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SEVIMOL® 4, a liquid blend of SEVIN
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This little 18-HP-class trencher has a unique design which locks all four wheels into equal drive at the push of a pedal. Ground drive is hydrostatic... same as our big R100 model. A pedal-engaged master clutch permits quick cold-engine starts and will disengage all functions.

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3-80/WT&T

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- Please send me information on the 1810.
- Arrange for a free, no-obligation demonstration.

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VEGETATION MANAGEMENT

By Roger Funk, Ph.D., Davey Tree Expert Co., Kent, Ohio

Q: *What can you tell me about the interface that develops when a muck sod is laid on clay? I have been told that this can cause maintenance problems.*

A: Horizontal interfaces form when one soil type overlays another distinctly different soil type. This commonly occurs when peat grown sod is laid on clay soils without providing a transition soil between.

Water and nutrients do not penetrate uniformly into the bottom layer which inhibits root penetration and development. Proper gaseous exchange of oxygen and carbon dioxide between the bottom layer and the atmosphere also is impaired and surface run-off is increased. If the top 6 to 8 inches of the clay soil is amended by increasing the organic matter content and improving the structure, a transition from the organic muck soil to the mineral clay soil is provided.

Existing interfaces can be alleviated by periodic aerification which provides more uniform penetration and distribution.

Q: *Can you recommend a granular form herbicide for postemergent use in maintenance of common ornamentals and trees?*

A: All of the postemergent, granular herbicides of which we are aware are not selective, that is they would injure or kill both the weeds and the ornamentals.

Q: *Has any search been done on wood chips to derive any type of alcohol as a source of fuel?*

A: The idea of processing alcohol from wood is not new. Wood was distilled in the provinces of France to provide alcohol for burning in Paris in the mid 1800's and alcohol from wood chips was used during World Wars I and II in Germany and France.

An article in the December, 1973, issue of *Science* magazine by T.B. Reed and R.M. Lerner entitled "Methanol: A Versatile Fuel for Immediate Use" discussed the production of methanol from wood, coal, and organic wastes. More recently, scientists at the University of California Lawrence Berkeley Laboratory reported plans to have a full size demonstration plant by 1981 that could refine tons of wood chips into fuel oil.

Q: *I don't know how much of a problem velvetgrass is in other parts of the country but in our area (Delaware) it is a major pest. Is there any selective or cultural control?*

A: Velvetgrass (*Holcus lanatus*) is a bunch type perennial grass which frequents many northern lawns. In a survey conducted by the Lawn Seed Div. of the American Seed Trade Association, velvetgrass ranked as the 15th most troublesome weed to control in turf.

No herbicides are currently available which offer the selective control of velvetgrass when it appears among desirable turfgrasses. Since velvetgrass is well adapted to rich, moist soils and tolerates normal mowing heights, cultural controls are generally not recommended.

Hand digging of small clumps provides control since velvetgrass is disseminated primarily by seed. Use of nonselective herbicides, such as Roundup, amitrole, and dalapon, followed by reestablishment with desirable turfgrasses is suggested where a large population of velvetgrass exists.

Q: *What is the primary reason for difficulty in maintaining good turf on high school athletic fields?*

A: Many factors will affect the performance of turfgrasses on athletic fields, including kinds of grasses used, design and construction, drainage, seedbed preparation, and the maintenance program. Aeration is particularly important since constant trampling often causes the development of a compact, impermeable surface layer of soil.

Penn State has an excellent brochure entitled "Athletic fields—specification outline, construction and maintenance." You should be able to obtain a copy directing your request to Dr. John Harper, Extension Agronomist, Cooperative Extension Service, 106 Agricultural Administration Building, University Park, PA 16802. Contact your local cooperative extension office for specific recommendation concerning turfgrass selection and culture for your area.

Q: *What are the pros and cons for late fall fertilization? When is the best time and what is the best fertilizer to use, i.e., natural organic (Milorganite) or synthetics (chemical or urea formaldehyde, etc.)? I live in the Northeast.*

A: The concept of late fall (dormant) fertilization originated in the transition zone to encourage more vigorous root growth and maintain better winter color of cool-season turfgrasses. Recent research has shown promising results in the Northeast.

