

Toro's EL-6+ gives you accurate, simple control, time after time.

If you like the accuracy and reliability of a solid state controller, but prefer the easy programming of electromechanical models, why not choose the best of both worlds? The EL-6+ from Toro.

Thanks to its hybrid design, it is exceptionally accurate, reliable and easy to program. All it takes to set up a six or seven day repeatable watering schedule are three easy steps.

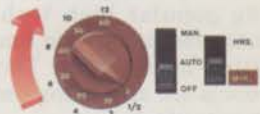
And there's no need for backup batteries to maintain the program if there's a power outage.

As versatile as they come.

The EL-6+ handles all kinds of watering jobs. From simple to more complex. Thanks to its flexible program, you can water lawn areas only, or lawn and shrubs during the same cycle.

And, it controls up to six stations with individual timing from three to 60 minutes. Two of those stations provide up to 12 hours for drip irrigation. Plus, each station has a control switch for automatic or manual operation.

There's even a System On/Off Switch which lets you stop watering altogether—without changing or erasing the program.



Set stations 1-6 for the desired watering times. All stations may be set to water from 3 to 60 minutes. Stations 5 and 6 may be programmed to water for 1/2 hour up to 12 hours, to meet drip requirements.



Rotate the hour wheel to current time. Press pin to set watering start time(s) by hour. Up to 11 start times available.



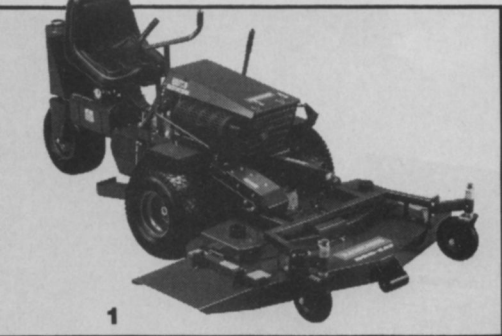
Once start times have been selected, rotate day wheel to present day. Select watering days. Press day pin(s) all the way in for lawn and shrub watering. Press button(s) just halfway for lawns only. Unpressed day pin means no watering.

More features for the money.

Here's the best news yet. When you compare the benefits of the EL-6+ to those of comparably-priced controllers available today, you'll find that it provides a lot more features for the money. Which is why a lot more contractors are choosing the EL-6+ time after time.

For more information, contact The Toro Company, Irrigation Division, P.O. Box 489, Riverside, CA 92504. (714) 688-9221.

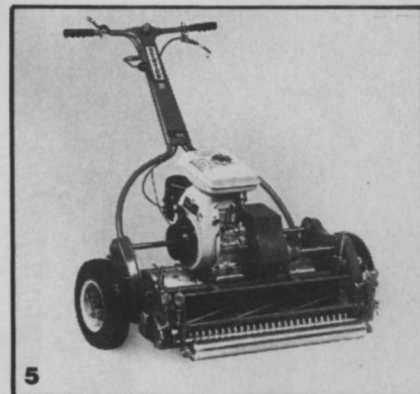




1



3



5



2



4

1) Ransomes' T16K, 54-inch rider with floating cutter deck.

2) Kubota's G6200, 16-hp lawn and garden tractor.

3) Honda's HR173 lawn mower.

4) The new Lesco 300 Greensmower.

5) Bunton's 26-inch walk-behind greensmower.

trolled punch presses are also becoming popular high tech "musts" in manufacturing. Nic Smokey, advertising manager for Tecumseh, says robots are also being used frequently in manufacturing.

And greater technology is engendering growth in certain markets. The commercial turf care industry market has been growing steadily since 1983, and OPEI commercial turf care members predict continued growth to the end of the decade.

Lawn care organizations made up about 48 percent of the commercial market in 1985, with a predicted rise to 55 percent by 1987.

Similarly, shipments of both walk-behind and riding mowers are expected to be up in 1987 and beyond.

Shipments of walk-behind mowers in 1987 are forecast at 5% over 1986 levels. An increase of 10% is predicted for 1987 in the riding mower category.

