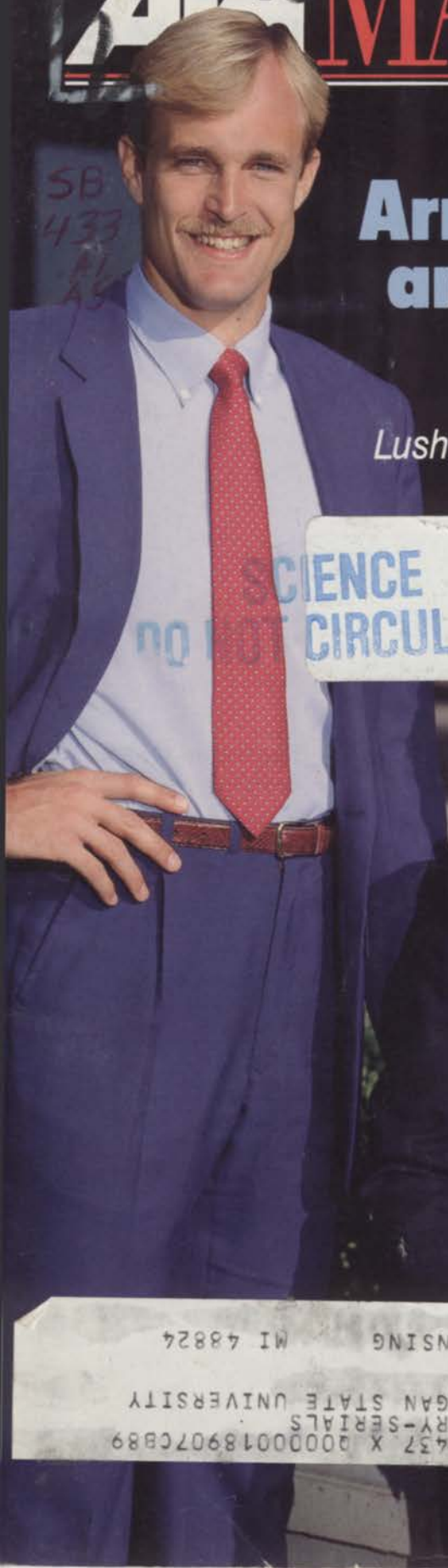


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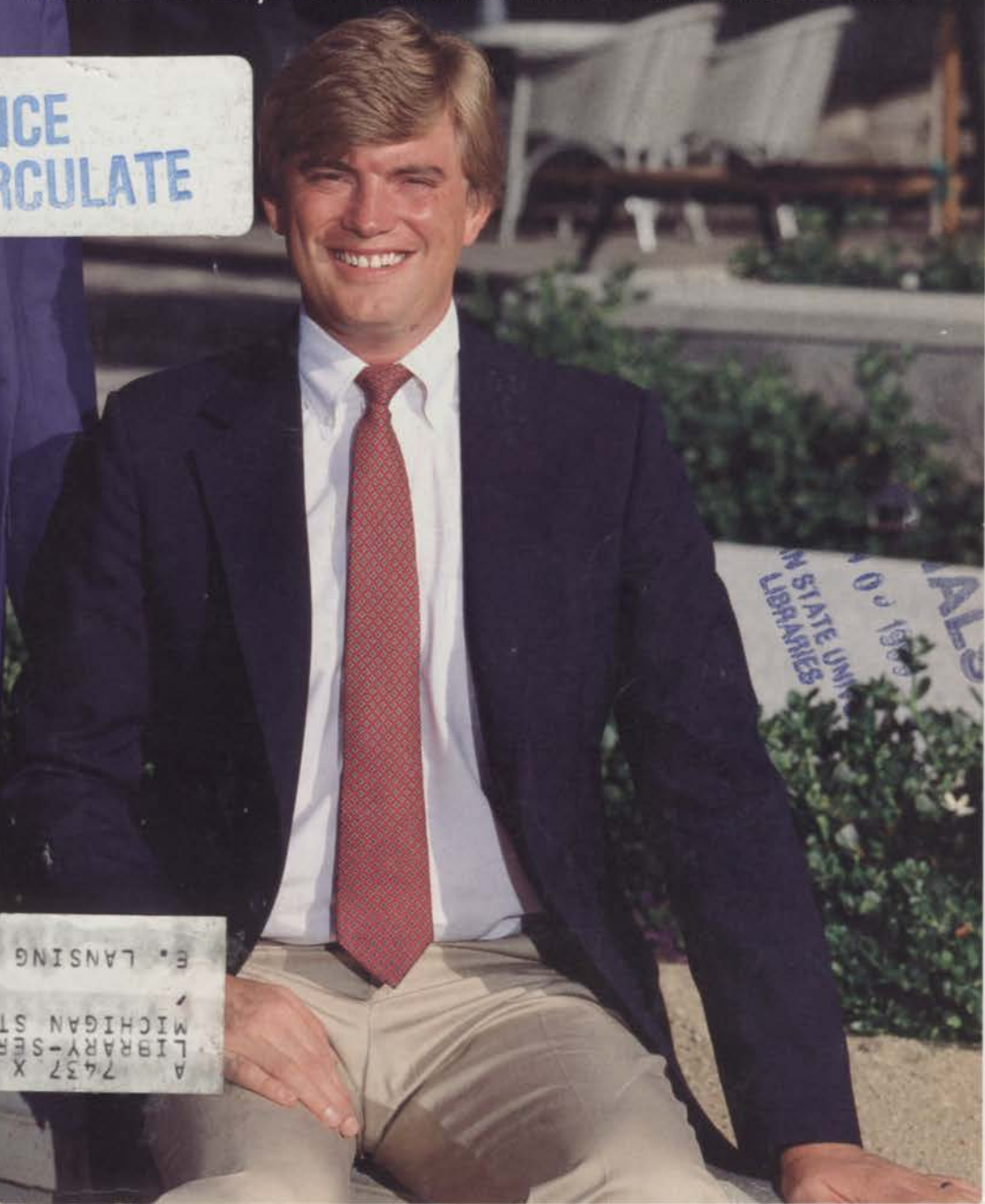
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Cover photo: W. Scott Mitchell, Mesa, Ariz.

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Partners Ben Snyder and Jeff Meyer show how their five-year-old company turns Arizona's arid environment into lush landscapes.

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EDITOR'S FOCUS

ATLANTA-BASED ORKIN LAWN Care continued its dramatic growth in the lawn maintenance industry with its recent acquisition of Yearound Lawn Care, one of the West Coast's largest lawn care firms.

Yearound, based in Ventura, Calif., has eight locations in or near Seattle, Portland, Sacramento, Oakland, San Diego and Los Angeles.

The acquisition, for an undisclosed sum, marks Orkin's first entry into the West Coast lawn maintenance market. Yearound was formed in 1984 and was a division of Western Farm Service Inc., Walnut Creek, Calif.

"We're happy to welcome the employees of Yearound to the Orkin Lawn Care family," said Gordon Crenshaw, vice president of the lawn care division. "We look forward to continued growth and development with Yearound and we're excited about what we can achieve on a national level."

The eight Yearound branches expand the



Orkin lawn maintenance network to 63 locations, previously centered in the eastern and southern portions of the country. The Yearound branches will gradually take on the Orkin name.

Orkin Lawn Care is a division of Orkin Exterminating Co. The division started in 1982 and is considered the third largest lawn care company in the United States, with 63 locations in 17 states.

Just one year ago, Orkin acquired New England Green; a buy out adding close to \$13 million in revenues to the company. Orkin's 1987 revenues reached \$294,339 million, although that total includes sales figures from the company's termite and pest control operations.

In other news, *ALA/Maintenance* magazine was the recipient of two awards for its graphic redesign.

Art Director Charlotte Goerss was recognized with two second place awards — one for the magazine's graphic redesign, first appearing last November, and the second for the magazine's table of contents page.

The regional awards were presented by the American Society of Business Press Editors. — *Cindy Code*

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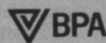
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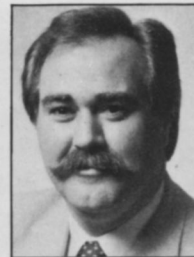
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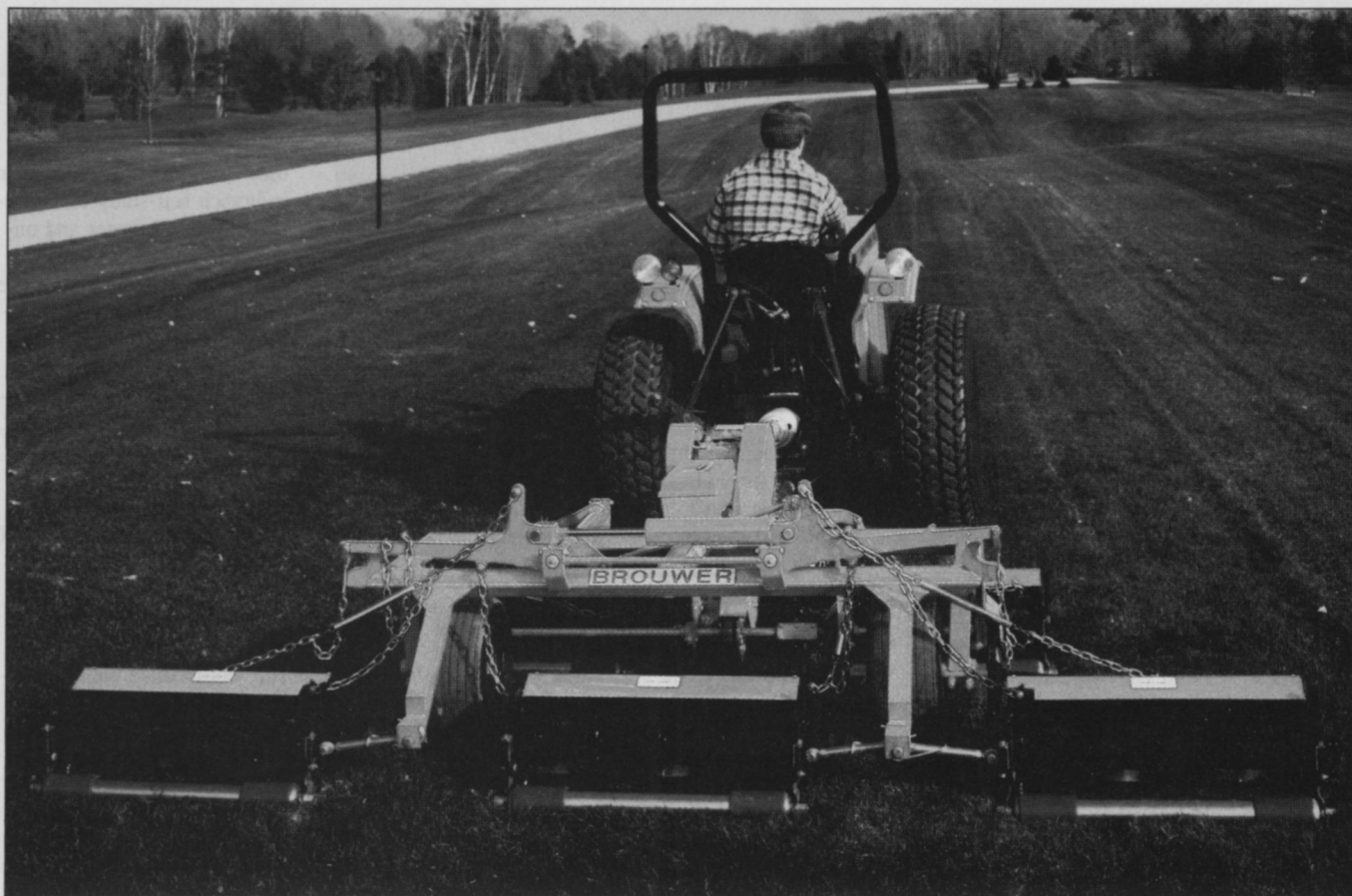


Vittum

Dr. John Street is an associate professor in the agronomy department at The Ohio State University. **Dr. William Meyer** is president of Pure-Seed Testing Inc., Hubbard, Oregon. **Dr. Des Rice** is president of The Weed Man Ltd., Mississauga, Ontario, Canada. **Dr. Al Turgeon** is professor and head of the department of agronomy, Pennsylvania State University. **Dr. Joseph Vargas** is professor of botany and plant pathology, Michigan State University, East Lansing, Michigan. **Dr. Patricia Vittum** is associate professor of entomology, University of Massachusetts, Waltham, Massachusetts.

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NEW PROGRAM MAY FILL INDUSTRY TRAINING VOID

A national training program for both new and experienced workers is now available through the Pesticide Compliance and Training Service, North Kingstown, R.I.

Partners Jim Wilkinson and Richard Jalette initiated the correspondence training program because of an intense industry need, due mainly to increased state regulation. The program started last November and to date maintains about a dozen clients including Hydro Lawn, Gaithersburg, Md., and Lawnmark, Hudson, Ohio.

"We've tried to design a program for companies across the country regardless of the area," Jalette said. "It's good because it forces companies to have weekly meetings."

Jalette worked for six years as branch manager for Old Fox, Chelmsford, Mass.

The training regiment is a benefit to seasonal businesses. "Generally speaking, training is once or twice a year for a seasonal business," said Marty Erbaugh, president of Lawnmark. "This (program) spreads it out and serves as a discipline vehicle. We're talking about diseases when they're actually occurring."

"Applicator confidence comes from understanding technical variables, and a well-trained work force is the key to customer satisfaction."

The first phase — the continuous training program — includes 48 lesson plan packages, one of which is sent out weekly



to participating companies. The lesson plans discuss individual topics relevant to the specific season, and are written in simple and easy to understand language.

Each week the designated company trainer receives a background review, used to refresh or learn new information before presenting the lesson to fellow employees. Many of the lesson plans include handouts for each employee. At the end of the training session a quiz, generally consisting of 10 questions, is given to each employee. Quizzes are exchanged and discussed afterward.

The entire session is designed to last no more than 45 minutes per week. The quiz scores are recorded on a tally sheet and returned to the PCTS as verification. The PCTS then seeks recertification credits for each individual. Topics include agronomy, cultural practices, pesticide application techniques and customer service among others.

The second phase is for new hires. Be-

ginning the first day of employment, the program is designed to train new specialists in the least amount of time. The program includes an in-branch self-study of 15 pre-pared daily packages and on-the-job training.

Both phases of the new hire training program should take three weeks to complete.

"We've received extremely positive feedback. I can't imagine anyone not subscribing if they find out about it," Erbaugh said.

The cost of the program varies with company size. However, it would cost a company with 10 employees about \$4,000 for a whole year's worth of training, according to Jalette.

In addition to the training programs, PCTS also offers regulatory compliance audits to ensure compliance with all pertinent federal and state laws.

For more information contact Richard Jalette, Pesticide Compliance and Training Services, 580 Ten Rod Road, North Kingstown, R.I. 02852; 401/294-1384.

LAWN CARE SCARE REARS ITS UGLY HEAD

As sure as springtime surfaces every year, a national lawn care scare is soon to follow.

Timed to meet the start of the lawn maintenance season, the Public Citizen's Congress Watch, a consumer watchdog group, released a report urging homeowners to avoid or limit use of chemicals on their lawns.

The report's conclusion: 12 of the 40 most commonly used chemicals are suspected human carcinogens and 21 have been shown to cause long-term health effects.

Among the chemicals being attacked are chlorothalinal, a chemical used to control fungus diseases.

Laura Weiss, the report's author, advises consumers to avoid pesticides whenever possible and to search out lawn care companies that do not use chemical pesticides.

(continued on page 8)

LILLY, DOW TO FORM GLOBAL AG PRODUCTS CO.

ELI LILLY & CO. AND THE Dow Chemical Co. announced that they intended to form a major global agricultural chemical business by joining their respective plant science operations.

The new company will be called Dow Elanco Inc. and will be located in the Indianapolis area. It will be one of the largest research-based agricultural companies in the world and the largest in North America.

The agreement provides for a combining of assets dedicated to agricultural chemicals. Dow, by virtue of its

larger agricultural chemical business, will have the majority position. The chief executive officer for the new company will be John Hagaman, currently the president and general manager for Dow Agricultural Products.

To ensure success of this new global company, the agricultural chemical sales, marketing, research and certain support personnel will be part of the joint venture. The company's worldwide headquarters will be located in the Indianapolis area. Temporary offices will be leased

until a permanent office and research complex is built.

Richard Wood, chairman and chief executive officer of Eli Lilly and Co., said, "We believe that the formation of this joint venture brings together two partners with very similar culture and core values. These values, joined with the skills and abilities of the partners' agricultural chemical personnel, will provide the foundation for this new company to emerge as a global leader with career opportunities for all of its employees."



