant Patent 3151

Another fine, quality-controlled product of Jacklin  
Seed Company.

the possibility of extrapolating the results to a larger volume. To convert PPM to a usable and meaningful expression requires only a simple calculation to obtain a pounds per acre measurement. This calculation is based upon a term called acre furrow slice (AFS), which represents the oven dry weight of the top six inches of an acre plot. It is a constant at 2,000,000 pounds. So, if your test result shows that the sample tested had 20 PPM of phosphorus, you can calculate the pounds of phosphorus per acre by multiplying the PPM by 2. (20 ppm x 2 = 40 lbs./acre). Or, for you math majors:

$$\frac{\text{ppm}}{1,000,000} = \frac{\text{pounds per acre}}{\text{lbs./acre furrow slice}}$$

$$\frac{20}{1,000,000} = \frac{X}{2,000,000 \text{ lbs.}}$$

$$20 \times 2,000,000 \text{ lbs.} = 1,000,000X$$

$$\frac{20 \times 2,000,000 \text{ lbs.}}{1,000,000} = X$$

$$X = 40 \text{ lbs./acre}$$

Either method gets the correct answer.

Most soil test laboratories give results in pounds per acre, but as you can see the conversion

is simple (the first way). From there you just go by the recommended pounds per acre for elements for vegetation in your area.

**Q:** Why aren't grasses tested on different soils under conditions found in different areas of the states; within 10 miles of Lake Erie the soil conditions change 3 times?

**A:** Tersely, the answer is time, money, personnel, and a lack of a need. However, your question is a good one.

But you, as a manager of plant growth, need not be without specific information on growing a particular plant, species, or cultivar in any given area, condition, or region. This specific information is a product of Experience Sharing with other professionals in your locale. Probably the most usable information you will ever get will come from your fellow practitioners who have joined together to form and support a local chapter of some professional organization. Continue to do your own trial and error research as most others are doing and then support a forum to exchange such experiences.



R-100 gal.



**FIBERGLASS  
SPRAY TANKS**



PC-1200 gal.

**Tuflex Manufacturing Co...specialists in pest control fiberglass spray tanks. Economical prices with high quality handcrafted workmanship. Many other tank sizes available from stock.**



D-200 gal.

**CONTROL PESTS... WEED... FERTILIZE**

**ECONOMICALLY**

**WITH FIBERGLASS  
SPRAY TANKS**





U-600 gal.

**THE Tuflex Manufacturing process allows a five year warranty on all tanks.**



PC-800 gal.

Plant Location: 800 Eller Drive, Port Everglades, Fort Lauderdale, Florida





U-200 gal.

**THE LARGEST FIBERGLASS "PEST CONTROL" SPRAY TANK MANUFACTURER IN THE SOUTHEAST**

Write today to: Tuflex Manufacturing Co.  
P.O. Box 13143, Port Everglades, Florida 33316

**305-525-8815**





C-500 gal.



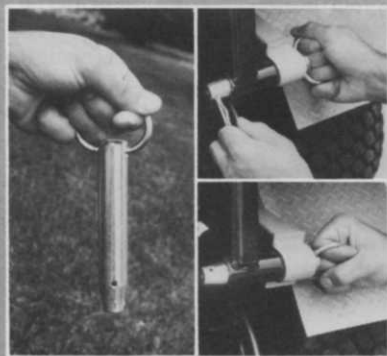
C-200 gal.

# Cushman Turf. Everything

Cushman Turf has developed an easy system to help you save as much as 35% in equipment investment. A system that saves you time with built-in job flexibility. A system that does everything but mow.

The Cushman Turf-Care System includes equipment for aerating, dumping, hauling, top dressing, spiking, fertilizing, spraying, seeding and spreading. The attachments utilize the unique pin-disconnect system.

In addition, all our turf care equipment is designed to be totally compatible with our 3- and 4-wheel pin-disconnect Turf-Trucksters.



**PULL PINS.** The pull pin advantage of the 18-hp Cushman Turf-Truckster means fast on/off movement of all attachments; it's the secret of the Cushman Turf-Care System's versatility.