Heavy equipment sales down

The outlook for the construction equipment market is not so bright, according to figures prepared by JI Case.

North American sales of small and medium-sized construction equipment are projected to fall 18% in 1987 when predicted reduced housing starts and commercial construction

takes place.

Sales of construction equipment were rated at 81,500 units in 1986, a decrease of 3.5% over 1985's 84,595 figure, according to Case.

The figures from 1985 represent about 75% of the industry's last peak

...projected numbers for 1988, 1989, and 1990 are up substantially...

in 1979 (113,823). Sales reached a low of 48,194 in 1982.

High-tech touches all

It's difficult to link the ups and downs of the markets with recent product changes. But there's no doubt that high tech has affected almost all turf-care products.

High tech has caused "better utilization of labor," says Gordon Bannerman, corporate secretary of G. Bannerman Ltd. Such advancements provide time to get other things done.

In the sprayer category, Bannerman says the greatest advancement is the development of the microchip. Computerized spraying minimizes

chemical waste and doesn't pollute the environment.

Even the smaller equipment manufacturers are utilizing high tech improvements. Larry Hoyord, manager of sales administration for High Ranger Inc., which makes bucket trucks used by arborists, says fiberoptic controls makes replacing a wire or hydraulic oil possible with a beam of light transmitted through a hollow cable.

Frank McNamara, manager of market planning for Kohler Co, says magnum fuel tanks, made out of a plastic material, are a new trend in equipment.

Pat Curtiss, manager of product planning and research for Honda, says his company has been an innovator in marketing lawn mowers with plastic decks which won't rust, and tractors with clutchless transmissions. This year Honda will introduce the first four-wheel drive, four-wheel steering garden utility tractor which uses gasoline instead of diesel.

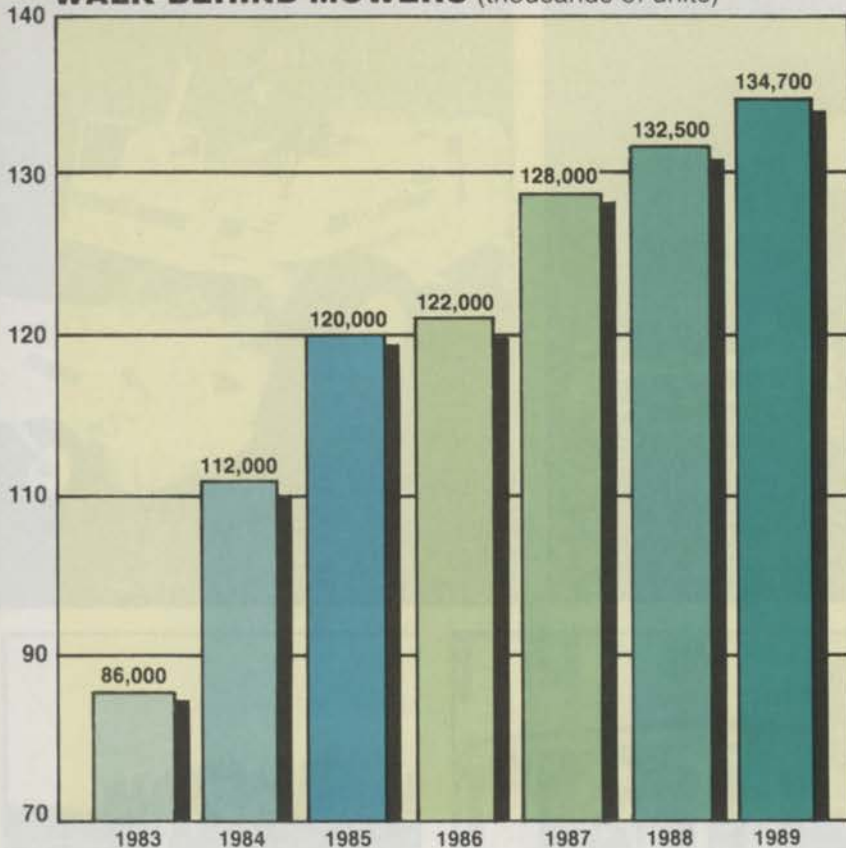
Hydraulic power

Hydraulic power is becoming more popular, according to Pat Scholl, communications manager for Alamo.