FOR SOME OWNERS IT REALLY IS A BLUE BOOK


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What's behind John Deere's



Model (1979)	HP	Approx. list price	Est. avg. trade-in value	Value as percentage of list price
John Deere 400	19.9	\$4,399	\$2,133	48%
Allis Chalmers 720	19.5	4,254	1,404	33%
Ford 195	19.9	4,380	963	22%
IH 184 Lo-Boy	18.5	4,700	1,551	33%
Jacobsen 53500	19.5	4,895	1,615	33%
Roper T9329	19.9	2,599	571	22%
Sears 25708N	19.9	2,879	460	16%
Simplicity 9020	19.5	4,250	1,402	33%
Snapper 1855	18.0	3,465	762	22%
Wheelhorse D250	19.9	4,795	1,582	33%

Source: 1989 Intertec Blue Book® trade-in guide for lawn, garden and farm tractors. Estimated average trade-in values determined by averaging the published high and low figures.

phenomenal resale record? Quality.

Evident today. Just as it was in 1963 when John Deere first built lawn tractors. And evident in the 10-year-old 400 Tractor, shown here.

A tractor that even then made the competition nervous.

With features like color-coded controls, clustered for easy operation. Power steering. Triple hydraulics for raising and lowering equipment. Two sets of front hydraulic outlets. Hydrostatic drive. And a triple-safety starting system.

So before you buy a new tractor, consider the color green. It could keep you from singing the blues later.



Circle 63 on reader service card

Businesses and organizations, including the Professional Lawn Care Association of America and ChemLawn, rushed to the industry's defense, but not before the information appeared in media across the country.

Other details of the report indicate that 21 of the 40 widely used lawn care chemicals have been shown to cause other long-term health effects in laboratory animals or humans, including birth defects, gene mutations or damage to kidneys, livers and the nervous system; 20 have been shown to cause short-term damage to the human central nervous system; and 36 have been shown to cause eye, skin or throat irritation in humans or animals.

Despite possible damaging effects from the report, the group's study should have no lasting impact, according to Jim Wilkinson, executive director of the Pesticide Public Policy Foundation and regulatory and environmental affairs director for PLCAA.

"People are getting tired of hearing about this — the media included. They say 'Here we go again, it's springtime,'" he said.

Wilkinson has appeared on the national

1989 ANNUAL DUES SCHEDULE

SALES VOLUME (\$)	DUES/YEAR (\$)
Over 10 million	10,000
5 million to 10 million	7,500
1 million to 4,999,999	5,000
800,000 to 999,999	1,500
600,000 to 799,999	1,000
400,000 to 599,999	900
200,000 to 399,999	650
100,000 to 199,999	500
Under 100,000	400

Cable Network News channel, on local TV and radio shows and wrote a guest column for *USA Today* newspaper in defense of the use of lawn care chemicals.

"Public Citizen's lawn care report misleads the public. This irresponsible, unscientific report is full of half-truths and innuendoes. Its assertion that lawn pesticides pose a cancer risk is a gross misinterpretation of data the Environmental Protection Agency and independent scientists reviewed," Wilkinson said in his column.

The consumer watch group has said it will soon release another report detailing what states are doing to regulate the industry.

PLCAA INCREASES MEMBER DUES BY A MINIMUM 100 PERCENT

The long-predicted dues increase for members of the Professional Lawn Care Association of America is final — fees will increase by 100 percent or more based on individual member company sales. Dues will range from \$400 to \$10,000 per year beginning with July 1 renewals.

While the minimum increase is 100 percent, some companies will face a 667 percent increase, according to Jim Brooks, PLCAA executive vice president. Based on a sliding scale fee schedule, the largest companies will be paying the

(continued on page 10)

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largest increase.

The increase is expected to raise an additional \$375,000 which will be used to meet the association's increased commitment to legislative and regulatory activities.

"Our members must think carefully about the high priority of protecting the industry as best we can," Brooks said. "There will be no cuts to other services, the board was insistent on that, but more money will be put toward issues management."

Brooks said the increased fees will make the association more self-sufficient. Currently, less than 35 percent of the association's income is derived from members and about 39 percent comes from PLCAA's annual trade show.

"We can't rely every year on nice contributions from industry to support our programs," he said. "With the increases, particularly at the lower end of the scale, we're now more comparable (dues) to other allied associations."

The current minimum dues level — \$200 — is the same as when the association was formed in 1979. About 65 percent of PLCAA members pay the minimum \$200.

Brooks emphasized that the board's

decision to raise the dues was not sudden, but one discussed since 1987.

Along with the dues increase, the PLCAA announced that it would increase support to the Pesticide Public Policy Foundation, aimed at eliminating 3PF's need to solicit funds directly from PLCAA members.

OFTANOL® NOW REGISTERED FOR USE ON ORNAMENTALS

The Environmental Protection Agency has accepted amended labeling of Oftanol® 5 percent Granular insecticide



from Mobay Corp.

In addition to turfgrasses, Oftanol 5 percent granular is now registered for use on ornamental areas such as nursery stock and ornamental beds, on non-crop areas such as roadsides and fence rows and in ornamental soil mixes.

The expanded label provides added versatility for the user. An operator can now go from treating a lawn for insects directly to treating ornamental beds.

Oftanol 5 percent granular is an organophosphate insecticide that controls both soil and surface-feeding insects including white grub larvae, billbug larvae, mole crickets, fire ants, sod webworm larvae, chinch bugs and Hyperodes weevil.

PRODUCT LIABILITY ISSUE SPARKS A SLEW OF LEGISLATION

Four bills dealing with the product liability issue have recently been introduced in the U.S. House of Representatives. Rep. Toby Roth, R-Wis., introduced H.R. 359, a bill that would provide uniform treatment for selected product liability issues.

Under the bill, a claimant alleging that a product is defective because of improper design, failure to warn or failure to provide adequate instructions, would have

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to prove a manufacturer's or product seller's negligence by a preponderance of the evidence.

Rep. Richard Schulze, R-Penn., introduced H.R. 362, that would set the limitations period for product liability actions according to the useful life of the particular product.

Rep. Cardiss Collins, D-Ill., introduced two bills: H.R. 129 would bar courts from issuing orders that prevent parties in product liability actions from sharing information with attorneys representing other claimants or appropriate government agencies. H.R. 135 focuses on record retention requirements for product manufacturers. It would require manufacturers to retain for 25 years all documents and other material reasonably related to design specifications, performance standards, etc.

OPERATOR PRESENCE CONTROLS NEW TO EXMARK MOWERS

Exmark Manufacturing Co. has added operator presence controls to their full line of commercial power mowers. The new feature provides precise, fingertip control for safe, easy operation. When the levers are released, the mower engine stops automatically if either the blade drive or wheel drive are engaged. Exmark's easy-grip control levers are right on the mower handles, increasing effectiveness and reducing operator fatigue.

LESCO CONSOLIDATES PLANTS, MOVES ELYRIA PLANT TO FLORIDA

LESCO Inc. will move its operations from Elyria, Ohio, to a larger plant in Sebring, Fla., although its headquarters will remain in Rocky River, officials said. The move will affect 42 workers.

Some employees will be offered jobs in Florida, depending on the needs of the Sebring plant, said Ronald Dezember, president. The Elyria plant produced sprayers, fertilizer spreaders and a slash-seeder.

The Elyria building, acquired by LESCO 15 years ago, was headquarters for 10 years until the move to Rocky River five years ago.

"The closing of the Elyria plant by June 1 will consolidate our work in the larger Florida factory," he said. The plant here has 32,000 square feet, while the one in Florida has more than 100,000 square feet for manufacturing and about 200 employees.

With the announcement, the company reported that its sales had increased to \$15.3 million in the first quarter ending Feb. 28. Overall, it posted a \$1.8 million net loss, according to reports.

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HANDS-ON APPROACH KEY TO LAWN-BOY'S TRAINING CENTER

Lawn-Boy has created its own service training center at its headquarters in Plymouth, Wis. The center was designed with a "hands-on" approach in mind. Classroom instruction is reinforced with actual disassembly and reassembly of Lawn-Boy outdoor power equipment products.

According to Dean Ziegenbein, the company's service training manager, this approach was recommended by distributors participating in a company survey.

Better customer service and enhancement of the Lawn-Boy reputation are some benefits the company hopes to gain through the program.

EPA GRANTS REGISTRATION FOR ELANCO'S NEW PGR

Elanco has received registration on its new turf plant growth regulator Cutless 50W®. Originally labeled for golf courses, Cutless can be used on most major species of warm and cool season grasses. The product will be available for commercial turf usage within 90 days, accor-

ding to company officials.

The product is foliar-applied and is said to stack up grass leaves. Cutless causes little turf discoloration and also helps to create a thicker turf. Tests indicate that Cutless can reduce mowing up to 50 percent and irrigation from 30 percent to 50 percent.

NOR-AM TO BUY ICI AMERICAS' EASTERN RESEARCH CENTER

Nor-Am Chemical Co. officials have signed a letter of intent to purchase the ICI Agricultural Products Group Eastern Research Center, Goldsboro, N.C. Terms of the agreement were not disclosed.

According to Nor-Am's President Leo Ekins, "The proposed acquisition of this outstanding research center represents a major step forward and commitment by Nor-Am. It will strengthen our research capabilities significantly allowing us to bring new products to the marketplace more quickly."

Derek Cornthwaite, president, ICI Agricultural Products Group, a business unit of ICI Americas said the center is being divested due to the reorganization of the company's research and development in the United States.

RANSOMES REPORTS RECORD 1988 SALES PERFORMANCE

Ransomes Sims & Jefferies PLC reported record 1988 sales exceeding \$160 million. This represented a 25 percent increase over 1987 sales, and marks the sixth consecutive year of record sales and profit growth. The record growth has been achieved through an aggressive product development program and some key acquisitions.

During 1988, Ransomes made three strategic acquisitions. In January it acquired Steiner Turf Equipment, Orrville, Ohio. In September, Ransomes acquired BTS Green in Italy and Granja S.A. in France, strengthening Ransomes' position in the European grass cutting machinery market.

According to Helmut Adam, president of Ransomes Inc., the company will continue its aggressive growth strategy. Ransomes will continue to invest heavily in the development of new products, while

New manufacturing techniques introduced in the past few years contributed to Ransomes' 1988 results. Programs introduced since 1986 include computer-aided design, computer-aided manufacturing and state-of-the-art robotic welding.

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Complete Lawn Service
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"I first used AQUAGRO about seven years ago on a bluegrass lawn with thatch-bound roots. Over a three year period I saw a 50-75 percent reduction in the thatch layer from the bottom; the roots penetrated the soil about three inches and I eliminated the hot-spots. About 90 percent of my customers are on an AQUAGRO program, which I often combine with verticutting. As tough as this summer was, the difference in appearance between treated and untreated lawns was obvious...and that keeps my customers happy."

Circle 15 on reader service card



Joseph Broyles
Lawn Doctor of Oyster Bay-Syosset
East Norwich, New York

"The soils I deal with are heavy loam often with a compacted layer below the surface. AQUAGRO alleviates compaction by getting water to penetrate this layer. Eliminating standing water helps cure a major cause of fungus diseases...I've been offering AQUAGRO Liquid as an optional service for four years; recommending two, sometimes three applications a year. It's been a solution to a lot of problems, and in some cases helped set me apart from my competition."

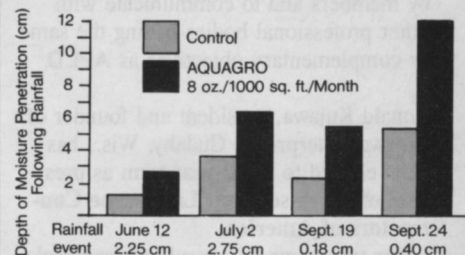


Max Todd
Fairway Lawn Service, Inc.
Sunnyvale, California

"I am using AQUAGRO Spreadable on about 80 percent of my jobs. Drought conditions have made my customers more interested in products that can both reduce water use and keep their lawns alive. It's clear to me that the wetting

agent increases the efficacy of fungicides, soil insecticides and fertilizers...I am able to sell the application as a companion to aerating and my customers recognize that the cost is offset by reduced water use and not having to pay for replanting."

Getting More Water to the Root of the Problem.



AQUAGRO moves even the briefest rainfall or irrigation deeper into the soil profile so less is lost to evaporation and run-off. Deeper water penetration also stimulates deep root growth for greater drought resistance.

The Difference Between a Good Lawn...and a Great One.

Discover why golf course superintendents around the world have used AQUAGRO for more than 30 years to solve their water related problems.

Used as directed, AQUAGRO is non-toxic to plants and animals and is biodegradable.

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AQUATROLS

The Water Management People

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ASSOCIATION NEWS

MORE THAN 80 LANDSCAPE DESIGNERS from 15 states attended the first meeting of a new national organization, the **Association of Professional Landscape Designers**, held recently in Bethesda, Md.

The meeting was the result of a year-long effort by the founding members to establish the new group. Some of APLD's objectives are: to support and promote the status and interest of members, to educate the public about the profession of landscape design, to provide and encourage continuing education and professional programs for members, to encourage and promote high ethical standards of practice by members and to communicate with other professional bodies having the same or complementary objectives as APLD.

Ronald Kujawa, president and founder of Kujawa Enterprises, Cudahy, Wis., has been elected to a one-year term as president of the **Associated Landscape Contractors of America**.

For two terms he served as a regional director for the association and is the founder of the landscape management committee which has evolved into ALCA's landscape management division. He was the first elected chairman of that division, and also served as a director-at-large on the board of directors.

Other newly elected officers are:

President-Elect, Robert Maronde, president of Exotic Plant Rentals, South Elgin, Ill. He has served as secretary, chairman of the interior plantscape division and chairman of the education committee.

Vice President of Finance, Eldon Dyk, vice president of Allen Keesen Landscape, Denver, Colo. He served as co-chairman of the landscape management division from 1984-88 and was chairman of the student field days from 1984-88.

Secretary, Tom Garber, president of Colorado Landscape Enterprises, Arvada, Colo. Garber has served on ALCA's landscape management division board and is a member of the Green Team steering committee, education committee, crystal ball committee and safety committee.

Also serving on ALCA's 1989 board are: Jud Griggs, Gary Mangum and Bill Davids. Griggs is chairman of the exterior landscape division and is senior landscape architect for Lied's Nursery Co., Sussex, Wis. Mangum is chairman of the interior plantscape division and sales manager of Creative Plantings, Burtonsville, Md. Davids is chairman of the landscape management division and is chief operating officer of Clarence Davids & Sons Inc., a Chicago area landscape management contractor.

The Irrigation Association will celebrate its 40th birthday at the 10th Annual International Irrigation Exposition and Technical Conference, Nov. 12-15 at the Anaheim Convention Center.

The exposition is said to be the largest show in the world devoted exclusively to irrigation products and services.

The conference will feature expanded educational programs spotlighting many of the world's leading irrigation experts, a top-level management series and the association's specialty division presentations addressing 13 topics.

This year, in addition to short courses on designer preparation and landscape contracting/installation, two new courses on water management and landscape irrigation system operation and maintenance will be offered prior to the exposition on Nov. 11. Registration for all four courses includes a free Expo pass for Sunday's grand opening.

In addition to the most up-to-date

products and technology, an international business center with language interpreters will make it easy to meet with the many international visitors in attendance.

To register for the IA Exposition and Conference, or to obtain information on the discount car rental, air fares and housing reservations at the Anaheim Marriott, contact the Irrigation Association

New emphasis must be placed on getting the facts out to a concerned public on a variety of environmental issues. That was the message Roy Johnson, retiring president of the **Northeastern Weed Science Society**, delivered in his final address at the Society's 43rd annual meeting.

"As responsible scientists, we have the facts," Johnson said. "But the facts don't speak for themselves — we must speak for them. A personal appearance on television, an article in a local newspaper, a talk presented to a civic or service organization — or even testimony in a public hearing or court of law — may be the medium for communicating good science to those who need facts for a personal or public decision."

"Recent surveys indicate that a majority of high school and college students and the educated public are scientifically and mathematically illiterate," Johnson added. "Differences between a part per million, part per billion or trillion or the meaning of "probability" or "significance" in scientific research are not readily understood."

The Mid-America Horticultural Trade Show board of directors elected new officers at its recent meeting. They are:

President, William Muehlenbeck, Muehlenbeck Landscaping, Des Plaines, Ill. He has served as a director on the board for 14 years representing the Illinois Landscape Contractor's Association.

