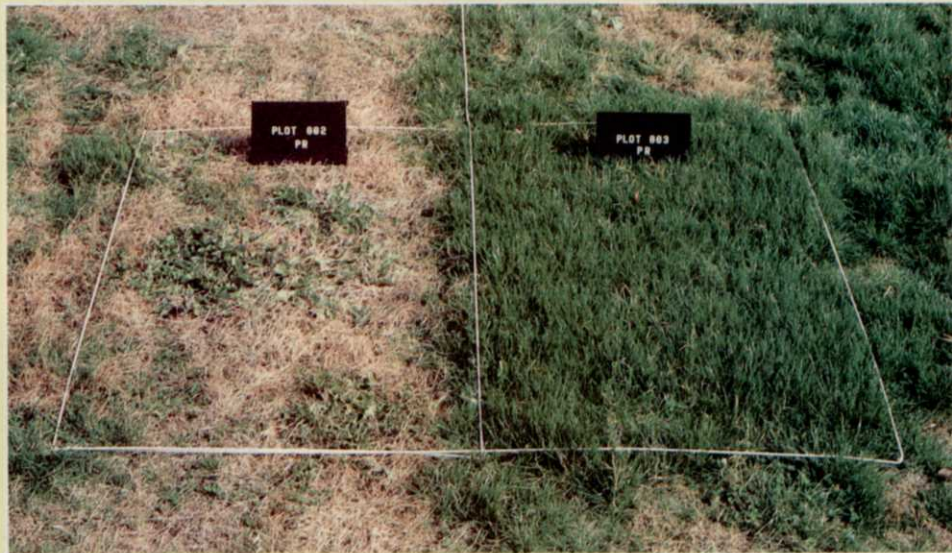


Turf-Seed's CITATION II

contains naturally pest resistant endophyte

... a fungus that occurs within plant tissue between the cells.

New turf breeding discovery proves resistance to bill bugs, sod webworm, and other pests without harmful chemicals!



Left, insect damage in perennial ryegrass. Right, endophytic ryegrass resists insect pests.

CITATION II Turf-Type Perennial Ryegrass

is well known for its rapid establishment, fine texture, dark green color, improved mowability and drought tolerance, both in a monostand or as part of CBS II blend. But, the REAL plus is Citation II's high endophyte level (over 80%) that make it naturally resistant to leaf eating insects.

This plus results in savings . . . in chemical costs to maintenance people and less exposure to insecticides for applicators, homeowners, golfers and picnickers.

Citation II is not only an investment in finer turf, but it's a savings account for turf managers . . . and our delicate planet.

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Black lines are endophyte mycelium in leaf tissue.



Magnified endophyte in seed.

Qualified turf grass associations can earn cash for turf research by saving Citation II Oregon certified blue tags. Call us or write for details.



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You get more mileage out of a Cushman Turf-Truckster because it's not only built to go the distance, it's designed to do more jobs, and do them better. Because no other turf vehicle gives you the rugged versatility of Cushman's exclusive pin-disconnect system.

The pin-disconnect system puts it all together.

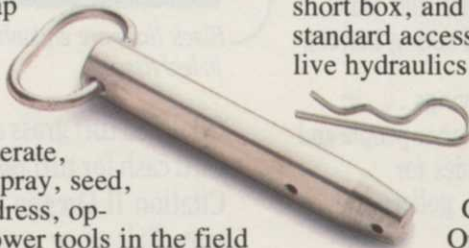
The industry's largest selection

of hard-working turf care attachments can be changed on the Truckster in just minutes. No bolting. No tools. Just snap in two or three pins, and you're ready to go.

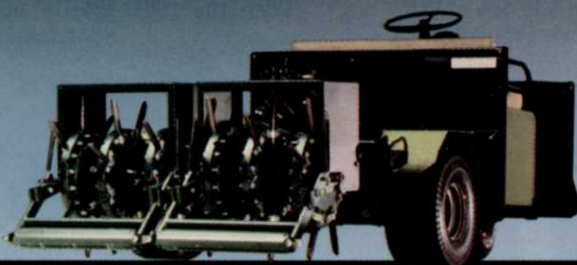
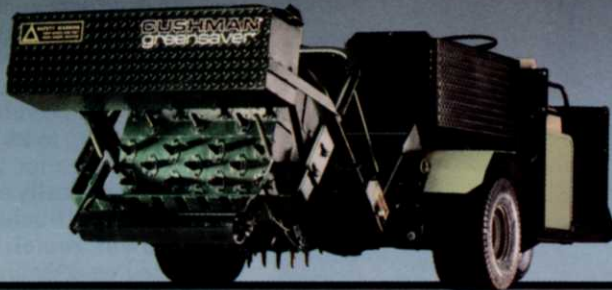
You can aerate, haul, dump, spray, seed, fertilize, top dress, operate small power tools in the field — now you can even pick up cores. You'll save time, stretch your budget, and give your turf the finest