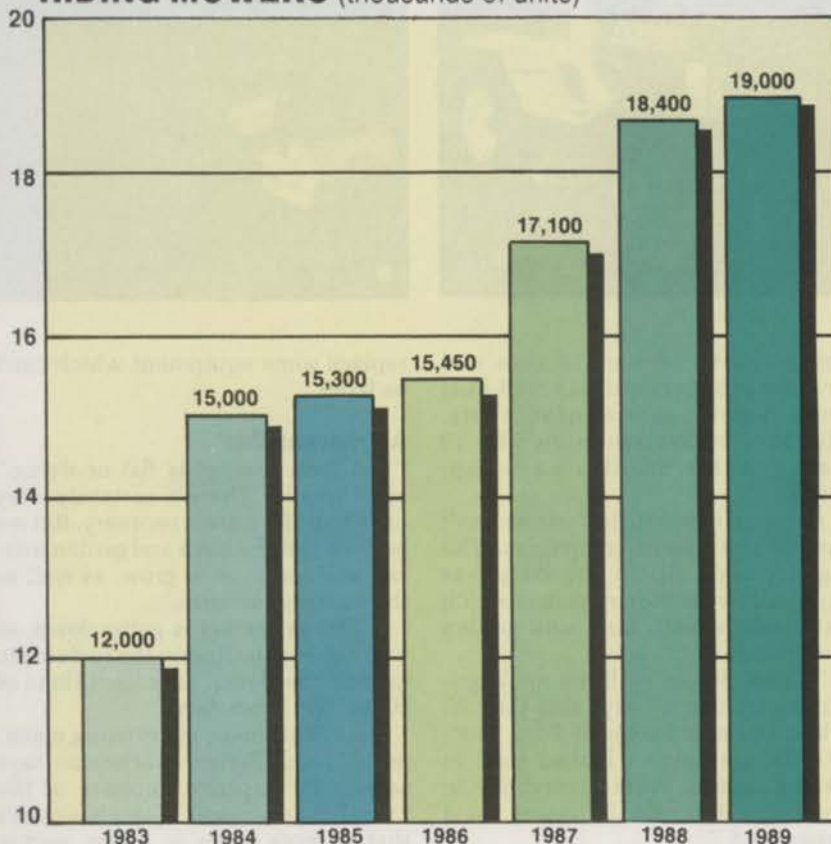
But Stan Kinhead, sales manager for National Mower, says hydraulics cost more and lose efficiency by using more horsepower.

Extended Commercial Products Forecast

WALK-BEHIND MOWERS (thousands of units)



RIDING MOWERS (thousands of units)



Source: statistics presented by Bolens Corporation for Outdoor Power Equipment Institute

Where mowers and tractors are concerned, operator comfort and equipment versatility are the biggest reasons for improvements, says Jim Taylor, president of Heckendorn.

Lee Markgraf, operations manager for Kawasaki, agrees. "The trend in new products are features to help people operate the machines, such as low-oil shut off," he says.

Besides operator comfort, safety has been a reason for some equipment changes.

"I would say the biggest improvements came when federal legislation for consumer product safety went into effect three years ago," says Jim Jenkins, sales manager for Snap-

Flail mowers have seen better sales...because of safety features.

per. An example is mowers in which the blades stop turning the minute the handle is released.

Flail mowers have seen better sales recently because of safety features. Flails will throw rocks down to the ground instead of out, explains Ed Toolis, president of Vrisimo. "There's a great demand for our particular type of equipment. We're adapting flails where rotaries were once popular," he says.

