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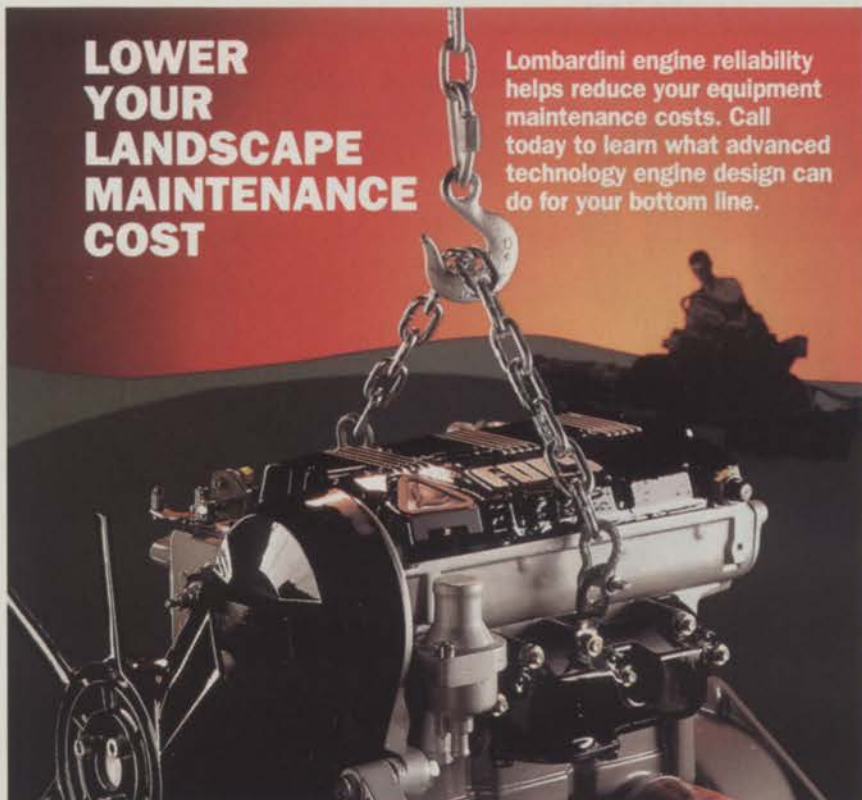
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continued on page 78

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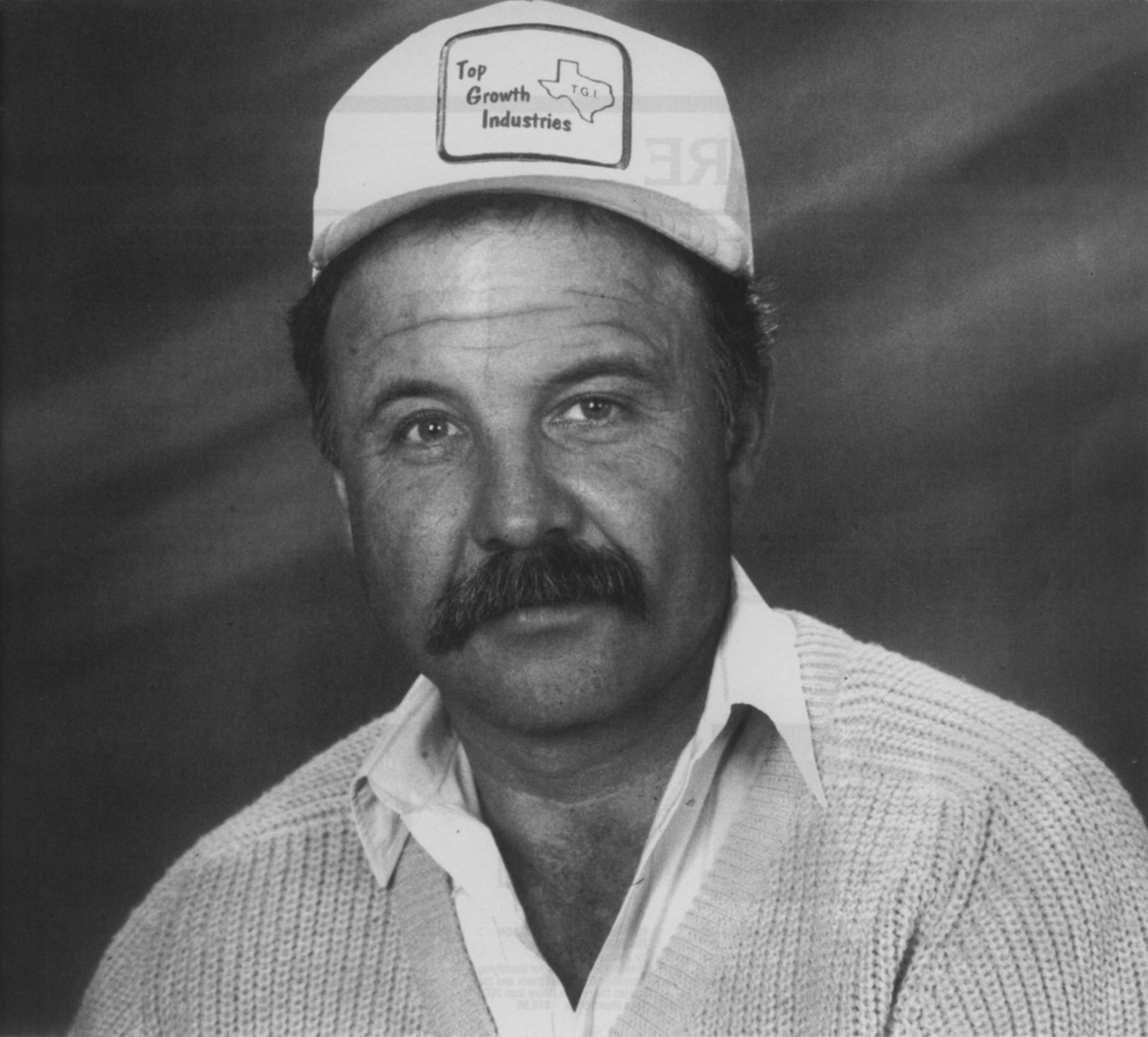