Among the positive effects of dormant applications of nitrogen are increased root growth and development, stimulation of basal shoot or tiller development, less chance of burn and no increase in winter injury. Disadvantages include some increased leaching, the possibility of more early spring growth than is desirable and increased potential for leaf spot disease.

Depending upon the local climate, dormant applications in the Northeast can be made from late October through February. Research conducted at Rutgers University indicates that the best results can be obtained from 1 to 2 lbs. nitrogen per 1,000 sq. ft. applied in December. In the same tests, urea outperformed three slow-release nitrogen sources.

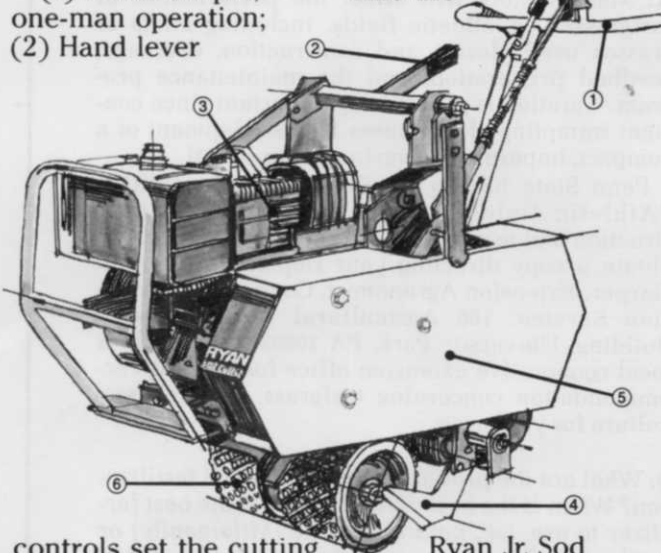
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This is the Ryan® Jr. Sod Cutter. The latest in a line that started 24 years ago. Naturally, we've made quite a few improvements since then, but today's Jr. Sod Cutter delivers the same, everyday dependability and reliable performance that made our first model so popular. Here's why.

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SOD

PRODUCER NEWS

'Plush' Kentucky bluegrass receives registration

Registration has recently been accepted for 'Plush' Kentucky bluegrass (*Poa pratensis* L.)

'Plush' Kentucky bluegrass, developed and released by FFR Cooperativa, is a moderately low growing, leafy, turf-type bluegrass with medium texture, good vigor, persistence, density and aggressiveness, and medium green color. It has demonstrated good resistance to stripe smut and moderately good resistance to leaf spot and stem rust. It is well suited for quality lawns, parks, and sports turf in regions where Kentucky bluegrass is well adapted.

Natural turf returns to America's athletic fields

The discovery of many disadvantages to playing on plastic turf makes the future look brighter for natural turf on athletic fields.

Owners of athletic complexes with plastic turf have become aware of the intense heat generated on a hot day from plastic turf. It also seems to have increased the injury and infection rates in football games and is almost impossible to play on when a cold drizzle turns to ice.

The Orange Bowl at Miami ripped out its plastic and sodded with a bermuda grass. The University of Minnesota replaced its plastic with a bluegrass blend.

Warren's Turf Nursery of Palos Hills, IL, has seen Candlestick Park in San Francisco replace its plastic with the company's BenSun (A-34) bluegrass. And recently the White Sox in Chicago replaced their plastic with another Warren grass, A-20 bluegrass. Many other major athletic fields in the norther states use Warren grasses.

Tandem disk still best tool for blending herbicides

In an updated report on weed control, researchers using fluorescent dye found that the tandem disk did an excellent job of incorporating herbicide down to 3 inches following a plow and tandem disk.

Dr. Nathan L. Hartwig, research agronomist at the Pennsylvania State University, and associates also found that blending into the soil was excellent down to 3½ to 4 inches after a chisel plow, and equally effective down to 4½ to 5 inches after plowing.

Control of annual grass and yellow nutsedge was good with the tandem disk. Dr. Hartwig said this tool seems to be the best where both shallow-germinating annual grasses and deeper-germinating yellow nutsedge are problems.

GROUNDS

Applications available for manager's program

The Professional Grounds Management Society has announced that applications for its Grounds Manager's Certification Program are now available.