Security factors

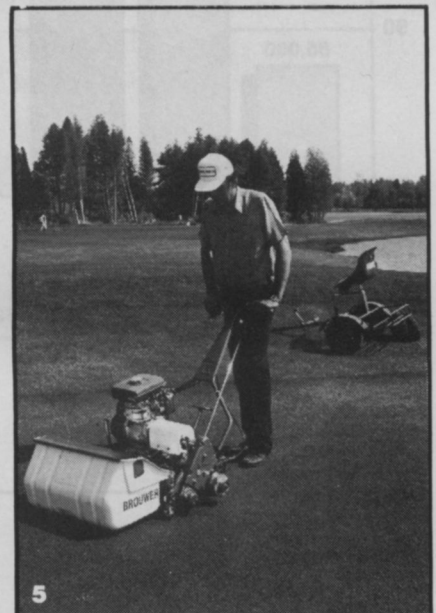
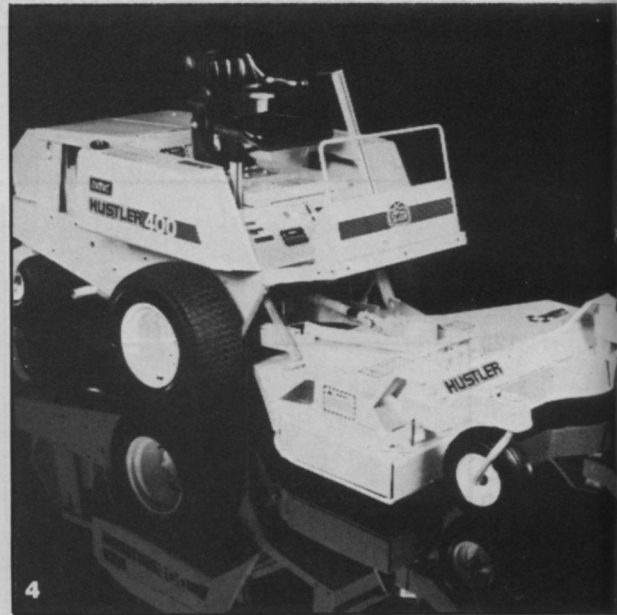
Along with safety factors, some companies are integrating security features into new products. Joe Nelson, director of marketing services for Sensation Power Equipment, says this is the second season the company has marketed the electronic code access monitor (ECAM), a touch-tone phone key pad used instead of an ignition key.

Electronic controls and electronic monitors which check engine, ground, and reel speed are becoming even more popular equipment features, according to Jim Byrnes of Jacobsen. But some companies can't compete.

"It isn't feasible for a lot of companies to keep up," says Byrnes. "They have limited research and development facilities. As a committed larger organization, we'll have a definite advantage."

Besides domestic competition, equipment companies face foreign competition. Bob Bergen, president of Bolens Corp., sees some advantage to the foreign competition.

"There's been a moderate upgrade



1) Jacobsen's HF-5, five-gang hydraulic fairway mower.

2) Deere's Model F935 with 76-inch swept spindle mower implement.

3) Ford Tractor's LGT 18H lawn and garden tractor.

4) Excel's Hustler 400, a 72-inch, 34-hp tractor.

5) Brouwer's Greensmower with 3.5-hp gas engine.

of engines in the past couple of years which has been sparked by more off-shore products coming onto the market," Bergen says.

Pat Hammell, marketing coordinator for John Deere, agrees that foreign competition is not all bad. "American manufacturers have utilized ideas they've picked up from the Japanese method of manufacturing such as the modular design," says Hammell.

John Small of Yanmar Tractor says the Japanese technology and

Asian ability to manufacture and develop products quickly will hurt some American manufacturers. "But they've been on notice for 10 years," warns Small, who is Japanese.

Foreign competition alone isn't hurting equipment companies. The sagging agriculture industry has brought down some companies which manufacture both farm and garden equipment.

"It's all tied in with the total agriculture industry," says Bill Carroll, public affairs manager of Ford Tractor. "Things haven't looked good in the last several years. Everybody in the tractor business is hoping for a turnaround."

Carroll says sales should improve by 1988, since people will be forced to

replace some equipment which can't be fixed.