care possible.

Bar set, drag mat, flatbed box, short box, and Power Converter are standard accessories. Add optional live hydraulics and you can add shortbox dumping, flatbed box dumping, the Quick Aerator, and the Greensaver Aerator. Optional PTO for the spreader/seed, Vicon Spreader, Cushman Top Dresser, 100 or 150-Gallon sprayers, hand gun and



THE RIGHT TOOL



boom completes your single-vehicle work fleet — almost.

Introducing the new Cushman Core Harvester.™

The newest addition to the Cushman Turf-Truckster fleet saves time and cuts labor 75% on greens aeration. Because with live hydraulics and the new Cushman Core Harvester accessory, one person can do the work of four.

The Cushman Core Harvester glides gently over the green to scoop

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maintenance 22-hp. gas engine has plenty of stamina to pull tough loads over the long run.

A lesser turf vehicle simply won't do if you're tackling tough turf maintenance jobs thousands of hours a year, year in and year out.

For more information or a free demonstration of what the Cushman Turf-Truckster can do for you, contact the Cushman dealer nearest you today. Or call toll-free: 1-800-228-4444.

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Circle No. 108 on Reader Inquiry Card

THE RIGHT TOOL

Because the landscape manager must mow different types of grass in different landscape situations, selection of the most efficient mower is paramount. Most of the green industry relies on those old dependables, reels and rotaries. But there are others.

Reel, rotary, flail or sickle bar? Which is the right mower for the job at hand?

Each of the four different types of mowers is best adapted for certain landscape jobs. Here is a run down on what mower is best for what situation.

Reel mowers

The reel mower is the preferred instrument for all quality (fine) turf. This includes golf course greens, tees and fairways, and the finer home lawns.

Reel mowers feature a scissor cutting action with blade slicing the turfgrass leaf off against a bedknife. Reel mowers do not rip the turfgrass plant, as do the other types of mowers listed here.

Reels do not, however, cut taller grasses. Heights of cut generally range from two inches down to 0.2 inches. The number of blades should increase from five to nine as the cutting height is lowered, say most manufacturers.



Walk-behind rotaries are popular among landscape maintenance contractors. This is one of the Gravely Pro Series mowers.

Though only about one to one-and-a-half horsepower is needed per foot of cut, a relatively smooth soil surface is needed. Caster-type wheels are preferred for better cuts.

Reel mowers can be driven from power applied directly to the reel, or by gearing from wheels set outside the reel, or from a roller behind the wheel. Heavier mowers are preferred for dense grasses such as zoysiagrass and certain Bermudagrasses.

One of the nicer features of reel mowers is that gangs can be coupled in 3- to 11-gang combinations to provide a cut of up to 26 feet wide.

Reel mowers for the professional market are basically either riding (e.g. triplex) or pull-behind. Owners of small lawns sometimes prefer the motorized walk-behinds.

Rotary mowers

The rotary mower is more versatile than the reel, mostly because it is *continued on page 26*



Walk-behind reel mowers, like this John Deere 22R, are used for many golf course greens.



Riding reels, like this Toro, are also used on greens.

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Excel offers a range of eight Hustler commercial mowers from 18 hp to 42.5 hp, with cutting widths from 51 inches to over 12 feet!

*Hustler's innovative mowing decks, tractor-mounted grass collection systems, and the patented hydraulic edger put you ahead of the pack with **precision cutting** and unmatched turf grooming. You get a professional-looking job every time.*

For more information on Hustler's Winning Edge, see your local Hustler dealer today, or call Excel Industries toll-free for the dealer nearest you.