**1 QUICK AERATOR.** The Cushman Quick Aerator is designed to slice greens quickly during the hot, dry periods.

Just attach the Quick Aerator to the Turf-Truckster with three pull pins. The hydraulic system and dump kit on the Turf-Truckster allow you to lift and lower the Quick Aerator on the go from your seat. So movement from green to green is simple and fast.

Three types of tines are available: slicing, coring (two sizes) and open spoon.

**2 SHORT DUMP BOX & FLATBED/BOX.** The short box or the flatbed/box is capable of hauling up to 1,000 lb. payloads.\* A manual hydraulic dumping system is available, and either box is mounted quickly using only two pull pins. 18-hp pin-disconnect Turf-Trucksters can be equipped with powered hydraulic dumping. By adding the PTO and hydraulic packages you can dump hydraulically without leaving your seat with either 18-hp Turf-Truckster. Just push a lever.

\*Rating for vehicle equipped with 9.50-8 rear tires.

**3 QUICK SPIKER.** Attach the Cushman Quick Spiker to a Turf-Truckster equipped with PTO, hydraulic system and dump kit with just three pull pins. Spike a 57-inch swath, even over undulating greens, with the two precise spiking gangs. Nothing to tow. Nothing to load or unload. Spike 18 greens in less than 2½ hours.

**4 TRAILING SPIKER.** Attach the Cushman Trailing-Type Wheeled Spiker and you'll get the same results as with the Quick Spiker, except the Trailing-Type Spiker is controlled by a pull rope to raise and lower while operating.





# but mowing.

**5 SPRAYER.** The PTO package with extension shaft makes the 18-hp Turf-Truckster ready to spray greens the easy accurate way.

The Turf-Truckster transmission and built-in variable speed governor assure a uniform ground speed, even over varying terrain. And an accurate metered spray means proper application and less chemical waste.

The complete optional spray package includes: 100-gallon capacity tank, high-flow nylon strainer, jet agitator for mixing, high-pressure handgun (which sprays up to 40 feet), rear sprayer boom, centrifugal pumping system for boom or handgun spraying.

5

**6 TOP DRESSER.** The chassis-mounted top dresser, driven by the PTO of the Turf-Truckster, eliminates the need for self-powered units and time-consuming walking.

The moving bed and rotating brush operate at a controlled speed to dispense top-dressing materials and direct them downward in a 31½-inch swath. The engine/ground speed governor keeps your spreading rate constant.

**7 SPREADER/SEEDER.** The Cushman Cyclone Spreader/Seeder can be rear mounted on either the 3- or 4-wheel 18-hp Cushman Turf-Truckster, and it's controlled by the Cushman PTO extension shaft. Depending on the material, this spreader can broadcast over an area up to 40 feet wide.

In addition, the Cyclone Spreader/Seeder mounts on either the short box or flatbed/box and the driver controls all operation from his seat.

**8 GREENSAVER (DRUM AERATOR).** The Cushman Greensaver™ is the efficient low-cost way to aerate greens and tees. Attach the Greensaver to your Turf-Truckster (equipped with a hydraulic system and dump kit) with 3 quick-release pull pins.

Add weight trays and sand to the Greensaver attachment and you're ready to aerate up to 10 times faster than walk-type units. And the Greensaver collects the cores while you aerate, if desired.

Get a free demonstration of the complete Cushman Turf-Care System from your Cushman dealer. Or, write direct for complete information.

7

6

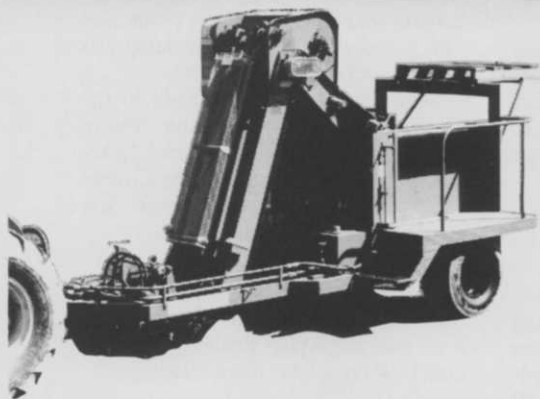
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**CUSHMAN  
TURF-CARE  
EQUIPMENT**

GMC-Lincoln  
a Division of  
Outboard Marine Corporation

P.O. Box 82409 3312 Cushman Drive Lincoln, NB 68501

# In 2 Minutes... You're Hooked with a "Tow-Boy" Sod Harvester



Operating behind any adequately sized, low speed tractor, the Princeton "Tow-Boy" allows complete flexibility in the use of your power supply...because of its exclusive "2 minute hook-up" capability. Harvest in the morning, mow, seed, and spray in the afternoon.