Ag market 'flat'

"The farm market is flat or dying," says Small. "There's certainly very little hope for a great recovery. But we believe that the lawn and garden market will continue to grow, as well as the nursery industry."

"The ag market is going down, so we're concentrating on the turf side to take up the slack," says Kent Hahn of Hahn Agri Producers.

Jack Steinhour, advertising manager at Woods Division of Hesston, says sales will improve because of the "rural renaissance." Steinhour says that as more farms go under, people disgruntled with urban life will buy up an acre or two of land and use need



Insecticide-Nematicide

NEW CHIPCO MOCAP RUBS OUT GRUBS FASTER.

New CHIPCO® MOCAP® insecticide gives you the kind of grub control you need...control that's fast and effective.

CHIPCO MOCAP starts killing grubs as soon as you water it in. Other products take hours or days to work.

And all that time, grubs continue to feed, destroying your turf.

For best results, apply CHIPCO MOCAP before grubs start to feed—usually in August or early September. But if grubs get the jump on you, you can still take control quickly and effectively with fast-acting CHIPCO MOCAP.

And fast action is just part of the story. CHIPCO MOCAP gives effective control of a broad spectrum of grubs.

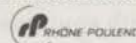
CHIPCO MOCAP KILLS OTHER TURF INSECTS, TOO.

CHIPCO MOCAP knocks out a broad range of surface insects, including chinchbug and sod webworm. And if nematodes or mole crickets are destroying your turf, you can destroy them, too, with CHIPCO MOCAP.

For the fastest, most effective control of grubs and other turf pests, include CHIPCO MOCAP in your turfgrass management program. CHIPCO

MOCAP from Rhône-Poulenc Inc., makers of CHIPCO® 26019 and CHIPCO® Ronstar®, is a new addition to the CHIPCO line of fine products for turfgrass protection.

For more information write to Rhône-Poulenc, CHIPCO Department, P.O. Box 125, Monmouth Junction, NJ 08852



CHIPCO® MOCAP®

Rubs out grubs.

CHIPCO, RONSTAR and MOCAP are registered trademarks of Rhône-Poulenc.

more lawn equipment.

While the farm economy may be down, the general economy is stable which makes sales good overall. "The consumer is willing to spend money on big ticket items," says Simplicity's Covert.

Low interest rates particularly affect the housing market. "Every day there's more building permits given out, every day there's more lawns to be mowed," says Sam Smith, manager of lawn and garden equipment operations for Deutz-Allis Corp.

Steve Yolitz, manager of market planning for JI Case, says along with low interest rates, low oil prices benefit the industry. "Low oil prices, in general, are a plus because it impacts construction," says Yolitz. "A drop in oil prices also reduces operating costs."

The economy has an impact on the equipment industry from the outside, but changes within the landscape management industry also have a strong impact.

The best opportunity

Toro's Brown calls the commercial landscape contractor "the fastest growing opportunity today for equipment."

Gary Erholm, president of Kem Enterprises and developer of the Rockhound grooming machine, is enjoying solid sales to landscape contractors throughout the country.

"We see more and more landscape contractors entering the scene with more than a wheel barrow and shovel background. I'm hearing a lot of favorable reports from contractors who have so much work they can't keep up," says Erholm, who also sells to golf course contractors and municipalities.

"We're seeing growth in the outdoor power equipment industry," says David Welfelt, marketing manager for Excel. "A lot of it is due to the professional landscape maintenance contractor. There's still a lot of professionalizing going on within the landscape maintenance industry. That goes hand-in-hand with equipment."

Such growth has heated up competition between companies in all types of equipment.

"This is a very competitive market," says Teresa Lowry, advertising manager of Gravelly. "When we entered it four years ago, there were maybe five manufacturers making commercial intermediate walk-behind mowers. This year at the Landscape Expo, there were something like 40. We do see the market growing."

Howard Price says the competition for manufacturing 72-inch mowers is especially intense since John Deere, Jacobsen, Toro, Excel, Ransomes, and Price all market similar models. **WT&T**



Bob Bergen, Bolens president, sees good years in 1986 and 1987.