Contact Allan Shulder, Executive Director, PGMS, 19 Hawthorne Ave., Pikesville, MD 21208, 301/653-2742.

PLANTS

Plants may provide own water and heat

Experiments by British researchers with a new energy-conserving commercial glasshouse are attempting to show that much, if not all, of the heat and water requirements of plants grown in commercial glasshouses could be provided by the plants themselves.

Keith Morgan, lecturer in Agricultural Engineering at Reading University, has recaptured both the energy and water used in transpiration by dehumidifying the air in the glasshouse. Further research developed the possibility of feeding plants with salt water and recovering it as fresh water during transpiration. Up to 4 liters a day per square meter of space can be recovered from many green plants grown in a glasshouse.

The glasshouse contains a glazing with a specially formulated material, ultra violet inhibited melinex, developed by Imperial Chemical Industries, Plant Protection Div., Fernhurst, England.

NEW FACILITY

Conwed completes mulch fiber plant

Conwed Corp. of St. Paul, MN, has finished building a wood fiber manufacturing facility in Conover, NC, to produce mulch for hydraulic mulching.

The product, sold nationally under the Hydro Mulch trademark, aids in rapid turf establishment and erosion control in strip mines, on roadways, and at commercial and residential building sites.

The plant, which contains a 5,000-square-foot manufacturing area, cost more than \$2 million to build.



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Jobe's Tree & Shrub Spikes provide proven, efficient feeding. Eliminate any special tools. Furnish extra income for lawn care customers.

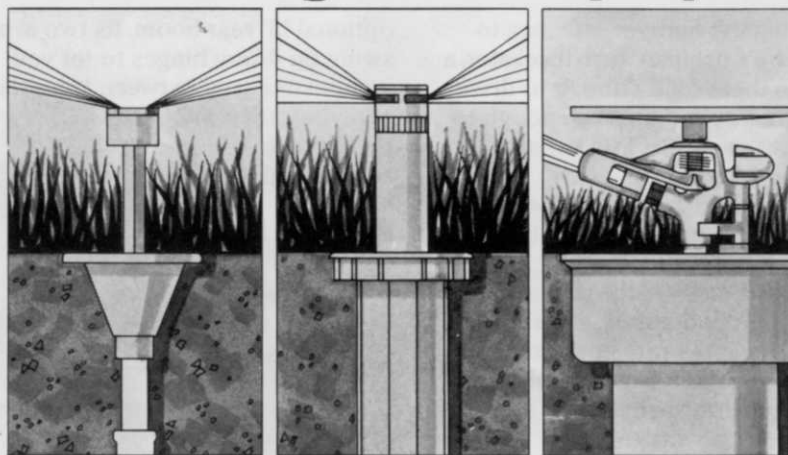
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valves, controllers and accessories featured in the new Champion, full-color catalog. Ask for your free copy.



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COMPANY

International Harvester names three managers

International Harvester's Agricultural Equipment Group has appointed three people to its newly-restructured Outdoor Power organization, North American Operations.

The company appointed Thomas H. Solomon manager, Outdoor Power manufacturing operations; Thomas Jaros, manager, product and financial planning; and Ronald F. Zitko, manager, engineering.

IH's lawn and garden tractor line consists of five Cub Cadet models ranging from 11 to 19.9 horsepower and three Cadet models from 8 to 11 horsepower.

Stripling to head Ortho Chemicals Div.

Earl L. Stripling, Jr., has been named vice president of Chevron Chemical Co., a subsidiary of Stan-

dard Oil Co., and general manager of its Ortho Agricultural Chemicals Div.

Stripling joined Ortho as a sales representative in 1949 and most recently was marketing manager, Agricultural Chemicals. He also served as president, Chevron Chemical International, Inc. and Chevron Chemical Pan America Co.

Jacobsen appoints new general manager

Philip A. Taylor has become general manager, service, for the Jacobsen Div. of Textron Inc.

In this capacity, he is responsible for administration of domestic and international service for consumer and turf products, including warranties, training, and manuals and other service publications. He was previously manager, turf services for Jacobsen.