Vice President, Richard Schwarz, Schwarz Nursery & Garden Center, Addison, Ill., representing the Illinois Nurserymen's Association; Secretary, Paul Swartz, P. Swartz Nursery & Garden Shop, Burlington, Wis., a representative of the Wisconsin Landscape Federation; and Treasurer, Peter Orum, Midwest Groundcovers, St. Charles, Ill., also representing INA. ■



FOR MORE INFORMATION CONTACT:

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703/524-1200

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You are in the fight of your life, and you need all the help you can get.

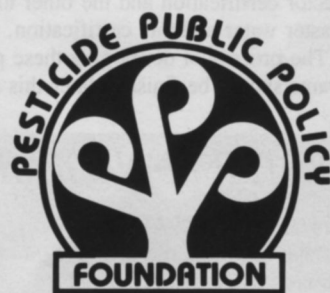
A powerful coalition of self-appointed "public interest" groups are using fear and misinformation to bring about the virtual elimination of pesticides.

If they succeed, the result will be a disaster for our health and our economy. And if pesticides or herbicides are part of your business, you just might be out of business.

If you share our concern about this trend, then join us in fighting for our rights. We are the Pesticide Public Policy Foundation (3PF). 3PF works closely with urban pesticide applicators

and their trade associations in the lawn, tree, PCO, golf course, right-of-way, and landscape industries. 3PF is an organization of people like yourself -- people committed to a reasoned pesticide public policy.

Your support is needed now! Mail the coupon or call toll-free **1-800-GET-PPPF**. We'll let you know what we are doing to protect your rights and how you can help. Act now! Time is running out!



Yes! I want to contribute to 3PF and join the effort for a sane public pesticide policy!

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James F. Wilkinson, Ph.D., Exec. Dir.
Pesticide Public Policy Foundation
101 Buena Vista Drive
No. Kingstown, R.I. 02852

**Please feel free to write or
call (1-800-GET-PPPF) for further
information.**

FOCUS ON:

IRRIGATION

IRRIGATION CERTIFICATION PROGRAMS ON THE DRAWING BOARD

THE IRRIGATION ASSOCIATION'S certified irrigation designer program has matured to a position of strength in the last decade. Since its inception more than nine years ago, more than 1,100 applicants have begun participation in the three-step process for becoming a CID.

Many life-long designers have found the program to be both enjoyable and comprehensive. Many of those who failed, knew the correct answers, but forgot how they arrived at them, according to the association.

Because of this success, the Irrigation Association is initiating two new certification formats under the same governing board. One program is designed for contractor certification and the other toward master water auditors certification.

The process of developing these programs should be finished later this sum-



Photo: LESCO Inc.

mer. The programs will follow a three-step process, similar to the designer course.

Step one is achieved by completing an application (similar to a resume) and through verification by the association staff to determine the applicant's education and/or experience.

Step two is achieved by passing a three hour multiple choice exam on the basics of irrigation (identical to the CID step two exam). Educational programs have been developed to support the certification program. For example, the Center for Irrigation Technology in Fresno, Calif., is providing contractor education support along with many manufacturers of equipment. Cal Poly, San Luis Obispo, Cal-

if., has developed a program for water auditor training across the country.

The step two contractor certification exam will include all aspects of irrigation contracting, including design fundamentals, reading plans and specifications, installation, pumping, electrical codes, irrigation materials, backflow prevention devices, maintenance and repair and business organization.

The step three master water auditors certification exam will encompass practical aspects of scheduling, calculating water requirements, soil holding capacities, precipitation rates, reading sprinkler profile curves, irrigation system uniformity and performing system evaluations.

In addition, the applicant will be required to write a paper on an assigned topic and teach two seminars attended by at least 15 people, specifically on his paper and on water management in general.

The association will also offer two new short courses on water management and landscape irrigation system operation and maintenance, Nov. 11-12, just before its annual conference. These new courses join regularly scheduled sessions on designer preparation and landscape contracting.

Contact Gretchen Sears by letter to be placed on the mailing list: 1911 N. Fort Myer Dr., Suite 1009, Arlington, Va. 22209-1630. ■

WATER MANAGEMENT DOLLARS FLOWING

THE NATIONAL XERISCAPE Council recently presented Rain Bird Sprinkler Manufacturing Corp. with a special award for its gift of \$10,000 to promote public understanding of xeriscape principles.

Steve Christie, Rain Bird Turf Division's industrial market manager said, "Supporting xeriscape at the national level is an important and natural extension of Rain Bird's commitment to increasing industry's awareness of the need for effective water management programs."

The National Xeriscape Council is a non-profit organization dedicated to educating the public on the importance of water conservation achieved through sound landscaping practices.

Rain Bird's recent gift will fund the printing of "How to Xeriscape" educational brochures which will be distributed nationally. The brochures will offer practical information

on planning and design, efficient irrigation, soil improvements, lower-water-demand plants and maintenance. They will be available through the xeriscape council.

In other water management news, Thompson Manufacturing, the New Jersey Irrigation Association and the New Jersey Turfgrass Association have joined the growing number of contributors to the Irrigation Association's water conservation development committee.

Contributions for the program have now reached nearly \$55,000—more than half of the committee's \$100,000 cost estimate for the program. The water conservation program is designed to promote the association as the knowledgeable, available source of proven irrigation products and information.

"One thing we noticed was that in times of drought, or when there is a crisis, that's when the water conservation issue grabs the most attention," said Mark Williams, director of com-

munications for the Irrigation Association. "We deal with water on a daily basis, however, and we want to stay current to head off crises through effective irrigation."

A brochure, portraying the Irrigation Association as the "true voice" of irrigation is now in its final stages. This brochure, geared to water purveyors, tells members what they can do in terms of education as well as what they can do to use water wisely.

The brochure is in the final stages of production.

The water conservation committee is gaining strength as the association prepares to celebrate its 40th anniversary. "We want to do what we can now, so for the next 40 years, there will be plenty of water to go around," Williams said.

In addition to the brochure, the association plans to prepare an audio visual program, press clipping service and face to face meetings with water policy decision makers.

FOCUS ON:

LANDSCAPE

LANDSCAPE CONTRACTORS REALIZING IMPORTANCE OF CASH FLOW

EARLY LAST YEAR, THE EXECUTIVE board of the Associated Landscape Contractors of America began an in-depth study designed to provide typical financial profiles of each of its three principal membership groups: exterior landscape construction, landscape management and interior plantscape.

The financial data was compiled and prepared to give each operator an opportunity to compare his own operating experiences. It is not meant to be a recommendation, but an informative and educational study.

To make the operating study a success, financial data was compiled from landscape contractors from across the United States. The survey questionnaire was presented to all members of ALCA and 16 state organizations.

To conduct the study and to assure the strict confidentiality of the information, ALCA hired Ross-Payne & Associates Inc., a financial management consulting firm who, upon receiving the completed questionnaires, checked, coded, keyed, analyzed, edited and prepared the text for the report. Survey respondents totaled 326, of which 206 were included in the data base for the report.

Following is a summary of results compiled from all participants of each of the membership groups regardless of size. Financial averages for particular volumes can be found in the complete report.

EXTERIOR LANDSCAPE CONTRACTORS

Type of Company:

Corporation	67 percent
Sub-S Corp.	26 percent
Proprietorship	7 percent

LANDSCAPE MANAGEMENT CONTRACTORS

TYPE OF COMPANY

Corporation	59%
Sub-S Corp.	31%
Proprietorship	10%

FINANCIAL STATEMENT

Audited	8%
Reviewed	54%
Unaudited	38%

YEARS IN BUSINESS

(All respondents)

	1979	1988
0-5 years	17.7%	19.4%
5-10 years	29.1%	23.6%
Over 10 yrs.	53.2%	57.0%

The average age of respondent companies in the 1988 survey is 16.4 years vs. 10.4 years in 1979 signaling the strong development and maturing of the industry.

Profile Data:

Years in Business	19
Number of Clients	417
Average Job Size	74,000
Total Employees	94
Permanent Employees	39
Average CEO Wages	\$48,490

What is an exterior landscape contractor? An exterior landscape contractor is a contractor who contributes to the creation and installation of the landscape environment.

He is involved in site development, grading, planting and the constructing of landscapes. He may approach this work as a pure contractor or combine landscape architecture with contracting as a specialty called design/build. Irrigation, erosion control and reclamation contractors perform significant contributions in the scheme of exterior contracting. Some exterior contractors specialize solely in the planting of trees, shrubs and ground

covers, while others are also heavily involved in the construction of water features, walls, decks and exterior art forms.

FINANCIAL PROFILE: Several interesting trends have developed over the last decade for the exterior landscape contractor. Foremost is the belt-tightening that has evolved. Notice the decline in the current ratio, fixed to current assets ratio and the average age of inventory vs. the increases in the acid test and

working capital turnover. All of these are indications that the contractor has realized the value of a lively cash flow and has learned not to allow assets to become nonworking.

Perhaps one reason for this can be seen in the income statement. The gross margin appears to be affected by the downward pricing pressure which is typical of a strong, competitive marketplace. To offset this margin decline, overhead, which over the last decade has increased about 30 percent throughout the entire contracting industry, has only inched up a little more than 1 percent for the landscape contractor. Nevertheless, profit, which is the principal provider of equity and cash flow, has felt the adverse effects of that competition.

PROFESSIONAL LANDSCAPE MANAGEMENT CONTRACTORS provide the necessary horticultural expertise in order to maintain all or any part of their clients' exterior environment, particularly in the areas of turf care, tree care and the care of bedding material.

The proper management of turf may involve uniform distribution of balanced fertilizer with micro-nutrients, preemergent and postemergent control of unwanted grasses and weeds, soil conditioning, top-dressing, power raking and edging of turf. The proper care of trees, shrubs and ground covers may call for selective pruning, foliar or deep root

(continued on page 59)

Successful Landscape Duo Turning a Profit in the West

JUST ABOUT THIS TIME FIVE YEARS AGO, BEN SNYDER and Jeff Meyer were playing golf, contemplating their future. Fresh out of Arizona State University with degrees in real estate, both men were finding it difficult making a living in the tough business economy.

Meyer, who put himself through college with a small maintenance business, and Snyder, a college football player with a family legacy of business success to live up to were ready to make things happen.

The two were an ideal match — Meyer with his hands-on knowledge of the maintenance industry and Snyder with his keen sense of marketing. "Ben was the marketer and I was the type of person that concentrated more on the day to day operations," Meyer said.

The ultimate result of the duo: Arrowhead Landscaping and Maintenance, first located in Scottsdale, Ariz., and now Phoenix.

Now, both 28-years-old, that golf game seems like ages ago. Their partnership, which began with three employees and \$105,000 in sales is now a corporation numbering 150 and nearing \$5 million in sales.

The Arizona maintenance company is now an *Inc. magazine* top 500 company — ranked 99 on the scale of 500 fastest growing companies in the United States. Snyder serves as president and chief executive officer and Meyer serves as vice president and manager of the maintenance division.

Snyder and Meyer set the "500 list" as their immediate goal after forming Arrowhead Landscaping.

"When we started out in 1983, there was a company here in Arizona called Environmental Earthscapers. They had just made the list and we looked at that as a goal for us," Meyer said. "We were thinking of making it, but we didn't think we'd be nearly that high on the totem pole."

Success for the Arrowhead partners came quickly, but growth was sporadic. "It didn't happen all at once. I would say we grew by 100 percent a year, every year, but it was key projects that did it," Meyer said.

In hindsight, Snyder said, it might not have been such a wise move to set their goals on being one of the 500 fastest growing businesses. As a result, the company is now finding out what growing pains are all about.

"Growing is fine if control and profits are what you use as your formula to guide your growth. But growing for the sake of growth is not recommended," he said. "The key now for us is to manage the business and to manage those profits."

Even though they've entered the controlled stage of growing, Meyer predicts the company's sales will increase to \$6 million in 1990 and \$7 million in 1991.

ARROWHEAD'S 10 COMMANDMENTS

1. **WE ARE THIRD:** Put God and the people we serve first; they are most important.
2. **ALWAYS BE HONEST:** Let people know who we are by how we act.
3. **SEEK EXCELLENCE:** Raise our awareness and constantly strive to be professional.
4. **COMMUNICATE:** Maintain high levels of communication with our clients and throughout the organization.
5. **PRACTICE SELF-DISCIPLINE:** Be prepared and pay attention. Stick to these long-term enduring values.
6. **DEVELOP TEAMWORK:** Encourage working together in our search for excellence.
7. **ALWAYS BE IMPROVING:** Strive to increase our product knowledge. Stay on top of the market and ahead of the competition.
8. **SERVICE + PERFORMANCE = REPUTATION.** Build our reputation through excellent performance and quality service.
9. **NETWORK:** Develop a strong and balanced network of responsible people with whom we can practice the "double-win."
10. **INTEGRITY IS EVERYTHING:** Build our organization with a high level of integrity and we will have lasting success.





The Werner residence in Paradise Valley, Ariz., is one of the properties Arrowhead Landscaping maintains. The property is being considered for an award from the Arizona Landscape Contractors Association.

Recently relocated to their new office in Phoenix, the business consists of four divisions: maintenance, construction/installation, highway and desert specialty.

While it's the second newest — formed in 1986 — the desert specialty division is really taking off. In fact, some of the company's recent success can be attributed to the quick maturation of the division.

"With construction being a little slower, they've gotten more into things," Meyer said. "The division can be at the front end of the project when the developer is just starting to think about hiring someone for the work. The division can really assist the rest of the company."

The desert specialty division is responsible for saving native plant material from being destroyed during construction activity. Regulations set up in a couple of Arizona cities require indigenous plant materials be saved because of the way they enhance the city and are found to increase the valuation of real property.

Site plans are required to minimize tree removal unless the plant material is dead or diseased or if the removal is necessary to allow reasonable construction. The trees are either returned to the site once construction is complete or sold to another developer. A permit is required to remove the trees which are then "boxed up" and tagged until its final destination is determined.

Some of the restricted plant material includes: Arizona Rosewood, Canotia of False Palo Verde, Desert Willow, Mesquite and Cacti.

The maintenance division consists of four crews: one seven-man crew permanently stationed at a master plan community; a four-man crew, two three-man crews and two two-man crews. The crews handle anywhere from three to eight accounts per day.

Meyer oversees the maintenance division, but Bill Rademacher is the division's operations manager.

Property maintenance includes mowing, maintaining streetscapes, rights-of-ways, planted areas, etc. Aeration, seeding and limited pesticide spraying are also part of Arrowhead's services.

The construction/installation division, headed by Rob Brown, consists of four crews ranging from five to 12 men per crew depending on the job site. The desert specialty division, headed by Mike McMahan, consists of two to three crews. In addition, the company has an irriga-

SAFETY PROGRAM REDUCES WORK-RELATED INJURIES

AS QUICKLY AS ARROWHEAD Landscaping and Maintenance has grown it's surprising they haven't suffered any major worker accidents. Still incidents will happen.

In recent years, however, they have reduced the severity of claims and have seen a downward trend in the number of work-related injuries — all attributed to a safety program established through Arrowhead's state compensation fund.

Promoting a safer working environment was one of the company's major goals in 1988.

Ruth Bleich, administrative and personnel assistant for Arrowhead, said the safety training is already paying off.

"When you're growing so fast, acci-

dents are more likely to happen, but this has really helped us reduce injuries," Bleich said. "One of our goals is to maintain a safe work force that produces a quality product. Safety is on-going because of turnover and new hires."

With the help of the state organization, Arrowhead compiled a safety/policy manual which is to be read by all new employees. Upon completion, employees sign a form stating that they have read the manual.

A key part of their program includes weekly safety meetings, conducted by supervisors, in which any problems, accidents or potential dangers are discussed.

Eventually, the company plans to

establish monthly training sessions in which first aid and driver tests are included, according to Bleich.

"Nobody likes to sit through another meeting, but I have had people come back and say how much they appreciated it," she said. "Our new employees are impressed that we are conducting safety training."

Since all training and safety discussions are handled on site, the program costs the company little money up-front, but saves them a fortune in the long run.

"We're in the people business," Bleich said. "In order to present a good product to the customer, you have to have a good product behind you."

tion specialist who deals in trouble-shooting.

Still new to the company, the highway division remains separate, employing workers already familiar with the job site.

At the beginning of each maintenance job, Meyer becomes familiar with the customer and the potential work and sets up a budget from which to work. From there, Rademacher becomes associated with the property and more or less takes over the day to day operations. Weekly maintenance reports are mandatory to stay in tune with the customer's wishes.

The largest company project is now the Islands, an 800-acre master plan community. Master plan communities, around which Phoenix is built, are areas purchased by a developer and subdivided to several developers for commercial, residential and retail purposes. The association of each community generally hires one firm to care for the property until about 70 percent of the area is built-out.