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Jay Cannon,
General Manager
Top Growth Industries
Houston, TX

Please call us toll-free at 1-800-342-6173 for additional information.

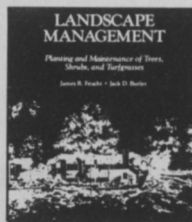
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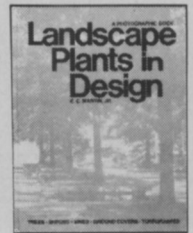
300 - LANDSCAPE DESIGN: A PRACTICAL APPROACH
by Leroy Hannebaum
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Planting and Maintenance of Trees, Shrubs, and Turfgrasses. Describes the basic principles of cultural management of installed landscapes. The important factors of plant growth, soils and fertilizers, improved planting techniques and new pruning techniques, integrated pest and disease management, and spray-equipment calibration and care are all featured. **\$35.95**



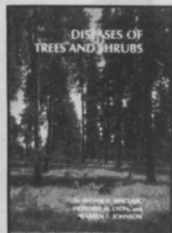
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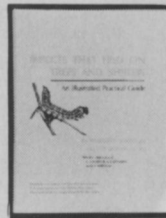
365 - LANDSCAPE PLANTS IN DESIGN
by Edward C. Martin
An annotated black & white photographic guide to the design qualities of ornamental plants and their aesthetic and functional use in landscape designing. Over 600 trees, shrubs, vines, ground covers and turfgrasses are described in non-technical language. Over 1900 photographs. Provides a basis for selecting the best plant materials for any particular use in landscape design. Contains detailed indexes that provide quick reference to particular design qualities and growing conditions. **\$69.95**



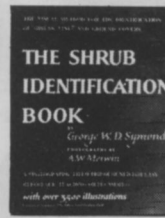
665 - ARBORICULTURE: THE CARE OF TREES, SHRUBS AND VINES IN THE LANDSCAPE
by Richard W. Harris
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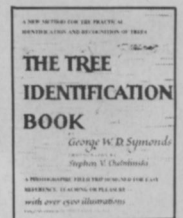
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By Wayne Sinclair, Howard Lyon and Warren Johnson
A comprehensive pictorial survey of the diseases of, as well as the environmental damage to, forest and shade trees and woody ornamental plants in the United States and Canada. Reflects the most important developments in fungal biology and taxonomy, plant bacteriology, virology, and environmentally induced stress in plants. Summarizes information about newly discovered diseases and provides up-to-date accounts of old ones. **\$52.50**



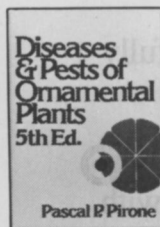
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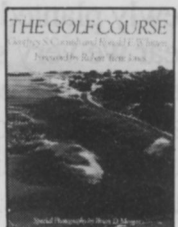
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by George Symonds
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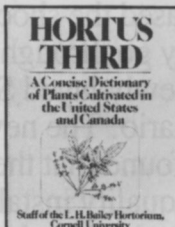
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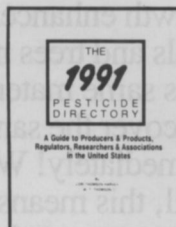
410 - DISEASES & PESTS OF ORNAMENTAL PLANTS
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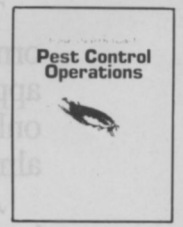
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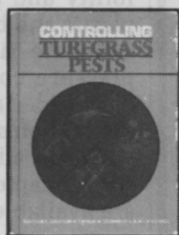