Davis changes name to Case

The Davis Div. of J I Case Co. has changed its name to J I Case Light Equipment Div.

The division, which has manufactured trenchers, material handling equipment, and cable-laying equipment in Wichita and marketed them in North America under the Davis name, will now sell its product lines under the Case name.

Arnold Palmer to promote Lofts

Lofts Pedigreed Seed has chosen golf pro Arnold Palmer to promote its line of seed and turf care products in 1980 advertising.

Palmer was first considered as a possible promoter for the Lofts line when he began using Yorktown Ryegrass and Baron Kentucky Bluegrass on his courses in Orlando, FL, and LaTrobe, PA.

NOT JUST A SPRAYER. A BETTER WAY TO SPRAY.

Cushman's Sprayer attaches to the 18-hp Cushman Turf-Truckster, a vehicle that's light enough to drive onto greens, and mobile enough to take into most turf areas that require spraying.

But the Turf-Truckster doesn't just give the sprayer mobility. The vehicle's optional PTO, which attaches directly to the transmission and the ground speed governor, keeps the spray rate consistent regardless of terrain, insuring accurate spray distribution and less chemical waste.

The Cushman Sprayer

has a lightweight, corrosion-resistant polyethylene tank.

And, a jet agitator that keeps solutions in constant suspension.

For ground spraying, there's an

optional 15' rear boom. Its two arms swing on 4-way hinges to let you maneuver easily between trees. For spraying trees and bushes, there's also an optional handgun applicator.

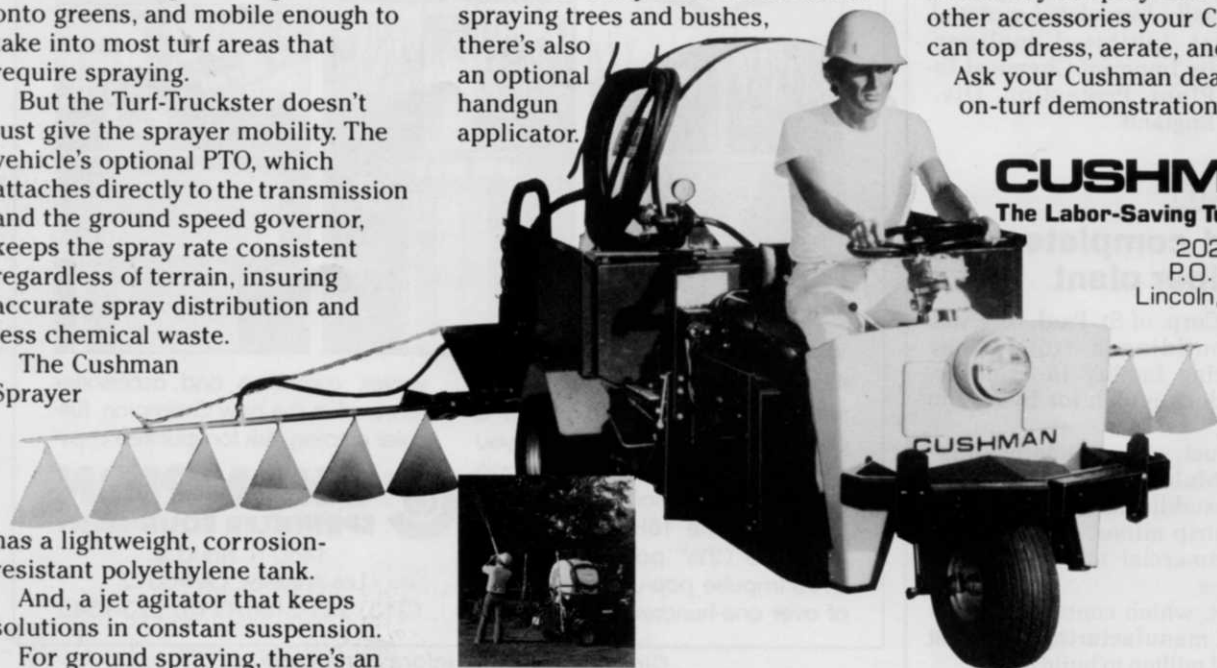
See for yourself how the Cushman Sprayer attachment gives you a better way to spray. And how with other accessories your Cushman can top dress, aerate, and dump.