One such project, the Mountain Park Ranch, gave the company a big push in the growth department in 1985. Covering 2,200 acres, the property gave the company a tremendous boost in the early going.

Now employing about 150 workers year-round, Arrowhead Landscaping offers about \$4.50 per hour starting wages for laborers with a 25-cent increase after 30 days and six months, according to Administrative and Personnel Assistant Ruth Bleich.

Foremen are paid a minimum of \$325 per week depending on which division they're in and their experience.

And like other areas of the country, Arrowhead is facing an extremely tight labor market.

"Landscape laborers are pretty transient, we just have to try and work with their lifestyle," Bleich said.

Despite the recent additions of the highway and desert specialty divisions, the company is now going back to its roots. Although it began as a maintenance company, the company soon found itself taking on some installation jobs.

"We got into construction because the money was so good," Meyer said. "But the economy has turned from the construction boom. The market is tight and everyone's bidding so low. It's tougher and tougher on the profit margin on the construction end of things."

In the following interview, Snyder and Meyer share some of their perceptions of the landscape maintenance industry.

Q. What qualities do you possess to run a successful business?

A. Snyder. I classify myself as a visionary; the "Type A" personality. I'm great with the big picture and weak with the details, whereas Jeff's better with the details and weak with the big picture.

He does real well with the maintenance business and that's the area where we plan to grow. We're really looking forward to pushing ahead in the mainte-

nance area and doing some careful regrowing on the construction side. The construction side has a lot more risks inherent to it. Of course the rewards can be higher, but you can also lose a lot of money real quick.

A. Meyer. When I looked at the industry when I was in school, nobody was really doing any professional work. I wanted to show them what a sophisticated business it could be.

I'm good in the sales end — kicking off jobs and making sure the customers are happy with what we're doing. I like to get to the customer first and turn a potential problem into an opportunity.

Q. Now that you've reached your company's initial goal, what plans do you have for the next five years?

A. Snyder. Growing is fine if control and profits are what you use as your formula. But growing for the sake of growing is not recommended. I do not recommend it and I'm not going to recommend it to anybody reading the magazine. If the next big goal is going to be our driving force, it will be a combination of net profits and quality service which, if the quality service is there, the profits will be there too.

The key now is to manage the business and the profits through quality, service and productivity. When you get to be our size, you've got to have systems for everything you do. To be successful, you've got to look at it objectively.

If we're one of the 500 fastest growing companies now, over the

next five years we want to be one of the 500 most profitable. That's going to be our focus.

A. Meyer. If we concentrate on maintaining our current properties the best we can, new accounts will come. Business will grow through referrals from the type of work we do. It's easier to sell a job knowing you have good customers to recommend you.

We're stabilizing quite a bit now. Growth patterns weren't always planned, resulting in big accounts being dumped in our lap. We need to buckle down and make things more efficient and productive.

Q. Do you regret how fast you've grown in the last five years?

A. Snyder. No. We've got a lot to work with. Now the key is to manage what we've got and to make it profitable.

The first thing we did when we started the company was write our 10 commandments — the 10 most important values that are going to help us achieve this growth. We felt if we stuck to these, we would achieve our growth and it's worked for us. And these same values will be used to continue to achieve the goal for the next five years.

I believe that a person's or a company's goals come from their values. The values are the things that drive you toward achieving that goal. If we stick to these values, we're guaranteed success.

Q. Can you describe the business climate of the South-west?

A. Snyder. Very, very saturated. Very competitive. The real challenge of this market

is not only that it's saturated, but it's immature in the sense that the whole industry is immature. I think we've got a bunch of competitors in this industry that are terribly unsophisticated at best.

I'm not trying to be overly critical, but the difficult combination is definitely a challenge because profit margins are just miniscule. There's always another bidder; 90 percent of the time there's another bidder that's willing — consciously or unconsciously — to take a little off the cost of the job. People don't consciously go out and try to lose money, but it's a fact. These jobs are going well below anything reasonable. It's a very tough market with the real estate construction slump. We always have economic cycles, but we're in a down cycle economically. Even when times were good it was that way; it's just more so now.

Q. Hasn't the industry traditionally charged too little for its services?

A. Snyder. Yes. We're not smart enough collectively or individually to figure out how to

raise our prices. We're not charging enough for our services. We're willing to work very hard, sacrifice a tremendous amount and take a huge risk just running our businesses, and yet we can't ask for a fair profit.

The nature of a free enterprise market we work within should eventually force profits up. I think it's cyclical. The remarkable thing about our industry is that we are saturated, at least we are here in Phoenix, but it's so easy to get into. Anybody who's got a pickup or a lawn mower or a shovel and a wheelbarrow can call themselves a landscaper and get into it. A lot of guys do that. There's a lot of competition out there. The business savvy is not there.

Q. How can you change that? What's going to make it change in the future?

A. Snyder. Our strategy is to educate the public. This is very difficult to do in a market where the customers are saying we want the best quality we can get, but we're only willing to pay a little better than the lowest price to get it. So for us, it's not only

a matter of trying to educate our customers on the value of our services and bringing them to the point where they are willing to pay more, but our competitors through our support and involvement with the Arizona Landscape Contractors Association. Trying to encourage our competitors to raise their prices is not easy. Raising our own where necessary is.

Q. By what percentage are you going to raise the price of your services?

A. Snyder. That depends on the division. I'm going to say overall, if you take an average of where our profit margins were for the last five years, we're looking at raising that 5 percent through two things. One, simply raising our prices and two, making ourselves more competitive through productivity, efficiency and effectiveness.

The increase will be a combined 5 percent. This is part of our business operating plan that we've just written. We rewrite the plan every year. That's one of the major focuses of this year's operating plan — to raise our prices and pro-

fit margin.

To grow as fast as we have over the last five years, we've had to aggressively get new customers. Our first priority is to service the customers we already have, and then in a more controlled, selective manner, take on new clients — not nearly as aggressively as we have. After our goal of growth and making the 500, our revised goal is to be the most profitable.

Q. How do you position your company in the eyes of your current and potential customers?

A. Snyder. Well the way you educate the customer is through contact and communication. That's the art of our business; communicating with the customer and convincing him of the value, not the price, the value of the service. And then following through and delivering it. Communication is a very high priority as it's the biggest problem or opportunity of every company.

It's a challenge to convince a client to spend 5, 10 or 15 percent more with us and make them

(continued on page 57)

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Selecting, Training Green Industry Service Supervisors

THERE ARE MANY DIFFERENCES between manufacturing and true service industries. Because of these differences, the skills required of service supervisors are quite different than those needed in manufacturing.

In particular, service supervisors must ensure that their people exhibit interpersonal skills not necessary in manufacturing sectors. After all, an assembly line employee may be unkempt and surly and still produce a quality widget. In lawn maintenance, however, a service person must not only be technically competent, but must present a good image, project a desire to serve and communicate with the customer in ways unnecessary to commodity production.

Service supervisors must ensure that the technical and interpersonal aspects of our industry are performed to the customer's satisfaction and in line with corporate goals. In essence, service supervisors are involved with four main service areas:

1. Quality Assurance.
2. Training.
3. Interpersonal.
4. Think in Organizational Terms.

Lawn maintenance supervisors' responsibilities in these areas will be the focus of this article.

DEFINING SERVICE. As a general rule the lawn maintenance industry is defined in "help-me" service terms because the product manufactured by this industry is a human service, not a "fix-it" or repair service.

Fix-it services are primarily an extension of manufacturing industries. True service industries

like lawn maintenance, on the other hand, are people-oriented rather than commodity-oriented. As such, managing a service delivery business calls for people skills and technical skills unlike those found in manufacturing and manufacturing support industries.

Managing people in a service delivery business demands unique skills, unlike those needed in manufacturing facilities. The following list accents some of the differences between industries whose products are, like lawn maintenance, human services rather than a manufactured commodity.

1. Lawn maintenance services cannot be produced in advance of delivery. They must be produced and delivered at the customer's locale, by service personnel not under the direct influence of management.

2. The "product" of service industries, like lawn maintenance, is not easily demonstrated to the customer; samples cannot be sent for customer approval. Examples can be described to the customer, but a pest-free environment does not exist until after the service is delivered. (That is, of course, unless you are offering a maintenance program designed to prevent specific activity.)

3. After receiving the service, lawn maintenance customers have nothing tangible that they can see, smell, taste, hear or feel. In essence, the lawn maintenance industry delivers a "negative" product — that is, instead of leaving something for the customer, we take something away.

4. Because of its intangible nature, a lawn maintenance service (unless it is a transferable warranty) cannot be willed to the children nor sold to a third party.

5. If not performed to the cus-

tomers' satisfaction, lawn maintenance services cannot be recalled. Additional treatments may be the customer's only recourse. Likewise, if the customer refuses to pay for services the purveyor has little to repose.

6. Quality assurance must occur *before* production; that is, before the customer receives the service and has an opportunity to formulate an opinion. In manufacturing, quality assurance (i.e. inspection) occurs *after* the commodity has been produced, but before the customer sees the product.

MAINTENANCE SERVICE SUPERVISORS. When asked why they were attracted to this industry, most service technicians agree that "freedom" is a very big factor: freedom to work at one's own pace and freedom from close scrutiny by a critical management.

In fact, this working environment has been a hallmark of our industry since its inception. Lawn maintenance services are most often performed far from management's view. And since the "product" of the lawn maintenance industry is a human service rather than a tangible commodity, the monotony of production line pressures can be greatly minimized by the organizational efforts of the technician himself. But lawn maintenance is an evolving industry. External pressures from regulatory and special interest groups, coupled with changes internal to this industry (technological advances, pesticide resistance issues, business competition, employee needs, etc.) greatly impact this "freedom to operate" feature of our industry.

In every phase of business, close scrutiny by a well-trained supervisory force will ensure the

.....
Managing people in a service business demands unique skills, unlike those needed in manufacturing.



Lawn maintenance supervisors serve as a controlled extension of upper management, and front line's "voice" in the decision making process. (Illustration courtesy of ICI America's Inc., Wilmington, Delaware)

economic security of your business and guarantee the industry's position in American society into the 21st Century.

For the most part, lawn maintenance firms have operated under the following formula:

1. A "warm body" is hired to fill an existing need.

2. The neophyte is given a crash course in lawn maintenance by the most senior service technician.

3. The new technician is then issued a vehicle, chemicals, sprayer, etc., and a route book.

4. He is then turned loose on an unexpecting public to repre-

sent you.

Not only has this reactive management approach contributed to high employee turnover with all its attendant problems (high training costs, low employee morale, customer distrust and lost business), but in today's market it creates situations of high liability as well. A tangible result of all this which receives little discussion is the deteriorating esprit de corps caused when owner/managers lose confidence in their employees.

This loss of confidence soon manifests itself at the frontline as mediocre service. And nothing will doom your business quicker

than a mediocre customer experience where the rubber meets the road. For these reasons, hiring people who can accept your firm's corporate culture and training them in the technical and interpersonal aspects of the business are essential first steps to a healthy business.

Each lawn maintenance manager, however, has a further responsibility to his people, the general public and the environment. That responsibility is to supervise his people closely to ensure that services are safe and effective as well as profitable. A well-trained technician who is highly motivated and supplied

with adequate tools of the trade can provide a quality service and represent you well.

But left to his own devices, even the best technician can, and probably will at some time during his career, react in ways that may not serve the best interest of the corporation. In today's litigious environment, management's best interest and goals must be met if jobs are to be preserved. The lawn maintenance industry has a good record of employee training. Frequently, however, much of this training is wasted because our industry lacks the follow through needed to translate training into positive (safe, effective and profitable) management. The key to this dilemma is supervision.

FINDING GOOD SERVICE SUPERVISORS. Historically, supervisors have been among the most misused people in our industry, when in reality their's may be the most important position in any organization.

Rarely does anyone in this industry hire a supervisor who has a college degree or some form of advance training in people management. In fact, if a college graduate is hired at all he is probably someone with a degree in entomology. As an entomologist myself, I can testify that at graduation, very few entomologists (myself included) know anything at all about the lawn maintenance business.

Sure, an entomologist can tell the difference between the various orders of insects and may even identify a *Heliothis* larva (corn earworm) for you. But in most cases, an entomologist is hired for his knowledge of urban pests and application techniques around homes and commercial facilities.

Sometimes an entomologist is hired — by virtue of his superior knowledge and title — to supervise. Not only do newly graduated entomologists seldom know the difference between an Indian meal moth larva and a casebearing clothes moth larva, but the closest he may have come to supervision was hall monitor in high school. The lawn maintenance industry has an urgent need for quality urban entomologists, so I do not want to give these young people an undeserved rap. For the most part, the problem is not with our

SUPERVISOR

MANAGEMENT NEEDS

1. Improve job performance
2. Reduce turnover
3. Help employees with self improvement
4. Reduce time and material wastes
5. Quality assurance

Lawn maintenance supervisors are "needs" satisfiers. They serve as a link between management and the front line (service technicians) so the needs of both groups are satisfied. In hiring a supervisor, managers should determine the candidate's ability to balance these needs. Put in contemporary service terms, supervisors must satisfy the needs of two customers equally: top management and front-line producers (service technicians). This is only a partial list of the needs a supervisor must deal with daily.

TECHNICIAN NEEDS

1. To know exactly what management wants done
2. To know rules under which they have to work
3. To be informed on policy changes and operational shifts
4. To go to supervisor and get answers

young entomologists, it is with an industry that does not understand its own needs.

Another general practice in the lawn maintenance industry is to reward the best service technician for his loyalty and good service by promoting him to the position of supervisor. On the one hand it is a shrewd management practice to reward people with promotions. But on the practical side, supervision is a career in its own right, requiring management and organizational skills beyond the experience of most service technicians.

Promoting supervisors from within your service ranks can best be accomplished through a grooming or mentoring program. One of any manager's greatest responsibilities is to plan for personnel changes by identifying the strengths and weaknesses of all his people. Then, through classroom training and practical experience, a qualified person should surface when supervisory help is needed. Most often, promoting a good technician to supervision on the basis of good, loyal service alone creates two very serious problems for upper management and endangers the well-being of the entire organization:

1. The firm has lost the services of one of its most successful producers and must move swiftly to

fill this void. Good technicians do not walk through the front door every day, and when he does, training him to conduct business your way is an expensive and laborious task.

2. You may unintentionally damage the career of a loyal employee by promoting him into a position of responsibility for which he is not adequately prepared. One day the employee is a doer whose responsibilities are to direct himself and his own productivity. The next day he is required to be a planner, motivator and a regulator, but most of all he is expected to be a leader.

All-American football players seldom make the best coaches, and very successful maintenance technicians seldom make the best supervisors. Being a good supervisor requires specialized skills, and being a good service technician requires specialized skills as well. However, these expert abilities are not necessarily interchangeable.

As you can see, it may be difficult to recruit supervisors from the entomology department at your state university, and it may be dangerous and unprofitable to promote (without prior planning) from within your service ranks. So where does one find lawn maintenance supervisors? An alternative source might be su-

pervisors from other industries: people with extensive supervisory experience, but new to lawn maintenance.

With recent trends in manufacturing plant shutdowns, displaced manufacturing employees appear to be an abundant supervisory source for the lawn maintenance industry. Unfortunately, recruiting supervisors from manufacturing industries often leads to disastrous results as well.

People skills learned in industries where employees are highly paid, union supported and under the constant eye of the supervisor in "assembly line conditions" do not easily translate to the lawn maintenance industry.

In the final analysis, you can occasionally recruit entomologists to satisfy your supervisory needs, and sometimes you can promote supervisors from within your service ranks. You may even be fortunate enough to attract displaced supervisors capable of adapting to your corporate culture. But more often than not all these attempts end in disappointment for employer and employee alike.

Before one considers, even in general terms, the role of supervisors in lawn maintenance and where to recruit and train them, each owner/manager must decide exactly what he wants that supervisor to do in his operation. In other words, before beginning the arduous task of recruitment you must first make an objective review of your specific organization and decide what that supervisor needs to accomplish.

Once this list of responsibilities is decided upon, you can begin to recruit the right person to satisfy those specific organizational needs. Often the most difficult decision for maintenance managers comes next: giving a new supervisor the authority and support to accomplish the goals established for him.

It is difficult for any manager to relinquish control. But as an owner/manager you must consider this: if you had the time (and skill) to act as your own supervisor, there would be no need to hire that extra person in the first place. If two people can do the same job, one of them is probably not necessary. Few lawn maintenance firms can afford the luxury of unnecessary staff person-

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Noise Reduction, Debris Disposal Top Tractor Issues

ASTWO-INCOME FAMILIES increasingly become the norm in our society, spare time becomes that much more valuable. So much so that lawn and landscape professionals are reaping the benefits of this trend, according to leaders in the tractor industry. And to keep up with them, tractor manufacturers are planning to stay at the cutting edge in tractor enhancements.