Lesco's Jeff Mack sees equipment growth for his company.



Jim Gourley of Lawn Masters "can't build plug aerators fast enough."

WT&T asks: 'How does the future look?'

Dale Evenson, president, HMC/The Green Machine: "In the two-cycle part of the industry, there will be some pretty good price increases coming up this summer and next year if the dollar remains the same. Most two-cycle equipment is imported."

Jim Gourley, president, Lawn Masters: "Tremendous. We can't build our plug aerators fast enough."

Myrtle Feldmann, Feldmann Engineering: "Very optimistic. We're always developing new products."

Earl Crane, Earl Crane, Inc.: "It's like I've said for 60 some years in this business...It's out there if you want to go get it."

Jim Taylor, president, Heckendorn: "It doesn't look like it's going to be gangbusters, but there'll be steady growth."

Bob Martin, president, Exmark: "Sales are ahead of last year and merchandise is moving through earlier. We see the market continuing to grow for several reasons: commercial mowers are growing like commercial chemical application people, and the cost of a good quality homeowner mower is increasing."

Bob Walker, president, Walker Mfg.: "We're a niche product in turf care. We'll offer a larger horsepower machine in '87 with more features for the commercial market."

Bob Bergen, president, Bolens: "The outlook we see from our company's standpoint is very very positive for this year. There's good indication it will carry through to next year."

John Kurtze, vice president sales, Al-Ko Kober: "I see nothing but low inventories and an interest from all levels to increase inventories. I'm very positive about it."

Mike Schaefer, vice president, F.D. Kees: "The lawn equipment market is a growing market. The intermediate riding mower market is pretty tight. But I think it'll be like the trimmer market and thin out in the future."

Jeff Mack, product manager, Lesco: "We believe that today's customer is becoming cost conscious. They will not sacrifice quality to obtain this objective. This fits Lesco in that we market directly to the end user, thereby allowing us to provide excellent quality at a very competitive price. This strategy has positioned us for tremendous growth within the equipment industry."

Kevin McGrath, Locke Mfg.: "It looks positive. The people we're selling to now are much more educated and knowledgeable."

Dal Neely, manager national commercial sales, Wheel Horse: "The power equipment industry looks pretty good for a number of reasons. The economy has stabilized, interest rates are down, and the pricing structure is better."

Steve Yolitz, manager market planning, JI Case: "'85 was the best

continued on page 28



The PREMIER

Rotary Mower Engines by Tecumseh

Premier is the styling pacesetter for the entire Tecumseh TVS series of rotary mower engines. New operator convenience features and engine protection features include • over-sized, pleated paper air cleaner element • a one and one-half quart fuel tank • new larger oil fill and fuel fill openings with large, easy-to-grip caps. • New soft-pull recoil starter makes starting effortless. • The Premier continues to feature the innovative pressure pump lubrication system, • mechanical governor and • compression release for which the TVS series has been acclaimed. The Premier is available in four displacement sizes, with electric starting and with 8½:1 and 2:1 PTO's.



**TECUMSEH
PRODUCTS
COMPANY**

900 NORTH STREET
GRAFTON, WI 53024

Rotary Mower engines by Tecumseh are...Better, right from the start.

Circle No. 137 on Reader Inquiry Card

MOWING FOR DOLLARS

The right mower for the right job can mean savings for your mowing operation.

by William C. Kinzer



Pull-behind reel gang mowers, like the Jacobsen 5/7 Ram-Lift Ranger with seven gangs, are the most economical mowers for large turf areas.

THE EQUIPMENT REPORT

continued from page 26

year since '79 in terms of the industry. We look to '86 to be possibly matching '85 levels."

Dave Taylor, national marketing rep, Dedoes: "Fantastic! The aeration market has finally caught on...particularly in athletics and schools."

Patricia Carroll, advertising/public relations, Kubota: "Our product line is appropriate for the commercial turf market as well as the compact tractor market. Our success comes from both markets."