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Reel mowers, like this Jacobsen five-ganger, are perfect for golf course fairways.

more adaptable to rougher conditions. Unfortunately, though, the rotary mower does not make as good a cut on the turfgrass plant.

Rotary blades, travelling at high speeds horizontal to the soil surface and vertical to the leaf blade, cut when their impact upon the leaves split them with a tearing action. Thus, the rotary increases the degree of mutilation and injury to leaf blades.

This type of mower, however, has its many disadvantages—not the least of which is its economy. The popular rotary can reduce tall grass, fallen leaves and weeds to mulch. It does not jam on small twigs, though it will scalp on uneven surfaces.

Cutting heights range from two to 12 inches. This mower does not perform well at cutting heights below one inch, but cutting height adjustment is far easier than that for reel mowers. Cutting widths generally begin at 21 inches for single-bladed units and go up to 27½ feet for multiple-spindle units.

The rotary is preferred with grasses which readily form seed-heads, like bahiagrass, St. Augustinegrass or carpetgrass.

One final thing to remember about rotary mowers: because of the high lateral speed of the blades, there are attendant dangers involved with high-speed debris, though mower manufacturers have provided every safety feature to deal with this problem.

Flail mowers

Flail mowers are not used in quite as many landscaping situations as reels

or rotaries, though they may be responsible for more acres cut per year in this country.

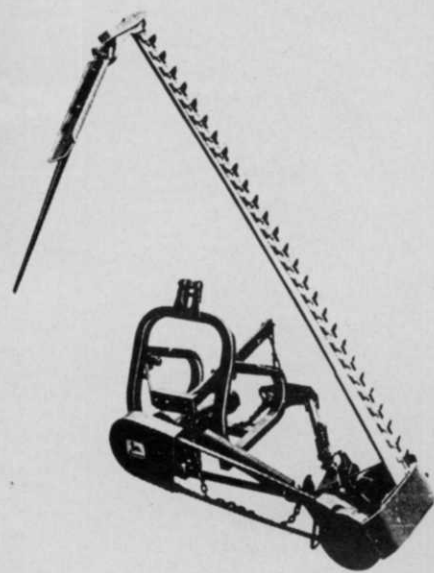
Flail mowers are, by and large, used in big-scale situations such as parks and rights-of-way. They involve individual vertical blades hooked loosely onto a rotating (more than 500 rpm) horizontal shaft. Like rotary blades, flail blades cut on impact.

Unlike rotary blades, however,

since the flail blades are loosely hinged, they will not throw objects from the deck with any force, giving this type of mower a high safety factor.

Thin blades are preferred for a finer cut, but thicker blades are also available. One of the drawbacks to a flail mower is that, because of their number, blade-sharpening is often a time-consuming process.

Flails, usually mounted to the rear or side of tractors, are for use in stony



Sickle bar mowers are attached to the side of tractors.



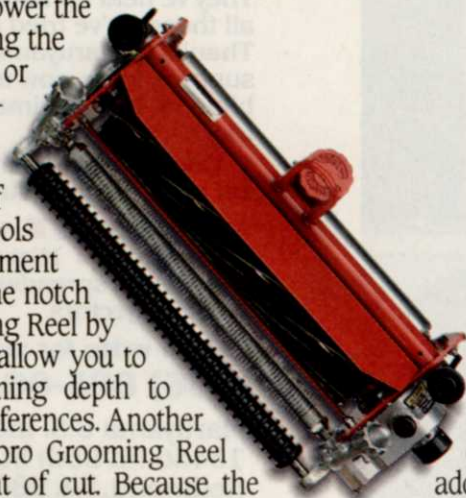
This Hustler riding rotary can fit through narrow openings.

Designed Around Your Greens' Differences, Not Their Similarities.

If all your greens were exactly the same, achieving overall turf consistency would be very easy. But all greens are not created equal. And neither are grooming reels. Presenting the new Toro Grooming Reel for the riding Greensmaster®. Now you can easily manage individual green conditions throughout your course with tailor-made precision. Assuring you and all your members of uniform playing conditions from green to green all season long.

Among the features on the Toro Grooming Reel is the exclusive "Quick Up — Quick Down" adjustment that will allow you to easily raise or lower the Grooming Reel without losing the depth setting. Engagement or disengagement of the Grooming Reel is just as easy. A turn of a knob is all it takes.