In addition to changing lifestyles, other changes affecting the tractor industry are legislation impacting debris dumping and the growing sophistication and diversification of the lawn and landscape industry. Experts said the industry is also concerned with upgrading noise levels, safety systems and operator comfort.

"I see the future as having new technological growth in debris pick up because of legislation being introduced which would limit dump sites," said Rick Murray, vice president of marketing for Gravelly International, Clemmons, N.C.

"We made our first two-wheel-drive in 1932 and introduced a rotary mower in the 1950s. Since then, there have been changes in the width, horsepower, quality of cut and pick-up," he said. "Most people (homeowners) are switching to landscaping and maintenance companies, and I see that growing as more multiple housing complexes are being built."

Murray added that the landscape industry will continue to grow and mature as individual businesses take on more services. "We'll match the growth

in products and services."

Jim Wallace, marketing manager of The Toro Co., Minneapolis, Minn., said noise reduction is becoming a concern because of increasing municipal noise standards. As a result, means of eliminating blade and intake noise will have to be developed.

Other issues being considered in future Toro designs include enhanced bagging because of proposed bans on clipping deposits. In addition, Wallace said, mulching will become a part of the tractor's job in the future.

Bob Hill, director of marketing for Kubota Tractor Corp., Compton, Calif., said the future of tractors is anything that would save time and money or that would replace manual labor. "The machines also must be durable and dependable," he said. "Noise is a factor and the tractors today are a lot quieter than those of five and 10 years ago. Most engines are now enclosed."

Other changes over the years have included operator comforts. The Kubota B50 series are front runners in the reverse-flow air cooling engine which forces the warm air from the engine to the side, away from the operator.

"Some trends that we're seeing are the diversification of commercial products," said Bob Tracinski, division manager of media relations for Deere and Co., Moline, Ill. "There's a greater range — lawn and garden with diesel engines and hydrostatic drive for example. Everything used to be gear-driven.

"We're also seeing creature comforts on the upscale tractors — tilt steering. The general trend is toward more horsepower and wider mowing decks," Tracinski said adding that efficiency, user friendliness, upgraded produc-

tivity and safety devices are also considerations.

Trudy Brunot, product manager for the 200 series tractors at J.I. Case Co., Racine, Wis., has also seen upgraded creature comforts in the tractor over the years such as easier controls, hydrostatic transmissions, power steering and more operator room. There's also been an increased use of attachments.

Douglas Rotman, general manager of Kioti Tractor Inc., Portland, Ore., said his company noticed a decrease in 1988 unit sales, due, they felt, to the drought and the maturation of the market. He said he sees the turning radius of the tractor improving and an increased emphasis on safety requirements and protective systems.

"We spend a lot of time reviewing our products for safety," Rotman said. "I also see continued technological improvements, easier shifting and upkeep, but nothing dramatic in the next few years."

The tractor of the future may offer more of the same types of improvements as well as those to accommodate shifts in the lawn and landscape industry. But whatever the future holds, the tractor will be there, maturing and growing with the ever changing needs of the market.

"The original garden tractor is becoming more flexible and sophisticated as a turf care tool," said Bill Mason, president of Steiner Turf Equipment. "The evolution of attachments has helped to bring that about. But the tractor needs to become even more effective and efficient in order to make strides in the industry."

Following is a brief description of what some industry manufacturers have to offer.

.....
The original garden tractor is becoming more flexible and sophisticated as a turf care tool.

DEERE & CO. In celebration of its 25th year in business, John Deere is selling some silver-colored walk-behind tractors. It is also developing a front-line mowing attachment with 60- to 72-inch mowing decks. These enable users to trim under fence rails and reduce trimming time.

Tracinski explained that Deere pioneered the seat safety switch which automatically shuts the engine off once the operator leaves the seat. "We also introduced controls that are shaped and color coded.

"In the spring of 1989 we introduced the only hydrostatic drive in the 20- to 40-h.p. category. Our front mowers are smaller — the F910 and F919 are for professional groundskeepers and are gas and diesel powered.

"The F525 has commercial applications and a 17-h.p. gas engine. It's a three-wheel drive unique design with the front two wheels driving and the rear wheel steering," he said. Also unique to Deere is the joint engine and transmission unit with one oil reservoir. There are fewer parts and no external traction drive parts — they are all enclosed.

Deere also has a patented traction assist system device which transfers 60 percent of the weight off the mower deck onto the drive wheel, providing more traction. Thatching units with spring steel tines are also a Deere extra.

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STEINER TURF EQUIPMENT. The new 24-h.p. Super Steiner is larger than the standard. It has 25 quick-disc attachments which can be changed in minutes. This year a stump cutter attachment has also been added to the Steiner line.

Bill Mason, president of Steiner



Deere & Co. 770 compact tractor with brush cutter. (above) J.I. Case 200 Series tractors. (left)

Turf Equipment said, "We're experimenting with a rear discharge mower deck — it's fully enclosed. Most mowers use rotary decks which cut and move the grass out laterally, throwing everything out the right side — clumps, sticks, everything. This will enable the cuttings to be thrown out evenly in the back and under the roller. It has an even discharge."

The deck is expected to be introduced at the International Lawn, Garden and Power Equipment Expo in Louisville this summer.

Steiner's one tractor power unit can be used for everything from excavating to mowing. The company has been improving the unit since its entry into the business in 1974, and has been adding attachments annually.

"The customer gets more for his money," said Stephen Steiner, Steiner customer service man-

ager. "One unit does five or six jobs." There are three types of power units. The 20-h.p. and the new 24-h.p. are four-wheel-drive. The 20-h.p. also comes with two-wheel-drive and a weight transfer ability.

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KIOTI TRACTOR. Kioti Tractor's product line is based on the 22-h.p. four-wheel-drive LB 2204 and the two-wheel-drive LB 2202.

Next month an upgraded version of the 17-h.p. model, the LB 1914, will be introduced. It has shuttle-shift transmission, allowing the operator to go from forward to reverse with one lever near the steering column. It can be supplied with a mid-mount or a rear-mount. Kioti will soon offer a backhoe to fit the tractor.

In the future, Kioti plans to increase its tractor line to five

(continued on page 58)

Maintaining Tree Health: Considering the Tree, Habitat

JOYCE KILMER ONCE SAID, "I THINK THAT I SHALL never see a poem as lovely as a tree." Trees may have looked lovely all by themselves in 1913, but today, they need all the help they can get.

After all, the modern tree breathes smoggy air, fights grass and ornamentals for limited soil nutrients, and finds its roots cut off from oxygen and water by blacktop.

That's why more and more lawn maintenance firms are adding tree care to their repertoire of services.

"LCOs are the greatest growth area and greatest potential market for us right now," said Warren Wolfe, president of Nebraska's Creative Tree Sales, an arbor-nutrient manufacturer. "They're out in the field dealing with consumers, and they're beginning to tackle homeowners' tree problems in addition to their turf needs."

Just like lawns, trees need professional maintenance to reach top form, said industry experts.

According to the industry, urban and suburban trees require fertilizer as much as three times per year and pruning as often as once a growing season — work that costs a homeowner about \$500 annually.

The results are well worth the expense.

"A healthy, fertilized tree looks better, grows faster and withstands insect, drought and disease pressures more readily than a non-fertilized one," said David Whitworth, a horticulturist with Davey Tree Expert Co., which operates in 40 states and Canada. "Professionally maintained trees are taller, have larger leaves and a deeper-green leaf color."

In its standard program, Davey fertilizes trees biennially, prunes once every two to three years and adds insecticides, fungicides and nutrients as needed. The firm also offers chemical spraying, cabling, bracing, tree surgery and lightning-rod installation if required.

"Of all our services, fertilization and pruning are the most important to basic tree health," Whitworth said. "Fertilization maintains a tree's vigor, and pruning takes out branches that die back."

For most trees, Davey applies six pounds of fertilizer in the spring or fall to every 1,000-square-foot of root area. The firm avoids fertilizing in the summer or winter because trees have little root growth then.

Davey uses a custom-blend fertilizer that contains special slow-release nitrogen. To apply the product, technicians put six pounds of the material into a suspension of 15 gallons of water, then insert the mixture 12 inches into the soil using needle probes. Whitworth said the probes not only ensure that the fertilizer reaches the roots, but aerates the soil to improve its oxygen content.

In pruning, arborists remove branches killed by storm damage, disease or insects, then carefully shape a tree to improve its appearance.

"Pruning allows better light penetration, which can essentially rejuvenate a tree that is not growing well, and can help the lawn underneath it," Whitworth said. "It also eliminates the safety hazard posed by dead branches — which can fall down at any time — and deprives disease organisms of a place to live."

For insect infestations, Davey uses non-restricted pesti-

Photo:
Davey Tree Expert Co.





cides which tackle not only species-specific pests — like Elm Bark Beetles and Cottony Maple Scales — but also “universal” insects, such as Gypsy Moths and Japanese Beetles.

Arborists take Gypsy Moths — which primarily affect trees in New England, New York and Pennsylvania — particularly serious, since the pests can kill whole forests if unchecked. Gypsy Moths sometimes strip trees completely bare of leaves, fatally halting their ability to perform photosynthesis.

Still, arborists generally apply insecticides only when problems appear, rather than preventively, Whitworth said.

“Our industry used to just put on blanketing cover-sprays whether a tree needed it or not, but we’re trying to get away from that,” he said. “It’s not only an inappropriate use of pesticides, but it’s wasteful, inefficient, and ends up costing us and the customer more money than necessary.”

Whitworth said Davey radically cut back on chemical spraying in 1985, after a customer survey found clients took a dim view of pesticides.

The firm also realized it could reduce insurance liability — and thus premiums — by minimizing chemical use.

Since making the change, Davey has increased its use of horticultural oil and pesticide soap, two organic alternatives to petro-chemicals. Horticultural oil is essentially a mineral oil sprayed onto a tree to suffocate and desiccate insects.

Pesticide soap is a vegetable-oil product containing potassium salts of a fatty acid, the same active ingredient in the household cleaner Murphy’s Oil Soap. Like horticultural oil, pesticide soap desiccates insects feeding on a tree.

Whitworth said arborists are also studying neem oil, a natural insect repellent made from seeds of India’s neem plant. The product deters insects from feeding on a tree, but doesn’t actually kill them.

A healthy, fertilized tree looks better, grows faster and withstands insect and disease pressures more readily.

"In six years, we probably won't use any of the standard chemical pesticides, but will probably use the alternatives exclusively," Whitworth said. "That's probably where the industry's future is."

Bill Kruidenier, executive director of the International Society of Arboriculture, added that firms will probably bolster use of "biologicals" — insects or bacteria intentionally added to a tree to kill other pests. For instance, technicians sometimes place lady bugs on trees to eat scales.

Kruidenier also expects wider use of hybrids, such as Dutch Elm Disease-resistant species now being developed.

"All these changes are part of integrated pest management,"

he said.

Despite the environmental advantages to alternative methods, the techniques have one drawback — they require more labor.

"You almost have to apply oils or soaps directly onto insects to get effective control," Whitworth said. "By comparison, petrochemicals are residual. If an insect shows up a few weeks after the application, sometimes there's still enough active ingredient on the tree to kill them."

As a result, Whitworth predicts arborists will probably have to make more trips to clients' properties in the future.

"We'll probably be doing more frequent sprayings, but we'll be using more environmentally acceptable materials," he said.

Kruidenier estimated the extra

trips will jack-up homeowners' tree-care bills by about \$150 annually.

Besides insects, trees also face attacks from fungi — which cause disorders like Dutch Elm Disease — and bacteria, which give rise to Cedar Apple Rust and other ills.

But while arborists avoid preventive insecticide use, most do spray on fungicides preemptively, since fungi are hard to kill once they penetrate a tree's vascular system.

"We generally spray fungicides on before the disease develops or as it's developing," Whitworth said.

In addition to spray-applied curatives, firms can also use "systemics" — chemicals designed for injection directly into a

tree's sap system.

Kruidenier said trees used to be able to ward off most insects and diseases by themselves, but have had their defenses weakened by modern stress.

"We may see Bronze Birch Bores kill off a tree, but the insects are really the secondary culprit," he said. "The real problem is urban stress — pollution, compacted soils and poor soil conditions. It's that combination that attracts the bores in the first place. If we can reduce that stress, we can diminish the likelihood of early decline and death. And that's what preventive maintenance is all about." — Jerry Kronenberg ■

The author is a free-lance writer based in Cleveland, Ohio.

SYSTEMIC TREE CARE TECHNIQUES ELIMINATE OFF-TARGET SETTLING

NOT LONG AGO, ARBORISTS WHO WANTED TO APPLY pesticides or fertilizers had two choices — spray material onto a tree's surface or dig a hole and feed it into the plant's roots. Both methods had environmental drawbacks.

Spraying pesticides onto 60-foot-tall trees meant that some material would drift in the wind and settle off-target. Feeding fertilizer into the soil opened up the possibility of salts leaching into ground water.

So, as environmentalism rose in America during the late 1960s, Los Angeles' J.J. Mauget Co. developed the first major alternative — the Mauget Tree Injection process. Nebraska's Creative Tree Sales soon followed with Acecaps and Medicaps — two micro-encapsulated tree implants.

Arborists employing either method drill holes into a tree's trunk, then feed insecticides, fungicides, antibiotics or nutrient supplements directly into the sap stream.

Mauget applies material in liquid form, using plastic tubes to feed it into the holes from pressurized capsules. Its products include fertilizer, iron, zinc, magnesium, antibiotics, two fungicides and two restricted-use insecticides.

Creative Tree Sales places chemical-filled capsules directly into the tree trunk, where they then break down naturally. Its capsules contain combinations of fertilizer, iron, zinc, manganese and a general-use insecticide.

"We're not trying to pit ourselves against other systems, but there is an element of environmental soundness here," Mauget spokesman Jim Sample said. "Mauget is a closed system, so all the product goes inside the tree. We think it's another tool for arborists and LCOs to use, particularly in areas where there's a strong concern about putting pesticides on a property or increasing soil salt-content."

As an added bonus, Sample said, Mauget products sometimes show virtually immediate results. "We've seen insects on the top of a tree affected by our insecticides within a couple of hours, under the correct conditions."

The Mauget system requires shallow drilling and is said to cause minimal structural damage to trees.

Creative Tree Sales President Warren Wolfe said Acecaps and Medicaps come pre-mixed, so users avoid any applicator exposure, and aren't stuck with contaminated containers following treatment. Additionally, Acecaps and Medicaps use

far less chemicals than spraying or root feeding.

"When you spray a tree, you use maybe a third- to a half-pound of material, compared to maybe 10 grams our way," Wolfe said. "Even better, it's all confined to the tree. There's nothing sprayed in the air; nothing introduced to the soil."

Wolfe said Creative Sales' products are particularly attractive to LCOs who have recently added tree care to their operations — firms that represent 50 to 60 percent of his business.

"The equipment an LCO normally has is not conducive to spraying 30- to 60-foot-tall trees," Wolfe said. "Our product enables them to still treat those trees professionally."

Cost wise, Mauget runs about \$35 to \$56 applied per average-sized tree, according to Richard Stedman of New York's Tree Inject Systems, Mauget's top distributor.

Wolfe said Acecap or Medicap applications cost homeowners approximately \$30 to \$40 per tree, compared to about \$15 to \$20 for spraying.

Despite the environmental advantages, Bill Snyder of New York's Frontier Tree and Lawn Service said he only uses injections about 20 percent of the time, relying on spraying and root-feeding for most trees.

"Injections are just one weapon in the arsenal," Snyder said. "They're a good tool, but they're not a panacea."

David Whitworth, a horticulturalist with industry-leading Davey Tree Expert Co., said his firm uses limited injections.

"We believe injectable insecticides just get so diluted they don't work, or never make it out to certain parts of a tree," he said. "And in our opinion, injected fertilizer doesn't get well distributed to the tree's crown."

Still, Davey uses injectable fungicide to treat Dutch Elm Disease, and injectable nutrient supplements for tree iron-deficiencies. The firm also employs injectable pesticides in places like zoos, where customers positively prohibit spraying.

Bill Kruidenier, executive director of the International Society of Arboriculture, endorses systemics because they have 100-percent utilization and quicker uptake than spray or root-fed chemicals.

But he said the products have one drawback — applying them requires drilling holes in trees. That's bad, he said, because it opens trees up to potential fungal and bacterial attacks, and also cuts chunks out of their sap systems.