Save time, money and man hours. Increase production! No large field crew needed. Harvest over 13,500 sq. ft. of sod per hour with three-man crew. All sod is cut, palletized and ready to ship.

Perfect for smaller volume sod producer. Now, **you** can enjoy the high production and labor saving features of the larger Princeton harvesters...at one-third the cost. Ask for the "Tow-Boy" by Princeton.

## There's a Princeton for Everyone.

### AUTOMATIC

The only sod harvester that does it all...with just one man! Cuts, aerates, crosstie stacks, and palletizes 27,000 sq. ft. of sod per hour with a crew of one. Save time, money, and man hours. For the large volume sod producer who wants to increase production and profit — the Princeton "Automatic" Sod Harvester.

For additional information, write or call collect:

### SELF-PROPELLED

Increase your profits...by reducing costs and increasing production. Three man crew can harvest 22,500 sq. ft. of sod per hour. For the medium to large volume sod producer who wants quality, high production and low maintenance at a moderate price. The Princeton "Self Propelled" Sod Harvester.



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MANUFACTURING COMPANY

Dealer/Distributor inquiries invited

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# WT&T

## EVENTS

ALCA Interior-scape Symposium, Hyatt Regency O'Hare, Chicago, Ill., Apr. 20-21, 703/893-5440.

Seventh Annual Olds Turf School, Olds College, Olds, Alberta, Canada. May 5-6. Walter Gooder, Box 371, Edmonton, Alberta, Canada T5J 2J6.

Perlite Institute 29th Annual Meeting, Hotel Libertas, Dubrovnik, Yugoslavia, May 14-16, Robert Milanese, Managing Director, Perlite Institute, Inc., 45 West 45 St., N.Y., N.Y. 10036.

Texas A & M University Turfgrass Research Field Day, Turfgrass Field Lab, Agronomy Rd., College Station. May 24. James Beard or Richard Duble, Department of Soil & Crop Sciences, Texas A & M University, College Station, Texas 77843.

American Association of Botanical Gardens and Arboreta Annual Meeting, Royal Botanical Gardens, McMaster University, Hamilton, Ontario, Canada. May 28-June 1. Leslie Laking, Royal Botanical Gardens, Box 399, Hamilton, Ontario, Canada L8N 3H8.

Canadian Land Reclamation Association Third Annual General Meeting, Sudbury, Ontario, Canada, May 29-June 1, Canadian Land Reclamation Association, Box 682, Guelph, Ontario, Canada N1H 6L3.

103rd American Association of Nurserymen Convention, Fairmont Hotel, New Orleans, La. July 15-19. American Association of Nurserymen, Inc., 230 Southern Bldg., 15th and H Streets, NW, Washington, D.C. 20005. 202/737-4060.

American Sod Producers Association Summer Convention & Field Days, Sheraton-Spokane, Spokane, Wash., July 19-21, 402/463-5691.

The South Carolina Plant Food Educational Society Annual Summer Meeting, Holiday Inn, Hilton Head, S.C. July 30-August 1. A. B. Everett, Secretary-Treasurer, TSCPFES, 615 Saluda Ave., Columbia, S.C. 29205.

ALCA Reclamation/Erosion Control Symposium, Marriott Hotel, Denver, Colo., Aug. 3-4, 703/893-5400.

Tenth Biennial National Christmas Tree Convention, Amherst, Mass. August 16-18. National Christmas Tree Assoc., 611 E. Wells St., Milwaukee, Wisc. 53202.

Northwest Turfgrass Conference, Holiday Inn, Richland, Wa. Sept. 25-28.

International Pesticide Applicators Association Annual Convention, Sea-Tac Motor Inn, 18740 Pacific Highway South, Seattle, Wash., Sept. 13-15, Ed Walters, 206/362-9100.