Joe Nelson, director marketing services, Sensation: "It's kind of cloudy, really. Generally, we feel it's stabilized, but it's a slow growth industry."

Gordon Bannerman, corporate secretary, G. Bannerman Ltd.: "I think it's ever-growing and expanding at a heck of a rate. There have been more changes in the past 10 years than the 10 years before that."

Dwayne Plessinger, service coordinator, Steiner Corp.: "It's never been better for us. We're in a unique situation since we don't directly compete with too many other companies. Innovation is the edge in this market."

Marion Meredith, advertising manager, FMC: "Good. Our sales have grown over the last year."

Jim Jenkins, sales manager, Snapper: "The future looks good. But, as a whole, industry experts say there'll be little growth."

Lee Markgraf, operations manager, Kawasaki: "Positive. Our numbers are increasing. People are willing to pay more to get quality."

Nic Smokey, advertising manager, Tecumseh: "They're forecasting a two to three percent growth this year. It's a good outlook for equipment."

Stan Kinkead, sales manager, National Mower: "We're trying to make functional, simple machines. Sometimes the hardest thing to do is to build something simple."

Dave Welfelt, marketing manager, Excel: "Excel and company will continue to grow larger and smaller. We'll provide larger pieces in rotary mowing and continue to expand in the smaller end." □

A great deal of money can be saved on mowing costs by simply choosing the right equipment for the job and using that equipment in the most efficient and economical manner.

To achieve the most cost effective mowing, there are several factors to consider.

The initial cost of equipment appears to be the most obvious factor. But in long-term mowing budgets, it may be the least important due to labor costs, maintenance costs, downtime costs, and fuel costs over a given time frame.

Each machine must be evaluated in its application for what it can do for you.

Types of mowers

Each of the basic mower types (reel, flail, rotary, sickle) has its advantages and limitations. A purchaser must know the type of turf he needs to cut, how often it needs cutting, and what each of these mower types can do for him.

Reel mowers give the finest quality of cut due to their shearing action. They also have the longest life.

Rotaries have the easiest maintenance, but because they are impact-type mowers, they produce a less formal finish to the turf and require a higher horsepower source.

The flails have safer operating characteristics, and some give a quality cut to semi-formal as well as informal turf. Flails are also impact-type mowers and require a high horsepower source.

Sickle mowers are effective for cutting tall rough grass such as along roadsides but they have limited applications and high maintenance requirements.

Horsepower requirements

All mower types should be teamed up with properly sized horsepower



William C. Kinzer is product manager for the Jacobsen Division of Textron Inc.

How to trim your time.

Model 4000 LP

Model 3000 LP

Model 2500 LP

Think Green Machine

Weeds, grass, brush... even tree branches up to 4 inches thick! No problem for this team of gasoline powered string trimmers/brushcutters/tree pruners from THE GREEN MACHINE®.

Model 2500 LP

- 1.25 HP, 22.5cc L-PAT engine, favorable power-to-weight ratio
- Weighs 12 lbs., but is no lightweight in getting the job done
- 4" Tap-For-Cord™ head - optional blades

Model 3000 LP

- 1.4 HP, 25.4cc L-PAT engine
- For almost a decade has set the standard for professional landscaping
- Features all-position carburetor with re-circulating primer system
- 6" Tap-For-Cord™ head - optional blades

Model 4000 LP

Model 4500 LP (not shown)

- 2.2 HP, 41.5cc engine
- For specialized day-after-day trimming/brushcutting/tree pruning
- Equipped with harness, hip pad and wide handlebars
- Swivel driveshaft for hillside brushcutting and pruning
- Model 4000 LP equipped with 6" Tap-For-Cord™ head, optional blades
- Model 4500 LP equipped with hand guards, brush and saw blades

The Green Machine keeps working, so you do too.
Less down time means more profit.

The Green Machine®

High-performance yard-care tools.