Overhead Valve Engines Taking Hold in Maintenance Industry

Although the first overhead valve engine was manufactured in the 1920s, it wasn't until recently that they began to popularize them for the small engine industry. Experts agree that the OHV will never completely replace standard side valve engines, however, they do agree that the engines provide operators with an option. Most major manufacturers are now offering OHV engines in addition to their side valve engines. Ed.

LAWN MAINTENANCE professionals are well aware of the importance of dependable, reliable equipment and the critical role a machine's engine plays in that area.

For a number of years, though, they've had to settle for engine technology that lagged behind the advancements enjoyed by large horsepower, multi-cylinder engines. While the larger engines advanced in quality and technology, small horsepower engines were at a relative standstill.

In recent years, however, overhead valve engines have become established in the small engine industry and made available as replacement parts and as standard equipment on new machines.

OHV engines can be particularly beneficial to lawn maintenance professionals. Mowers, edgers and other commercial maintenance equipment is subject to rugged duty, and an in-

dustry professional may go through two or three engines in the life of a piece of equipment. An OHV engine can be more efficient than a side valve, and offer greater longevity due to many built-in features. Using OHV engines can result in significant savings of money and reduced downtime during busy seasons.

The OHV design offers benefits in a number of key areas — dramatically improved fuel efficiency, reduced oil consumption, reduced carbon buildup due to even heat distribution, lighterweight, smaller in size, quieter and less

vibration.

In side valve engines, the intake and exhaust valves are off to the side of the cylinder, while OHV engines have the valves positioned over the cylinder. This dramatically changes the shape of the combustion chamber, giving greater combustion efficiency and thus greater economy of operation.

Combustion efficiency is improved because air and fuel are more completely mixed by traveling directly into the cylinder rather than through the angular-shaped side valve combustion chamber. In addition, the

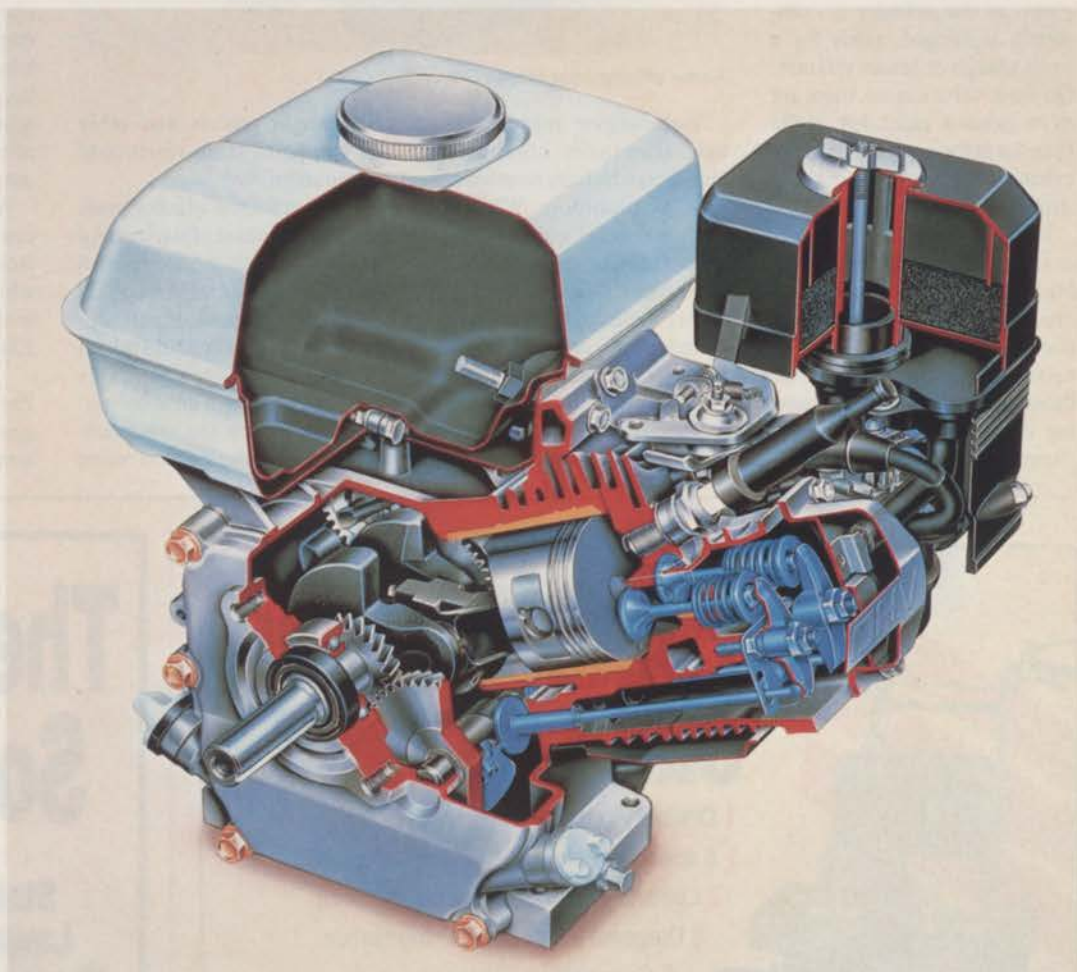


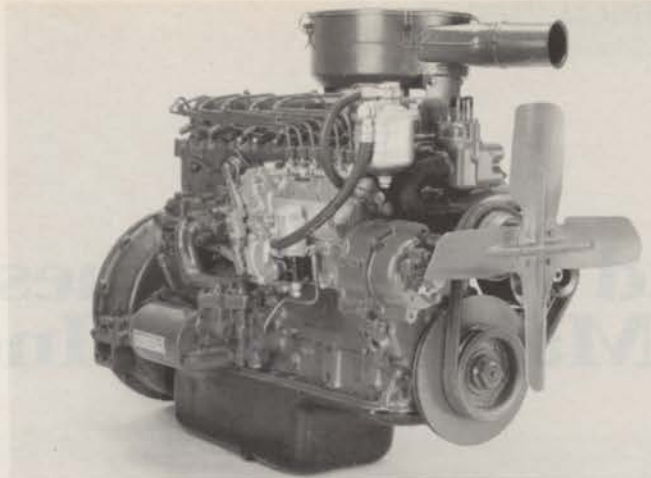
Illustration:
Honda Power Equipment.

side valve shape limits the engine's compression ratio while the OHV design allows for higher ratios.

These two OHV features allow for quicker combustion, resulting in more complete burning in the cylinder and greater thermal efficiency. When fuel is completely burned in the cylinder, the energy is transferred to the power stroke and not wasted out the exhaust.

Exhausting the expelled gases is more complete in OHV engines, as the cylinder is completely scavenged, ready for a fresh charge of intake mixture. On a side valve engine, there are more exhaust gases left in the cylinder at the completion of the exhaust stroke, again due to the shape of the combustion chamber.

In addition, the OHV's smoother exhaust flow reduces carbon buildup on the cylinder and around the valves and more evenly distributes engine heat. The side valve design encourages heat buildup around the valves, causing increased distortion of the chamber and shorter engine life.



A new offering from Nissan Corp.

Some engine manufacturers use aluminum combustion chambers which are more susceptible to distortion. When the chamber wears out, the entire engine must be replaced. On the other hand, a cast iron cylinder allows the user to bore out the cylinder and install a slightly larger piston, extending engine life greatly.

The OHV engine's lower center of gravity, combined with the

lightweight pistons and other moving parts, keeps vibration to a minimum.

Another feature which appeals to users is the ease of starting. An automatic decompression system on OHV engines requires as little as 20 kilograms of pull, opposed to the 60 kilograms which is required for most engines. This is accomplished with a decompression rod on the crankshaft which holds the exhaust valve

slightly open, eliminating resistance when pulling the recoil starter. Once 800 rpms have been attained, centrifugal force automatically disengages the system.

One of the major maintenance areas on a small horsepower engine is the ignition system. Most engines employ contact points to create the combustion spark. These parts wear out and require periodic replacement. To cut down on maintenance, lawn maintenance professionals may choose an OHV engine which employs an electronic ignition system. Electronic ignition offers hot, reliable sparks with little or no maintenance because there are no moving parts to break or wear out.

And finally, industry operators can avoid engine damage due to lack of oil by selecting engines which are equipped with an oil monitoring system. — Robert Clum ■

The author is national sales manager for Honda Power Equipment.



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Year-Round Preventive Maintenance Extends Engine Life

THE LIFE SPAN OF engines and related equipment depends on how they've been maintained. Routine maintenance is easy and simple to do and takes very little time. A basic understanding of the engine on your equipment will help you appreciate the importance of periodic maintenance in protecting your equipment investment.

Most engines on outdoor power equipment are either two-cycle or four-cycle designs which operate using gasoline. Do not confuse this with the number of cylinders. Walk-behind rotary mowers generally have only one cylinder. Larger engines powering large riding mowers or garden tractors could have one or two cylinders. Two-cylinder engines are usually referred to as "twins."

All gasoline engines require fuel and proper lubrication to run. They also require air for full power delivery and adequate ventilation to prevent overheating. Any condition which deprives the engine of any or all of these necessities leads to poor performance and possible engine failure.

Lubrication requirements and procedures for both two- and four-cycle engine varieties differ. The literature that comes with your equipment will tell you which engine type is on your equipment. This article will concentrate on engines generally found on walk-behind mowers, tillers, riders, garden tractors and leaf blowers.

Two-cycle engines are lubricated by oil which is mixed with the fuel. Oil-to-fuel ratios vary considerably among different brands. Typical ratios range from 1:16, 1:20, 1:25 and all the way up to 1:50. Four-cycle engines have a crankcase or sump which must contain the proper amount



Keeping the bottom of your mower clear of dirt and corrosion, its filters clean and spark plugs free of combustion buildup adds years to mower life.



of oil to bathe the moving internal parts while running. The engine type used is largely a matter of the equipment manufacturer's choice and is often based on product pricing considerations or application.

Here are some general rules to follow:

1. Lubrication (2-cycle engines). Add the oil to the fuel as recommended by the engine man-

ufacturer. Mix thoroughly. Never use four-cycle automotive oil.

- Lubrication (4-cycle engines). Change oil regularly after every 25 hours of operation. Use a high grade, high viscosity automotive oil — SAE 10W-30 or 10W-40. Nothing should be added to the oil. Fill to the proper level indicated in the maintenance instructions. Check the oil level every time you add gasoline.

2. Fuel. Use fresh clean unlead-

ed gasoline with a minimum octane of 77. Use of lead-free fuels will reduce combustion deposit buildup (an eventual occurrence in any engine). Because of the uncertainty of exact formulation of gasohol and similar fuels, their use is not recommended. Methanol formulations, in particular, are to be avoided because they can easily gum and clog fuel lines and carburetor jets.

3. Air is important too. Clean air mixes with gas in sufficient quantities for optimum combustion and power. The newest innovation for small engines is the larger capacity pleated paper air cleaner. Proven in automotive and industrial engines for years, the use in small engines offers new levels of protection and convenience. Servicing is easy — remove and replace them like your automobile filters. More familiar is the oil-foam air cleaner.

Oil-foam air cleaner elements can also be cleaned:

- a. Wash the foam element in kerosene or liquid detergent and water to remove dirt.
- b. Wrap the foam in a cloth and



Change oil regularly.

squeeze dry.

c. Saturate the foam in engine oil, then squeeze to remove excess oil.

For convenience, pre-oiled replacement foam elements are also readily obtainable. Either air cleaner element style should be checked and cleaned every 25 operating hours or three months, whichever is less. Dusty or abrasive operating environments require more frequent servicing of the air cleaner. When reinstalling or replacing either air cleaner, make sure that no damage to the outer sealing areas has occurred which would render the filter elements useless.

4. Air to cool. Dirt and debris can enter the blower housing and clog the cooling fins. This causes

internal engine temperatures to rise excessively. The resulting overheating can damage critical engine parts beyond repair. For this reason, prevent grass and debris from impacting fins and corners around the engine by removing the blower housing or garden hose fin area annually and flushing it with air.

5. Check the blade and deck for wear and possible damage. Before looking under the deck, always ground the spark plug wire. Removing the spark plug will prevent accidental starting when checking or removing the blade.

6. An engine requires a healthy spark for complete combustion. A worn spark plug robs the engine of power. Spark plugs should be checked periodically. The gap across the electrodes should be



Keep wheels free from debris.

reasonably free of combustion buildup and should not be burnt away. (A fouled spark plug gap or burnt-away electrodes after only a few hours of operation usually requires the attention of a service technician to determine the cause.)

Plugs worn because of prolonged use are best discarded and replaced with correctly gapped original equipment spark plugs. When removing and replacing the spark plug, always protect the cylinder cavity from dirt or debris entering the spark plug hole.

For a professional preventive maintenance check, see your authorized engine repair or outdoor equipment dealer. A dealer can sharpen the blade, provide a power tuneup and make any adjustments or repairs that might be necessary.

Performing these procedures and checks will greatly increase engine performance and life.—
George Thompson ■

The author is manager of corporate communications for Briggs & Stratton Corp.

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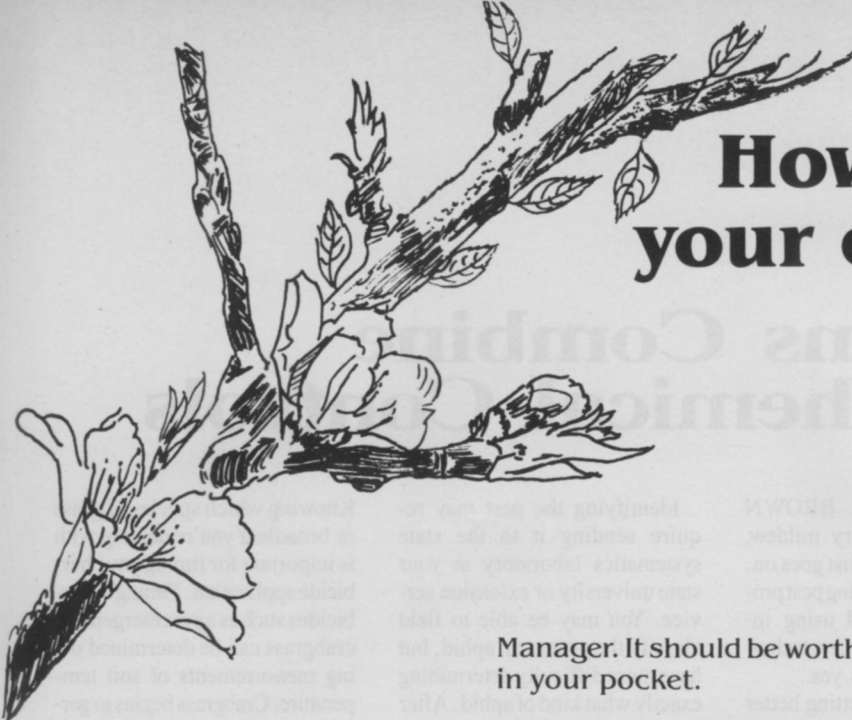
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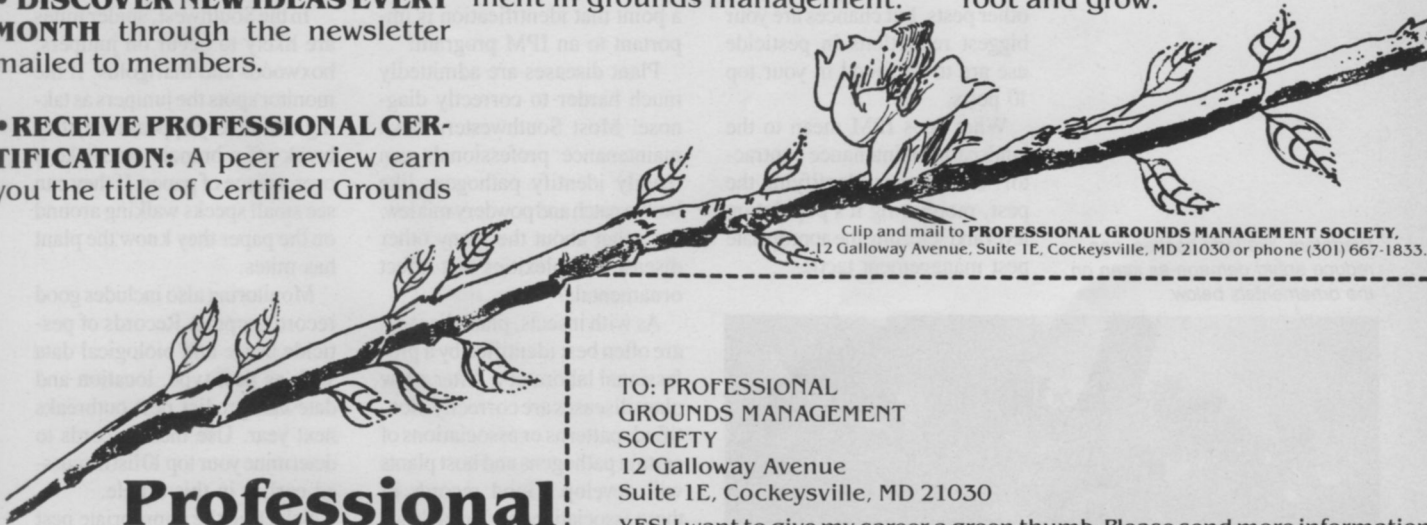
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IPM Programs Combine Biological, Chemical Controls

FIRE ANTS, BROWN patch, powdery mildew, euonymus scale, the list goes on. Can these overwhelming pest problems be controlled using integrated pest management techniques? The answer is yes.