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Where ornamentals are grown, and annual grasses and broadleaf weeds are a problem Surflan delivers outstanding weed control.

Does your herbicide measure up to Surflan?

	Length of Control	Economical	User Safety Category	Ease of Application
SURFLAN®	6-8 mos.	\$23-\$45 per acre	Category 3 Caution	Surface applied Spray
Other Herbicides	Does yours last as long?	Up to \$90* per acre?	Caution 3 Warning 2 or Danger 1	Does yours need mechanical incorporation, or immediate rainfall or irrigation?

*Based on manufacturers suggested retail prices.

Maybe you should compare your herbicide with Surflan in some other ways too.

Whenever annual grasses and most broadleaf weeds are a problem in ornamentals depend on Elanco's new Surflan for months of weed control at a reasonable price.

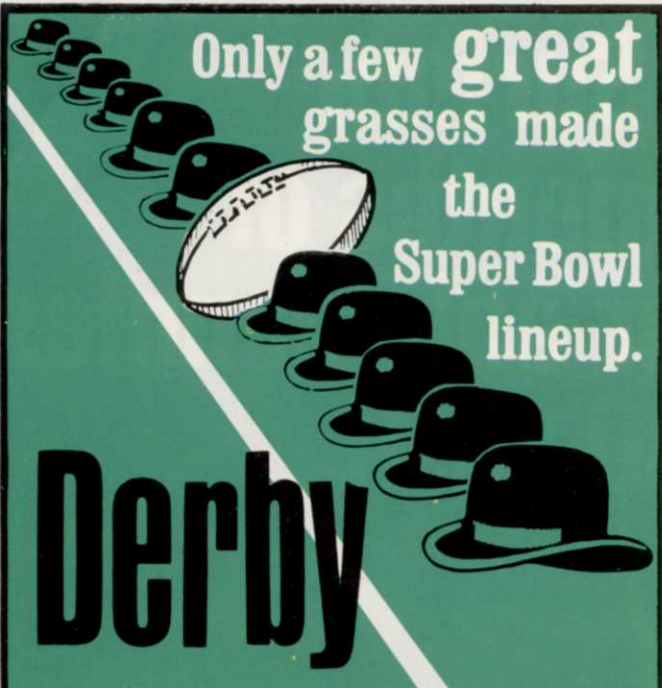
Another of Elanco's dependable weed control crew.



ELANCO

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Derby

Turf-Type Perennial Ryegrass WAS ONE OF THEM.

Exceptionally fast germination, rapid development of a deep, strong root system, beautiful dark green color, excellent mowing qualities and fast response to fertilization are a few of the qualities required of a playing field or park turf.

Derby offers them all. That's why it was an integral part of the mixture that produced the top quality turf the nation saw at Super Bowl XIII.


Long known for its ability to produce a marvelous putting surface on winter putting greens in the Southern U.S. as well as for elite permanent turf in the North, Derby has yet other advantages.

It is in continuing good supply and is probably the most modestly priced of the elite turf-type perennial ryegrasses.

DERBY TURF-TYPE PERENNIAL RYEGRASS

- Germinates in less than a week under ideal conditions*
- Mixes nicely with other fine quality turf grasses*
- Tolerates a wide range of soil types from sandy to heavy clay*
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GOLF

Hale named GCSAA communications director

Dick Hale, former editor of THE GOLF SUPERINTENDENT, official publication of the Golf Course Superintendents Association of America, has returned to GCSAA as the director of communications.

Hale has been editor of PGA MAGAZINE and business manager of all publications of the Professional Golfers Association since the fall of 1976. He served as editor of THE GOLF SUPERINTENDENT, forerunner of GOLF COURSE MANAGEMENT, from 1974 to 1976.

As director of communications, Hale will serve as editor of GOLF COURSE MANAGEMENT and coordinate other activities of the GCSAA communications department. He replaces John Schilling, who is now GCSAA director of marketing and sales.

In another announcement, the GCSAA gave three golf course superintendents Citation of Performance awards at the United States Golf Association Green Section educational conference held on Jan. 25 at the Ritz-Carlton Hotel in Chicago.