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235 - LAWN CARE: A HANDBOOK FOR PROFESSIONALS
by H. Decker, J. Decker
Written by turfgrass professionals, this handy guide will be invaluable for playing field managers, golf course managers, or any lawn care practitioner. Covers all aspects of turfgrass management. **\$48.95**



640 - TURF IRRIGATION MANUAL
by James Watkins
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615 - TURF MANAGEMENT FOR GOLF COURSES
by James Beard
Written by an eminent turfgrass researcher, this USGA sponsored text is an ideal reference and "how to" guide. Details all phases of golf course design and construction, turf management, course administration, irrigation, equipment and disease and pest control. Fully illustrated. **\$74.00**



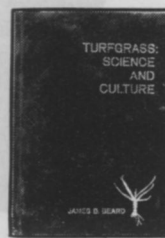
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Practical guide to turf care under both healthy and poor turf conditions. Chapters cover turf in cooler and warmer regions, fertilizer use, regular turf care, weed and disease control and special turf problems. Useful seasonal schedules for management of turf areas. **\$26.60**



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Circle No. 150 on Reader Inquiry Card

PRODUCTS from page 72

risers for after-installation arc adjustment. The line also has 45 pressure compensating nozzles for design flexibility and over 90 interchangeable plastic and brass nozzles.

In the six- and 12-inch models, pressure compensating nozzles are color coded and inlets are available on the bottom and side.

Shrub adapters, extenders, micro spray adapters and check valve units are available.



Circle No. 199 on Reader Inquiry Card

New chipper/shredder a more powerful line

A new 8 hp chipper and shredder from Tornado Products, Inc. boasts of greater shredding and grinding power than other models in its size.

The 8 hp Baker model features 12 patented free-swinging triangular hammer units to grab trimmings. The



company says the arrangement allows for more cutting space.

Other patented features include an idler clutch and bearing guard which prevent wear and tear on the V-belt and bearings.

Direct bagging from a side discharge system is standard.

Circle No. 200 on Reader Inquiry Card

Backpack blowers now equipped with autostart

Two backpack blowers from Red-Max feature autostart and recoil

system.

The blowers, which deliver airflows of 600 cubic feet per minute,



start with a push button which activates a self-charging, battery-type autostarter.

Other features on the RedMax line include a ventilated backpad, rubber mounts and a low-noise muffler.

Circle No. 201 on Reader Inquiry Card

Color added to field conditioner

Terra-Green now sells its field conditioner Terra-Green in a green color for use in sports turf repairs.

Terra-Green is also a drying agent and top-dressing which improves aeration and drainage and gives the turf a nutrient reservoir and moisture.

The company says Terra-Green



works well on football and soccer fields, giving a green color to torn areas.

Terra-Green is available nationally from Partac Peat Corp.

Circle No. 202 on Reader Inquiry Card

Brush chipper struts are strong, useful features

Equipped with a 3/4-inch flywheel and two full-length knives, Promark Products' 100 Series brush chipper will handle material up to three inches.

The chipper also features a folding feed apron and materials may be discharged into a pickup truck, trash can

or the ground.

The towable unit can be equipped with eight or 12 hp engines. The company says it is ideal for rental, homeowners, landscapers and nurseries.

Circle No. 203 on Reader Inquiry Card

New chipper will handle biggest jobs

Bandit Industries' new Model 1400 Tree Bandit Whole Tree Chipper features a

14-inch diameter chipping capacity and is designed for nearly all land-clearing jobs, says the company. The chipper produces usable wood chips.

Optional equipment includes a winch which can skip and forward trees into chipper. A backhoe-style loaded, 200-hp Cummins diesel engine, dual-axle suspension and hydraulic lift are standard.

A conventional knife-clamping system is optional.

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Circle No. 120 on Reader Inquiry Card

SURVIVING from page 62

and operation of their company.

These advisors should possess a business savvy. Combine their expertise with others who are experienced in the green industry. Rather than advice from your attorney or accountant, you need to hear from individuals who are not specifically familiar with your company.

Tracking cash flow

If you have not developed a cash flow budget, have your accountant devise one for you.

Such a plan identifies the amount of working capital your company will need and when it will be required in 1991. This reduces anxiety about cash flow because you will have cash reserves available when monetary pressure is highest. This often coincides with the early spring peaks for leads and service.