HMC, 20710 SO. ALAMEDA STREET, LONG BEACH, CA 90810
(213) 603-9888

Circle No. 188 on Reader Inquiry Card

	72" out-front rotary w/gas engine	72" out-front rotary w/diesel engine	72" rotary or flail mounted on 4WD all-purpose turf tractor	16' self-contained rotary w/diesel engine	15' self-contained reel mower w/diesel engine	15' reel pull-behind gang mower w/diesel turf tractor	25' reel pull-behind gang mower w/diesel turf tractor
Approximate Initial Cost	\$12,800	\$13,600	\$18,900	\$34,800	\$47,900	\$34,700	\$35,400
Fuel Consumption @ \$1.00/gallon	1.25/hr	1.0/hr	.92/hr	2.52/hr	1.2/hr	.90/hr	1.35/hr
Acres per Hour (mowing capacity)	3.3	3.3	3.3	8.6	8.25	8.25	14.0
Hours Required to Mow 80 Acres w/P.M.	27.2	27.2	27.2	10.4	10.9	10.9	6.4
Hours Required to Mow 80 Acres Over 1 Yr. Period (50 mowings = 4000 acres)	1360	1360	1360	520	545	545	320
Labor Cost Per Year (Based on \$7.00/hour)	\$9520	\$9520	\$9520	\$3640	\$3815	\$3815	\$2240
Fuel Cost Per Year (Based on \$1.00/gallon)	\$1700	\$1360	\$1251	\$1310	\$654	\$490	\$432
Cost Per Acre (Based on 5 Yr. Period)	\$3.45	\$3.40	\$3.34	\$2.44	\$2.56	\$2.12	\$1.73
Average Cost Per Year (Based on 5 Yr. Period)	\$13,789	\$13,609	\$13,372	\$9,732	\$10,217	\$8,475	\$6,920
Average Cost Over 5 Years	\$68,944	\$68,046	\$66,361	\$48,660	\$51,088	\$42,374	\$34,603
*Average Cost Over 10 Years	\$137,888	\$136,092	\$125,716	\$80,910	\$76,933	\$67,399	\$53,463

* Based on necessary replacement of major components and/or entire machine over the given time period

sources in order to ensure adequate engine life, optimum fuel economy, and efficient mowing. Generally, a reel or sickle will require less horsepower, while flails and rotaries require more.

Typical horsepower requirements for the various mower types are:

30-inch reel, 2.5 hp or .08 hp per inch; 72-inch rotary, 14.5 hp or .20 hp per inch; 60-inch flail, 12 hp or .20 hp per inch; 72-inch sickle, 6 hp or .08 hp per inch.

The terrain of the mowing area must also be considered when figuring horsepower requirements. A flat area will require less horsepower to power the tractor than a hilly area.

It should also be noted that high altitude, hot weather, and poor maintenance affect horsepower output.

Diesel vs. gasoline

Diesel engines are more fuel efficient

and deliver better torque characteristics than their gasoline counterparts. A diesel engine will generally have a higher initial cost, but the life expectancy is higher.

Gasoline engines have fewer starting problems than diesels when the temperature falls below 20 degrees F, making them the preferred choice if the machine is used in winter applications, such as snow removal, etc.

Labor, mowing capabilities

Over a five-year period, labor costs can amount to more than 50 percent of a total mowing budget. The time it takes for various machines to mow the same area of turf becomes a very important factor.

Of course, a machine that mows five acres per hour will require fewer labor hours than one that mows three acres per hour.

The buyer will want to know the mowing capacity of the machine in acres per hour in order to figure the costs per acre. Width of cut and effective speed of operation are two main factors that determine mowing capability and economy.

Gang mowers, such as 5- or 7-gang pull-behind models, are the most economical mowers for large turf areas because more grass can be cut with fewer passes.

The comparison table shows how many different factors combine to formulate cost-per-acre calculations of various mowing machines. The chart accounts for normal maintenance, but does not include variables that may differ greatly from one situation to another such as unexpected breakdown, downtime costs, or length of mowing season.

Note that the pull-behind gang reels are the most economical in cost