Adjusting the depth of penetration is easy, too. No tools are needed. Just lift the adjustment knob, and the rotation by one notch raises or lowers the Grooming Reel by .007 of an inch which will allow you to precisely tailor your grooming depth to various turf conditions or preferences. Another important advantage the Toro Grooming Reel gives you is uniform height of cut. Because the Grooming Reel is part of a free-floating cutting unit design, the collection basket - which fills more quickly and heavily during grooming - is carried on a frame that's independent of the cutting unit. This maintains uniformity



of cutting height and prevents gouging. And more good news, the Toro Grooming Reel is retrofittable to many older Greensmaster cutting units, including the 8 and 11 blade single-point cutting units. To give your members consistent putting surfaces all season long check out the new Toro Grooming Reel. You'll be surprised at the enthusiasm it generates for your course. And the compliments it generates for you. For a demonstration or more information, call your local Toro distributor or contact Toro at the address below.

The Toro Company, Commercial Marketing Services, GRGR, 8111 Lyndale Avenue South, Minneapolis, Minnesota 55420.

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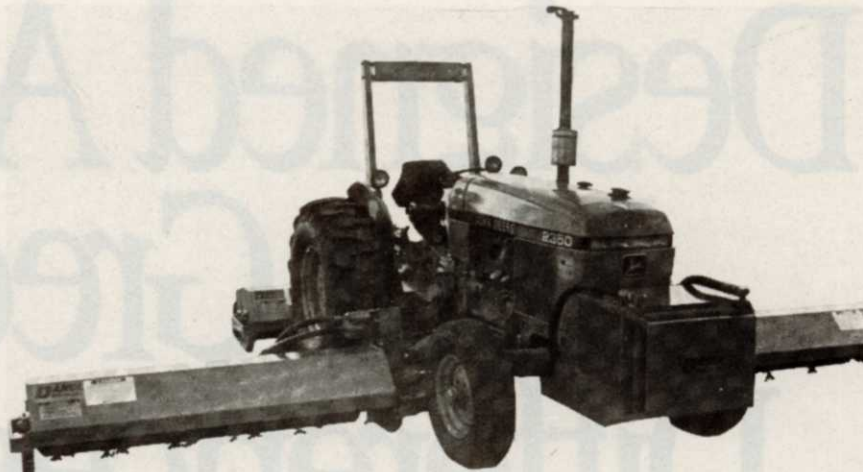


Grasshopper mowers provide ease of operation with zero turning radius.

or irregularly-contoured areas. They can handle leaves and tall weeds, and reduce them to a ground-up mulch. They are also well-adapted where vegetation control is of prime concern rather than turfgrass quality.

Sickle bar mowers

Sickle bar mowers are for occasionally mowing grass and weeds of hay height. They operate with less power



Flail mowers, like this Dandl Triple D, are capable of handling the toughest jobs.

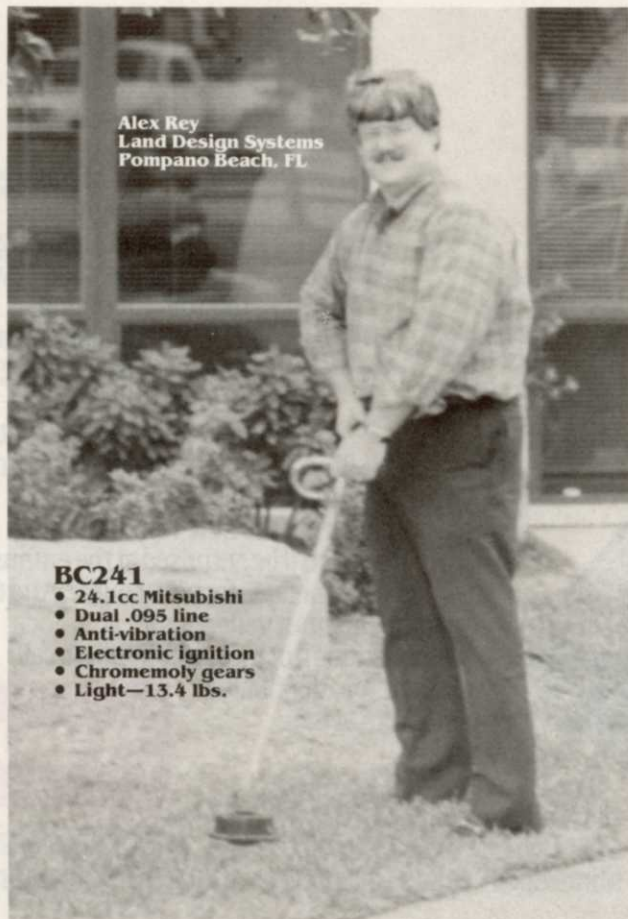
than flails, but they do not mulch what has been cut down.