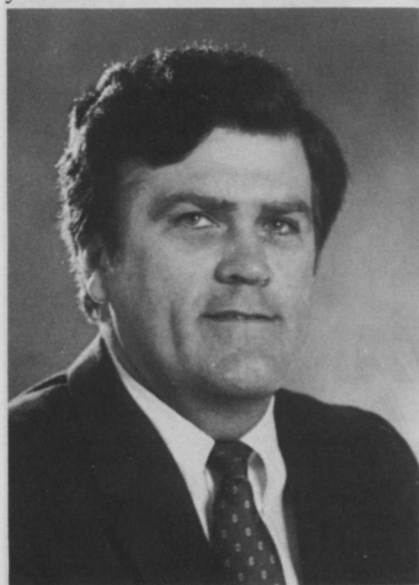
You're not alone

Most green industry companies will feel severe economic pressure in 1991. Developing a plan to operate during tight fiscal times will assist you in achieving your goals.

Make "financial management" your watchwords for 1991.

Know what you must do in anticipation of lower volume; prepare an alternative operating plan that takes into consideration a volume level of five to 10 percent below your anticipated budget plan.

Keep an eye on operations and tight fiscal management. Keeping yourself and your employees focused on the financial impact of everything done in the company will increase the fiscal success of your company both this year and in the future. **LM**



Ed Wandtke is a senior consultant with All-Green Management Associates in Columbus, Ohio.

RESEARCH UPDATE

Iron fertilizers have mixing, pH guidelines

by Kurt Winkler, RGB Laboratories Inc.

TANK MIX pH in pH 9.75 WATER

Rate in 3 Gal. Water	Agri - Plex®	Ferrous Sulfate	Liquid urea/ Ferrous Sulfate
1 oz.	6.86	5.10	3.44
3 oz.	6.40	3.50	2.86
5 oz.	6.20	3.33	2.66
8 oz.	6.10	3.22	2.52

Iron fertilizer applications are gaining attention as a way to provide green color to turfgrass without causing excessive leaf tissue growth.

Iron fertilization is a common practice on golf courses; now, lawn care companies are considering iron applications combined with lower rates of soluble nitrogen or in combination with more slow-release nitrogen products. This is especially important during spring and summer on cool-season grasses, since we do not want to stimulate leaf growth at the expense of root growth. Also, as the environmentally sound concept of "grasscycling" (returning clippings to the soil) gains favor, the controlled growth is even more important since we do not want to "make hay" on a home lawn or commercial property.

While the green industry accepts iron as a valuable nutrient, certain rules should be followed to get the most out of your iron application.

Tank mix guidelines

When iron is tank mixed with fertilizers, especially fertilizers containing phosphorous, the resulting tank mix should be clean and clear, without settling or clouding. When a white, cloudy appearance is observed, the iron is precipitating, or tying up with phosphorus, and this iron-phosphate precipitate is unavailable for plant uptake. Dry soluble N-P-K fertilizers usually contain a blue or green dye which masks this reaction, so this tank mix must be carefully observed.

Iron products mixed with controlled release nitrogen should again be clean and without sediment. If there is a purple sedimentation, then iron availability is reduced due to precipitation.

Amine herbicide and iron tank mixes should also be carefully observed: the mix should be a clear, slightly brown color. Iron that is not compatible with amine herbicides will have a murky brown color with slight settling. This is an interesting reaction because very lit-

tle available iron is lost, but broadleaf weed control may be reduced, particularly on deep-rooted perennial weeds. A compatibility check is advised, especially when using low-volume spray applications of 2 gal./1000 sq. ft. or less.

Rapid pH changes

While it's commonly known that most iron products acidify the tank mix, it is surprising how quickly and dramatically the pH can change, as shown in the chart above:

Liquid iron products containing nitrogen may have slight pH differences, but they are usually formulated at pH 2.0 to 3.0. Furthermore, it's important to remember that, practically speaking, water does not have the ability to resist change in pH. So regardless of your water source and its pH, the ending values are still about the same as shown on the chart.

As a general rule, universities and manufacturers suggest a tank mix pH of 6.0 to 7.0 when spraying fungicides or insecticides. Obviously, not all pesticides are affected by pH, but since it's difficult to keep track of all products that are affected, this is still a good rule.

Since iron is readily absorbed by grass leaf tissue, sprayers should be adjusted to achieve maximum leaf coverage. Low-volume applications will work with a fine spray droplet, but a large droplet should be avoided in this situation.

Chelates protect solubility

Any plant nutrient must be relatively soluble for plant uptake. But since iron is inherently insoluble, manufacturers combine iron with organic molecules called chelates. Chelates protect the iron solubility over a wide range of conditions. Chelation is a complex subject, but for practical purposes, fully chelated iron will avoid the tank mixing concerns mentioned previously. Non-chelated or partially chelated iron should be checked for compatibility. **LM**