The three — William L. Burdick, Canterbury Golf Club, Beechwood, OH; Frank Nichols, Brooklawn Country Club, Fairfield, CT; and Wilbert Waters, the Inverness Club, Sylvania, OH — were honored for their work in preparing their courses for major golf tournaments in 1979. Burdick's club hosted the U.S. Amateur Championship Aug. 28-Sept. 2; Nichols prepared the Brooklawn course for the U.S. Women's Open July 12-15; and Waters' club hosted the U.S. Open June 14-17.

PESTICIDES

Dipel insecticide labeled for 200 crops

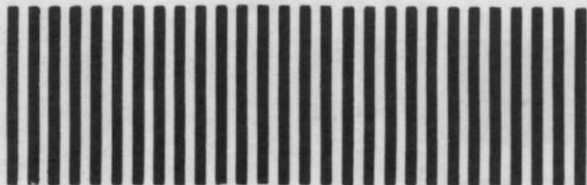
The Environmental Protection Agency has granted the broadest pesticide registration in its history to Dipel insecticide for caterpillar control on more than 200 agricultural and horticultural crops.

Dipel is a biological insecticide containing the naturally occurring bacterium, *Bacillus thuringiensis*, which selectively kills lepidopterous (caterpillar) pests without harming bees or disrupting activities of beneficial insects or wildlife.

"The registration is a step forward in pesticide regulation," says Harry Mercado, product manager at Abbott Laboratories, manufacturer of Dipel. "Previously, pesticide registrations for specialty and minor crop uses were limited due to the expense inherent in seeking registration, and the limited sales potential of these markets. The new Dipel registration covers broad crop groupings rather than individual crops, and thus expands the worm control options for thousands of growers."

Some of the crop groupings covered in the label include nuts, ornamentals, shade trees, cane and bush berries, various kinds of fruit trees, and many vegetables.

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TREES

Cities develop ways to manage Dutch elm

Nineteen communities in Wisconsin are participating in a program to control Dutch elm disease, proving what information and better funding can do to manage the problem.

University of Wisconsin-Extension education coordinator for Dutch elm disease Charles Kostichka says the program is changing attitudes about controlling the disease. "We're not offering any false hopes; we will continue to lose elms in our cities he says. "However, by stepping up control efforts, we can slow down the loss."

Proper management reduces elm removal cost and property value loss by 75 percent over a 15-year period. Without management, a city can lose all its elms in 10 to 15 years. Intensive control can keep trees alive for

50 years and longer. This allows time to replace the elms gradually and spreads out replanting costs.

The state control program is a U.S. Department of Agriculture Forest Service funded project. Most of the project's \$579,000 budget for 1979 went directly to participating cities, which used most of the funds to improve disease detection and to remove trees. "The key to Dutch elm disease control is complete sanitation through removal," says Kostichka.

Demonstration cities are evaluating a systemic control fungicide sold under the trade names Arbortect S and Arbortect 20S. Also under study are various methods of injecting the fungicide into trees and several types of equipment. Kostichka says that dead and diseased elms must be removed for the fungicide program to be of any value.

Continues on page 91



Heals wounds; prevents decay

Cabot's Tree Healing Paint is a carefully prepared bituminous paint for protecting live wood and preventing decay. Leading arborists and foresters have been using it for almost half a century. Here are the reasons why:

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33 years experience building self-propelled sprayers.

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16 ft. folding spray boom.
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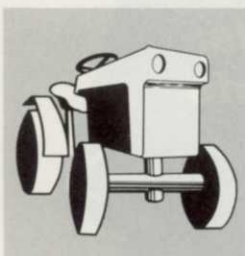
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Your Satoh dealer can show you the complete range of standard features and available options as they pertain to specific models. Such as the 15hp Beaver and the 3-cylinder 16.5hp Beaver III, two of Satoh's compact water-cooled diesels with performance capabilities seldom found in their class. Or the 25hp water-cooled diesel Bull. With 12-speed dual-range transmission, 4-step PTO and simple interchangeability between estate, agricultural or wide turf tires, it's the most efficient and versatile mid-size utility tractor for grounds maintenance or construction applications on the market today.

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