Sickle bar mowers consist of small arms containing many blades which scissor-cut any grass in their way.

In a landscape context, sickle bar mowers are for roadside banks, slopes, terraces and so on. Their most common use is on coarse, bunch-type grasses. Small units available for lawns are effective, but rather hard to

use because of their weight and size compared with other types of mowers.

In landscaping large areas, sickle bar mowers are flexible and maneuverable, though slow compared to other types of mowers. The movements of the cutting unit, which is mounted on the side of a tractor, can frequently shake the machine into disrepair. **LM**



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WELCOME TO THE LANDS OF THE GIANTS.

Jacobsen's three mowing giants cut your most monstrous schedule down to size.

With massive cutting widths of up to 16', there's a Jacobsen giant made to meet any of your high production needs. All three machines have front-mounted mowing units which cut grass before it's matted down by tractor tires. Giving you a neater, cleaner cut. And exceptional durability helps the Jacobsen giants turn in your lowest per acre cost, year after year after year.

F-10 productivity in a ground-driven reel unit.

Tackle a variety of turf conditions with your choice of reels. Five-blade Blitzers knock down rougher, taller grasses while 6- or 10-blade Fairway reels handle your formal and semi-formal turf areas, beautifully. Striking and marking are eliminated because the F-10's reels steer through turns.

Rear-wheel steering gives this giant surprising maneuverability. Hydraulically raise and lower all seven gangs, in any combination, for equally impressive trimmability. Or, take to the road with a compact 8' transport width and speeds of over 20 mph.

The HF-15 adds hydraulic reel advantages.

The HF-15 gives you all the benefits of an F-10 plus a hydraulic-reel system for a tournament-quality, high-production cut, wet or dry. Add vertical mowing reels and make quick work of your biggest verticutting jobs, too.

The HR-15 rotary giant takes on tougher turf assignments.

Turn tall grass into well-manicured landscapes with three heavy-duty, 72" free-floating rear-discharge rotary decks. Or, choose fine-cut flail decks, with downward discharge and a cut that rivals reels. Perfect for busy parks, schools and other high traffic areas.

No matter what your production mowing needs, Jacobsen has the giant for the job. For a first-hand look, arrange a free demonstration with your Jacobsen distributor. Attractive lease and finance plans available. Or for more information contact: Jacobsen Division of Textron Inc., Racine, WI 53403.



F-10



HF-15



HR-15

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**JACOBSEN
TEXTRON**

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J-10-8

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No endorsement by Longwood Gardens is implied.

Visitors to the botanical paradise at Longwood Gardens in Kennett Square, Pa. can sit and admire the gardens' beauty on a variety of teak wood benches. The Chelsea grouping, marked by intricate latticework, is manufactured by Lister Teak. Longwood Gardens consists of 1050 acres, 350 of which are turf and flower beds. A new rose garden will use 20 teak benches. The turf is a 60 percent blend of Fylking, Merit and America Kentucky bluegrass and 40 percent Fiesta and Manhattan ryegrass. A crew of more than 40 people care for the flowers, lawn and trees. The crew mows the turf weekly at 2-2 1/2 inches. All areas are irrigated. "One inch of water a week is good practice for turf and annuals," says Carroll Clark, supervising foreman of outdoor horticulture. Clark says the flower beds progress through the season from pansies and tulips in the spring to a variety of annuals in the summer such as petunias, to chrysanthemums in the fall. Turf is fertilized in the spring and fall, usually with a 10-6-4 slow release fertilizer, while flower beds are fertilized according to soil demands. Longwood also uses an extensive I.P.M. program.

Lister Teak benches: Circle No. 200 on Reader Inquiry Card.
Longwood Gardens: Circle No. 201 on Reader Inquiry Card

On Design

BENCH

— W A R M E R S —

by Heide Aungst, managing editor