The first step in getting better control of pests and lowering your pesticide use is to fully understand the biology of the pest. An understanding of the pest's biology usually shows a vulnerable point in the life cycle that allows for better control with less disruption of the environment.

Knowing the biologies of all the pests you confront is an impossible task. Instead, pick your top 10 pests be they weeds, insects or diseases on the basis of what costs your company the most in terms of labor and materials. Develop an IPM program for these pests first. You can later move on to your other pests, but chances are your biggest reductions in pesticide use are to be found in your top 10 pests.

What does IPM mean to the landscape maintenance contractor? IPM means identifying the pest, monitoring its population level and selecting the appropriate pest management tactic.

Identifying the pest may require sending it to the state systematics laboratory at your state university or extension service. You may be able to field classify the pest as an aphid, but have more difficulty determining exactly what kind of aphid. After identifying the aphid pest of Crape Myrtle as the Crape Myrtle Aphid *Tinocallis kahawaluokali*, entomologists at Texas A&M University determined it had no effective natural enemies in Texas.

In this case, identification of the pest changed the control effort for it completely. We now know that we cannot rely on nature to control this pest. Long-term control of the aphid will come from importation of natural enemies from the homeland of the Crape Myrtle Aphid — Pakistan. Not all insect problems are this difficult to solve. This does, however, make a point that identification is important to an IPM program.

Plant diseases are admittedly much harder to correctly diagnose. Most Southwestern lawn maintenance professionals can readily identify pathogens like brown patch and powdery mildew. But what about the many other disease complexities that affect ornamentals?

As with insects, plant diseases are often best identified by a professional laboratory. After a few plant diseases are correctly identified, patterns or associations of certain pathogens and host plants will develop. Good records of these associations are valuable for future field diagnostics. Fungicides are specific for certain diseases. Be sure the disease is listed on the label.

Weeds can usually be identified using books, however, many grasses can be difficult to classify without seedheads. In this case outside help may be needed.

Knowing which species of grass or broadleaf you're dealing with is important for timing your herbicide application. Timing of herbicides such as a preemergent for crabgrass can be determined using measurements of soil temperature. Crabgrass begins to germinate when the soil at 0.5 inches reaches 55 degrees Fahrenheit for three consecutive days. The pre-emergent should be applied two weeks before this date.

Good monitoring is essential to the success of a company's IPM program. Once the pest is identified, everyone (at least to the crew leader level) should be trained to spot the pest in the field. Insects and diseases are associated with certain host plants. Train the monitors to look for the common pest problems where they are likely to occur for that time of year.

In the Southwest, spider mites are likely to occur on junipers, boxwoods and marigolds. If the monitor spots the junipers as taking on a silvery appearance, they break off a branch and shake it over a piece of paper. If they can see small specks walking around on the paper they know the plant has mites.

Monitoring also includes good record keeping. Records of pesticide usage and biological data such as pest type, location and date can predict pest outbreaks next year. Use these records to determine your top 10 list discussed earlier in this article.

Selecting the appropriate pest management tactic is perhaps the most difficult part of an IPM program. Several alternatives exist for managing each pest problem. By themselves they may not be adequate for the level of control you desire, however, the use of different methods together, in an integrated manner, generally

Predators, like lady beetles, can reduce aphid damage as seen on the ornamentals below.



brings the best results.

Good IPM programs get to the root of the problem. Treating symptoms of the problems produces dramatic, but short-term results. A colleague in the landscape maintenance business once said, "When a crew leader reports a chinch bug outbreak we first suspect an irrigation failure." In his case, eliminating the drought stress was the first step for control of the chinch bugs. The second step was an insecticide application. Third was continued monitoring of the irrigation system and the chinch bug population.

IPM control tactics fall into these categories: cultural, plant selection, biological regulatory and chemical control. The above example using irrigation as a control measure is a cultural control. Other cultural controls are pruning out disease-infected or insect-infested plants or limbs, turf aeration and raising mowing heights. Plant selection is only an option during installation of a landscape, renovations or color change-outs.

Commercial landscapes often use plants that are well-adapted. However, residential landscapes, making use of a greater variety of plant materials, are often stuck with plant materials that are not adapted to local conditions. The stress these unadapted plants endure makes them susceptible to disease, insects and weed problems. Xeriscape is a type of landscaping that reduces irrigation inputs by using native or locally adapted plants. These xeriscape plants generally have a natural resistance to pests.

Regulatory controls are imposed by the U.S. Department of Agriculture or state departments of agriculture. Pests can be quarantined out of a state or locale



by inspection of incoming plant materials. Certain palms are excluded from sale to Texas to prevent the disease Lethal-Yellows from infecting Texas palms. The spread of fire ants is being slowed by inspection of sod farms and nursery stock to be sure it is fire ant free.

Biological control is usually associated with insects. There are cases where it has been used for weeds and disease, but this is not common. Biocontrol of insects takes on two forms: conservation of naturally occurring beneficial insects and introduction of beneficials.

To conserve natural enemies use pesticides that have the least impact on them. Summer oils, soaps and selective insecticides like B.t. and Dimilin are just a few. Pests like aphids often have predators like lady beetles and lacewings that reduce their populations. They are easy to see on the leaf actually consuming the pest aphids.

Besides predators there are highly effective parasitic wasps that kill the aphid by injecting their eggs into the aphid. As the wasp hatches and feeds on the aphid, it causes the aphid to swell up like a mummy. Looking for these mummies among the pest aphids tells you if you have these parasitic wasps present. Broad spectrum insecticides are very hard on parasites. The question is how many of these mummies would tell you that you don't have to spray. This comes from ex-

perience as a monitor, but if half the aphids are mummified you don't need to spray. Follow up monitoring will tell you if the percentage of mummies is decreasing over time.

Insects like the Crape Myrtle Aphid do not have good natural enemies. This aphid is a recent import that develops into large populations on the tree causing formation of black sooty mold and reduced flowering. Unfortunately, the natural enemies were not imported at the same time. A privately funded proposal from industry seeks to send a trained entomologist to Pakistan, the aphids home, to collect the aphids natural enemies. The natural enemies are returned and evaluated under strict quarantine procedures and then released in the field. If all works well, the aphid is eliminated permanently as a major pest.

An IPM program is successful if the total chemical usage is lowered. You may find through monitoring that a scheduled cover spray is not needed. In selecting a pesticide you should consider: the safety of the applicator, the client's safety and the impact on the environment. Generally, many different products are labeled for a particular pest. Pick the product that is the safest. The Material Safety Data Sheet has the best information regarding the toxicological or environmental concerns of the product.

Let's go over some specific IPM programs for certain key

Monitoring pest populations with traps helps in timing pesticide applications.

pests of Southwestern landscapes.

DISEASES. Brown Patch—a new approach to this disease of mainly St. Augustine turf involves a cultural control, changing irrigation practices. This method was developed by Joe Vargas of Michigan State University. Vargas believes that weekly watering schedules often let the top layer of soil dry out causing destruction of the beneficial microbes that fight brown patch.

His tests show a moist soil favors the beneficials over the rhizoctonia, thus lowering the incidence of disease. It is also known that fertilization in late summer and early fall also favors brown patch. The lush new growth of St. Augustine is susceptible to the disease.

Powdery Mildew — IPM for this disease starts with winter pruning. Crape Myrtles are pruned so as to allow for good air circulation through the branches. When fertilizing the turf, avoid getting high nitrogen turf fertilizer into the tree well. Nitrogen rich, new growth is susceptible to powdery mildew and promotes aphid population. This polymer covers the leaf and the mildew suffocating the fungus. The new growth must be retreated. For new landscapes or renovations check with your nurseryman for resistant varieties of Crape Myrtle.

Phytophthora Aerial Blight of Periwinkles. This is a major problem of the past few years in the sunbelt. Periwinkles, once a carefree drought tolerant summer annual, became plagued with this disease. According to Texas A&M pathologist Larry Barnes, the disease cycle begins when the seed is grown in South America. The inoculated seed is grown in greenhouses and later transplanted into landscapes where the disease takes off. Part of the problem is planting the flowers before it fully warms up for spring. Nights below 70 degrees Fahrenheit predispose the plant to the blight.

Since the phytophthora spp. has a mobile swimming zoospore, overwatering and excessive wetting of the foliage quickens the spread of the disease. A preventive application of a copper-based fungicide like Kocide 101 is recommended.

WEEDS. Turfgrasses have a number of different grassy and broadleaf weeds. Sheila Daar from the *IPM Practitioner* suggests surveying the client as to how many weeds can be tolerated. If the turf is used as a playground, sticker burrs will likely be the weed they want controlled. If this is the case, treatments for other weeds may not be needed.

Commercial turfs, on the other hand, want an even look. Broadleaf weeds and grass seedheads detract greatly. In many of the commercial turfs, the majority of the weeds occur near the perimeter where pavement or concrete begins. The increased heat and drought stress favors grassy weeds such as crabgrass and dallisgrass. Try banding your preemergent around the perimeter, skipping the middles. You will be surprised how far this will stretch your preemergent while still getting good weed control.

Culturally, aeration is very important for a strong vigorous turf. A compacted soil limits the grass while promoting certain weeds. Compaction often occurs when the lawn is mowed. If the soil is wet from rain or irrigation, even the weight of a walk-behind mower will compact the soil. The vigorous grass will out compete many weeds by shading them out. Raising the mowing height upward to three inches also allows for less sunlight to reach the soil, stimulating weed seed germination.

WEEDS IN BEDS. Mulches can do a great deal of work preventing weeds, not to mention the benefit to the shrub or tree. Thick applications, three to four inches, of hardwood mulch such as cypress will last a full year con-

trolling weeds. Applying a pre-emergent under the mulch increases the weed control.

The National Park Service is using a portable flame weeder for spot treatment of weeds. This may sound unusual, but is quite effective on a broad spectrum of weeds — with immediate results in many cases. From the design end, look for situations that you know are going to harbor weeds. Park benches should be placed on pads to prevent the constant regrowth underneath. Watch for areas where grass grows directly up to a building or fence. Permanent barriers like curbs and edging prevent encroachment of weeds into areas where it is difficult to mow.

INSECTS. Aphids (many spp.) Monitor populations for predators and parasites. Look for aphid mummies. If an application of insecticide is necessary, use one that is less harmful to beneficial insects. Try soaps or the new low phytotoxic horticultural oils. These oils show good promise as contact insecticide on insects such as aphids, caterpillars, leafhoppers, mites etc. The refining takes out the sulfur impurities and allows it to be used on sensitive plants at higher temperatures than the standard oils.

Thrips. Western flower thrips are normally a problem in late spring when all the wildflowers have dried out. Large populations abound looking for more green. Yellow sticky traps can tell you when they arrive in your landscape and when their cycle is over. Monitoring their populations with traps allows you to time your application precisely when it can help you. Once the deformed growth of plants like photinia appears it is usually too late for

control.

Mites. Spider mites can be a problem throughout most of the year. Junipers, boxwoods and marigolds can all be severely affected. Normally their populations reach a peak in August. By that time, control is difficult and their damage is already done. Applications of horticultural oils in late spring will kill many overwintering mites and eggs. In late season, if an application is still necessary on marigolds, for example, try a release of spider mite predator *Phytoseiulus persimilis*. This predator mite has a life cycle twice as fast as the spider mite and consumes mite eggs.

Predators can be purchased from insectaries such as Rincon-Vitova in Oak Vista, Calif. If the spider mite population is very large, a cleanup application of soap is recommended a day before predators are released.

Fire Ants. Much has been written about controlling this insect. Scores of products are on the market which attack the ants mound by mound. Treating the population as a whole is a more efficient way to control fire ants.

Broadcasting the baits over the entire turf area is the first step. This should be done with fresh bait on a warm humid day in spring before the temperature is above 90 degrees Fahrenheit on dry ground. These techniques optimize your chances that the bait will be picked up by the ants.

Scale Insects (many spp.). Monitoring for the immature stage of the scale, the crawler pinpoints the vulnerable part in the scale life cycle. Different scales send out crawler stages at different times in the spring, summer and fall. This is where identification plays a key role in an IPM program. Make an application of horticultural oil when the crawlers appear in late March or April. Parts of the plant that are severely infested should be pruned out as a cultural control.

Tent Caterpillars. Monitor host plant oaks for signs of small first instar worms. Chemical control is more efficient now before the worms reach their nuisance stage and are more difficult to control.

— John Goolsby ■



Properly identifying the pest leads to appropriate management tactics.

The author is manager of quality control at Pampered Lawns, Austin, Texas.

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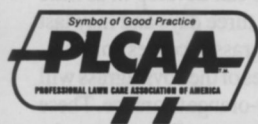
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Zoysia Patch: A Destructive Root Rotting Turfgrass Disease

ZOYSIA PATCH DISEASE of zoysiagrass (*Zoysia japonica* L.) causes a perennial patch type disease. The disease can develop in the fall and/or the spring of the year.

The disease has been reported in Tennessee, Arkansas, Illinois, Missouri, Kansas, New Jersey and New York, and may occur in other states as well. It would appear to be limited to those states located in the turfgrass transitional climate zone in the United States. No reports of this disease have been given describing its development in other countries.

While it is perennial in turf, the symptoms may not appear regularly in the fall or spring. The reasons for this are uncertain, but soil moisture and temperature appear to have a major role in disease severity. Zoysia patch has been observed casually for more than 10 years in the St. Louis, Mo., area and has been referred to as "Brown Patch" "Rhizoctonia Patch" and "Winter Brown Patch."

Based on our research into the cause of the disease, which will be discussed in this article, we have named the disease zoysia patch. While *Rhizoctonia* fungi are ubiquitous in soils cultivated to zoysiagrass, there appears to

be no evidence that would support this fungus as the primary causal agent.

WHEN DOES IT APPEAR? In the spring, the symptoms of zoysia patch will appear within about 60 days after green-up has started in the sod. If no symptoms have appeared by that time, symptoms are not likely to develop until the fall at the earliest.

The symptoms of zoysia patch appearing in spring are likely to be quite different than those which develop in the fall. As the grass breaks out of its winter dormancy, patches will appear in which the grass is thin and appears to produce new leaves slower than the surrounding area. A patch is defined as an approximately circular area of turf in which the grass is diseased.

The startling nature of zoysia patch is that a patch can grow to three to four meters in radius. It is unclear how large a zoysia patch can grow. A patch with a radius of four meters is more than 50 mm². This is the largest patch recorded for turfgrass. The zoysia patch remains uniformly blighted within its borders. This is probably due to the fact that the fungus that causes zoysia patch grows very rapidly.

Zoysia patch expansion has been measured as fast as 1.0 meters per year. For comparison, summer patch of bluegrass (*Poa pratensis* L.) will expand at about 0.1 to 0.2 meters per year. The reason for this rate of zoysia patch expansion is discussed below. As the grass greens up in the spring, those areas affected by the disease will have a great number of dead leaves, weakened roots and a slightly sunken appearance.

The disease has never been observed to kill more than 80 percent to 85 percent of the grass

plants in a single patch. It is unknown what percentage of rhizomes and stolons are affected by the disease, but it appears that the disease is most severe on the shoots and roots and considerably less destructive on the rhizomatous and stoloniferous tissues.

This is very important in terms of managing the disease. During the spring, the disease will not appear to increase in severity, but the rate that the living grass within a patch will green-up will fluctuate. With increasing soil temperatures, the disease symptoms will disappear by July or August, depending on where in the transitional climatic zone the grass is grown. Further North, the disease appears in the turf for longer periods of time. **CAUTION:** the loss of symptoms in midsummer does not mean the disease of the fungus causing it have vacated the turf.

During the fall of the year is when active zoysia patch can be seen in a zoysia turf. The disease symptoms that develop in the fall will mainly appear as a ring in the zoysiagrass, but careful inspection will reveal that grass plants throughout the patch within the ring are also affected. The outer ring of the patch will have the greatest number and density of diseased plants and thus be more noticeable.

The appearance of zoysia patch in the fall can develop in as little as two to three days and may last until the grass becomes dormant. The leaves of the zoysiagrass will be yellow-orange to orange. These symptoms generally appear on the older leaves first. In addition to the leaf symptoms, the roots will also be diseased, but the symptoms are inconspicuous. Basically, the zoysiagrass will appear discolored, but otherwise healthy.

Zoysiagrass sod with disease development during one year marked by stakes. Large white stake marks center of patch; small white stakes mark the boundary of the patch and red stakes mark the new boundary of the patch 12 months later.





Root and knitting strength will not be noticeably weaker compared to unaffected sod.

Do not be misled by thinking that this disease is active only in the spring and early fall months. Generally, we have noticed that the development of symptoms in the spring occur after the fungal pathogen has been active during the late winter. In the fall, the symptoms appear as the fungus is becoming active. In short, the fungus that causes this disease is active during the cooler months of the year and may colonize the grass roots mainly during those months when the zoysiagrass is dormant.

In addition, it appears that colonization of the roots must be quite extensive before symptoms will appear. Understanding this page relationship between grass growth and pathogen colonization is paramount in managing this disease (see below).

ZOYSIAGRASS PATHOGEN. The fungus that causes zoysia patch has been isolated and identified

as an ectotrophic, root colonizing similar in a number of respects to that fungus which causes take-all patch of bentgrass (*Agrostis palustris* L.), and may be genetically related to *Geaumannomyces*. The zoysiagrass pathogen will grow on other grass plants including wheat (*Triticum aestivum* L.) and oats (*Avena sativum* L.), but appears very limited in its ability to infect bluegrass, bentgrass or ryegrass (*Lolium perenne* L.).

The pathogen is favored by intermittent periods of wet and dry soil. The fungus has a broad temperature range for colonization of the grass roots. Colonization of the roots may occur without the subsequent development of disease symptoms. Our laboratory is currently finalizing the taxonomic identification of the pathogen. Once known, sources of genetic resistance and methods for prediction of disease development will be refined. Presently, the isolation and verification of this pathogen from diseased zoysiagrass requires considerable

time and cost, however, the symptoms of the disease and the conditions during which they appear are reasonable means of diagnosis. Research is currently being conducted to expatiate diagnosis.

MANAGING THE DISEASE?

Zoysia patch can be managed, but it requires continued attention to the disease even in the absence of symptoms. The key point in managing this disease is understanding how and when it develops. While we are still discovering the pieces of the puzzle that will explain this disease, we know enough to reduce the destruction it causes.

The time to minimize the severity of the zoysia patch is during that part of the year when the zoysiagrass is actively growing. If we look at the calendar, when the disease symptoms are not apparent, you should be pushing the zoysiagrass to grow. This means balanced fertilization and water.

In addition, it has been observed that aeration of the zoysia sod will also reduce disease severity. Aeration with hollow tines has been used successfully, and the simple slicing of the sod with vertically aligned disk blades has also proven effective. The idea of rejuvenating the sod, thus causing it to produce more shoots and roots, is the goal.

The means by which you achieve this are not critical. Will late fall fertilization be better than spring applications? For this dis-

(above) Late spring symptoms of zoysia patch showing recovery of the diseased area. After several months of good sod growth, these patches will nearly disappear. (Above left) Fall symptoms of zoysia patch. The greatest pathogen activity can be visualized by the orange ring. The grass within the ring usually shows no symptoms in the fall and little grass is killed in a fall patch. (Left) Close-up of the disease border showing the orange-colored leaves which make up the fall symptoms of zoysia patch.

ease, we do not know, but we have observed that spring and summer applications were effective in encouraging dense growth of zoysiagrass and reduced disease severity in the fall. These techniques for managing zoysia patch are directed at the grass plant not at the fungal pathogen.

Controlling the pathogen will be a formidable challenge. The use of genetic resistance is likely to be the most effective means of controlling the pathogen, but this will require numerous years of research to develop. Because the pathogen is a natural soil inhabitant and thrives in the dense sod-soil layer, it will be difficult to adequately control using fungicides at reasonably "safe" rates.

No fungicides are presently registered in Illinois for use in controlling this disease. No reports have been received by the authors recommending the use of fungicides in other states afflicted by zoysia patch. Several fungicides are being studied experimentally and some are apparently effective in reducing the severity of the disease. The effec-



Early symptoms of zoysia patch during the spring of the year. Note the incomplete necrosis within the patch.

tiveness of the fungicides and the best method for application and timing are yet to be determined.

While chemicals are of a limited value in controlling zoysia patch, new biological agents have been identified and appear capable of suppressing the disease. It is likely that such microorganisms will not be capable of eliminating the disease symp-

tom, but in combination with the previously described cultural practices, they could safely reduce the disease severity to an acceptable level. Biological control agents are currently being field-tested, but results and recommendations are not expected for several years.

Zoysia patch is a very destructive disease which, if unchecked,

could severely reduce the use of zoysiagrass in the climatic transitional zone of the United States. It occurs on golf course, lawns and sod farms and will not go away. If you have seed disease symptoms that match those described here, please contact us. Working together, a disease like this can be managed. — Henry Wilkinson and Malcolm Shurtleff

Wilkinson is an assistant professor of plant pathology and agronomy specializing in turfgrass pathology and soil-borne pathogens and Shurtleff is a professor of plant pathology and turfgrass extension specialist. Both authors are with the University of Illinois, Urbana-Champaign.

ACKNOWLEDGEMENTS

This article and the supporting research were made possible by a grant from The Honors Golf Course, Chattanooga, Tenn. The authors also wish to thank the Ed. Keven Sod Farm, O'Thallon, Mo. for their support.

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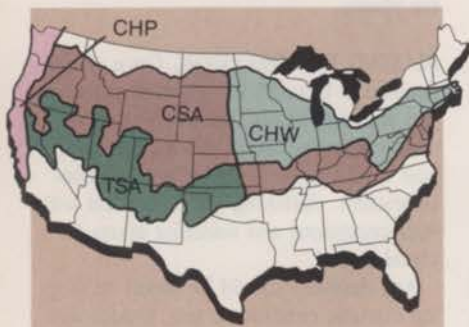
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FOCUS ON: SEEDING

GROWTH CHARACTERISTICS OF NEW TURF TYPE PERENNIAL RYEGRASSES



Best adapted to the southern cool humid (CHW) region and along the Pacific coast (CHP), and extends into the transition (T) zone. Also used in the semiarid plains if irrigated.

PERENNIAL RYEGRASS TURF TYPE cultivars generally form a dense turf with a bunch-type growth habit. They're best adapted to the Southern cool humid region, along the Pacific Coast and into the transition zone.

Adaptation also extends into the semi-arid plains and Rocky Mountains area, if irrigated.

Perennial ryegrass prefers moist, well-drained, fertile, medium-textured soils having a pH level of six to seven.

The cultivar is used most frequently on lawns, parks, roadsides, sports turf fields and general use turf areas. It's commonly used in polystands with Kentucky bluegrass. They're also widely used in monostands and polystands in winter overseeding of dormant warm season turfs.

Compared with the old common perennial ryegrasses, the new cultivars have finer leaves and greater density, are more persistent and attractive, are more resistant to diseases and insects, have greater shade tolerance, are lower growing and easier to mow when cool and moist, have better turf forming properties, are more tolerant of close mowing and have a

greater tolerance to cold winters and warm summers.

Turf type perennial ryegrasses have the following additional desirable growth characteristics:

- rapid seed germination — within five days under favorable conditions;
- rapid seedling establishment — within three weeks under favorable conditions because of high seedling vigor;
- high wear tolerance — excellent for sports turf fields and play areas;
- rapid recovery from injuries;
- able to compete favorably with other grasses — excellent in seed mixtures;
- excellent grass for overseeding within a poor turf so as to create a more beautiful lawn;
- able to tiller and form thick dense cover — excellent uniformity;
- produces tough leaves and low growing crowns that create a stable turf — easy to maintain;

• most vigorous when cool and moist on a wide range of soils (from light and sandy to heavy and clay) — highly adaptable;

• produces no thatch because turf thickens by tillers instead of stolons or rhizomes.

Seed Standards:

- 98 percent pure.
- 95 percent germination.
- 300,000 seeds per pound.
- Six pounds of seed per 1,000 square feet seeding rate for 12 potential plants per square inch.
- Mixtures of 30 percent bluegrasses, 20 percent perennial ryegrasses and 50 percent fine fescues by weight, seeded at three pounds per 1,000 square feet will result in 15 potential plants per square inch.

General mowing frequencies of perennial ryegrass are two to three times a week for sports fields, once per week for lawns, parks and cemeteries and one to two times a month for minimal maintenance areas such as roughs and roadsides.

Irrigate the ryegrass as needed — *The Lawn Institute.*

PERENNIAL RYEGRASS SUPPLY MEETING DEMAND

THE TURF TYPE PERENNIAL ryegrasses will be available in good stock this year as supply is finally in step with demand, according to Gail Ward, Jacklin Seed Co., Post Falls, Idaho.

A few years ago, perennial ryegrass acreage was down, but 1989 will start out with some carryover from last year's harvest. Demand is also not expected to exceed supply because the spring was not exactly conducive to establishing lawns — particularly in the Northeast.

Overall, the turf-type perennial ryegrass availability should be strong, but there may be problems with certain varieties because of the Arctic cold weather some areas of the Northwest experienced over the winter, according to Doug Toews, International Seeds, Tangent, Ore.

Since harvest is still about two months away, it's difficult to give an exact picture of the ryegrass crop.

Perennial ryegrass is gen-

erally chosen for its quick establishment and good price, although its price can be deceiving because of its high seeding rate.

If ryegrass prices remain at the 1988 level, it will be



available for about \$1.10 per pound. In comparison, bluegrass prices average about \$3 per pound, although they have a much lower seeding rate, according to Ward.

Toews said he expected the perennial ryegrass price to remain at the 1988 level.

Other than a few new varieties, expect to see a similar selection of perennial ryegrasses as in 1988. They may, however, be available in greater quantities. The varieties will be greener, darker and more disease resistant.

Some varieties new in 1988 will be available in greater quantities: Pinnacle, Sherwood and Dandy among others.

C. Reed Funk from Rutgers University said the new varieties are all doing well in Rutgers' field tests.

One reason for so few new varieties stems from the industry's focus on the turf type tall fescues varieties. The push in this area is because of drought conditions across much of the country.

As with any grass seed, be sure and deal only with certified plant stock. There's no guarantee what you're getting with uncertified seed.

Seeds that are marked VNS, varieties not stated, are not certified seed.

TREES & ORNAMENTALS

DON'T FORGET COLOR IN YOUR LANDSCAPE DESIGNS



Curved home entry planting decorated with flowers.

THE IMPACT OF FLOWERS IS A SIGNIFICANT indicator of professionalism in landscaping. Wherever space permits, annual flower beds and/or borders are often included in the overall design.

Besides adding aesthetic value, beds and borders can be used to highlight or camouflage areas or even direct foot traffic. When deciding where to locate them, consider the points from which they will primarily be seen including existing and immovable features such as buildings, fences and trees, as well as topography.

In preparation for planting, beds can be worked in the spring just prior to planting but are often worked the previous fall. Beds should not be worked in early spring when the soil is still wet or its texture will be ruined.

Do not try to jump the gun on planting.

Most annuals cannot be planted until after all danger of frost has passed. When the planting time has come, mark the beds based on specified planting distance, then lift plants from cell packs or pots carefully keeping the root ball intact to avoid damage.

If roots are extremely compacted, loosen them gently before planting. Dig a hole slightly larger than the root ball, set the plant in place at the same level at which it was growing and carefully firm the soil around the roots. Water well after planting and frequently until plants are established and new growth has started.

An application of soluble fertilizer high in phosphorus is beneficial at this time. A fertilizer such as 10-52-17 mixed at the rate of one pound per 100 gallons of water will cover 400 square feet.

If possible, it is best to plant on a cloudy or overcast day or late in the afternoon to reduce transplanting shock. Petunias are the most notable exception to this rule, tolerating planting even on hot and sunny days.

To reduce maintenance, use one of the commercially available preemergent herbicides labeled for ornamental use.

Other methods of weed prevention include the use of a soil sterilant prior to planting or a physical barrier such as black plastic. Be sure to punch numerous holes into the plastic with a garden rake to ensure adequate water penetration. A

thin layer of decorative mulch will hide the plastic.

MAKING THE DECISION. Once you've decided to beautify the grounds for which you are responsible, the decision as to which plants to use to accomplish your goal must be faced. There are two considerations; matching the right plant with your conditions and selecting plants for visual appeal.

Any decision should be based on varying climatic conditions: sun, shade, wet, dry, hot, cool and the amount of time you can devote to the flower beds. If your crew time or number is limited, choose low maintenance plants.

When you pick up your bedding plants, look for deep green, healthy plants that are neither too compact nor too spindly. Be sure they are free of insects and disease. Do not be concerned if the plants are not in bloom. If fact, most annuals will come into full bloom faster in the landscape if they are not in bloom when planted.

PLANTING PLANS. Before any planting is done, it is necessary to draw a planting plan so you will know the shape and size of the beds, the location of the plants and how many plants to purchase or grow. The easiest way to do this is on graph paper with the plan drawn to scale. Using this method, each square on the paper can represent one square foot of the planting.

After the design is complete, it is necessary to calculate the area of the planting beds or borders so you will know how much fertilizer to apply and how many plants you will need. If you use graph paper, you just need to count the squares to arrive at the total area. — *Professional Plant Growers Association* ■

A professional guide to flowering annuals is available for \$2, postpaid, from the Professional Plant Growers Association, P.O. Box 27517, Lansing, Mich. 48909; 517/694-7700. There is an area for company imprint on the back of the guide.



Triangles and v-shapes can be incorporated into the landscape dramatically.

DIVERSIFICATION MAKES SPECIALTY MUTUAL FUNDS ATTRACTIVE

MANY INVESTORS ARE ATTRACTED to mutual funds because of the high level of diversification they offer. But by adding a "specialty" mutual fund to their portfolio, investors can take the concept of diversification one step further.

Specialty funds are defined more by type of investment than by investment goal. In general, they invest in a particular segment of the market, whether it is according to industry, location or some other characteristic.

Because of their popularity in recent years, the international fund and the precious metals fund will be discussed here.

International funds have become popular in recent years as American investors have realized the potential for appreciation in foreign markets. While some international funds invest in the stocks of only one country or one continent, most are free to split their assets among any number of nations — and can even invest in U.S. companies if conditions appear to favor American securities.

One reason many investors look to international funds is the changing value of the U.S. dollar. International funds often gain when the dollar declines in value in comparison to other currencies. When the dollar falls, investments valued in foreign currencies automatically increase in price. In fact, the decline in the value of the dollar in 1985 and 1986 was one reason why international funds performed so well during that period.

In addition, when the dollar falls, international investment capital often shifts from U.S. investments to securities in other parts of the world. Such a shift can frequently increase the value of foreign stocks.

However, international funds do not depend solely on changes in the value of the dollar. As all portfolio managers do, the managers of international funds seek out companies they expect to do well. The difference is that most international funds can select securities from around the globe.

International funds may also look for a strong foreign economy and invest a portion of its assets in stocks of that country. When a foreign country's economy is strong, its stock market often responds positively.

Looking at investment goals, most international funds are considered aggressive growth funds. They seek capital appreciation — an increase in the price of



International funds have become popular in recent years.

stocks held by the fund. They also are considered aggressive because the value of a fund share may rise dramatically, but can also fall dramatically. International funds, even those that can shift assets from one country to another, can be volatile simply because conditions in foreign markets can be volatile — sometimes more volatile than U.S. markets.

Investors considering international funds should view them just as they view funds investing in aggressive U.S. growth stocks. Such funds should be considered long-term investments because of the potential for volatility.

Precious metals have long been revered for their aesthetic value, but gold and silver are also among the world's oldest and most valued investments. Throughout history, ownership of gold and other precious metals has been considered protection against changing economic fortunes. Many people invest in gold and other precious metals as a hedge against monetary, economic and political uncertainty.

One way to take advantage of precious metals appreciation is through participation in a precious metals mutual fund. Not only do you have the opportunity to receive dividends, but you also have the confidence of participating in a professionally managed portfolio of selected gold mining and other metals shares.

Investing in a fund offers several advan-

tages over actual ownership of precious metals while still giving you the potential for price appreciation in the metals markets.

In addition, an investment in a fund means you don't have to search for a reputable metals dealer and storage facility, cutting costs as well. And a fund offers both diversity and professional management.

Often, three basic reasons are given for investing in precious metals:

First, metals are still seen first and foremost as a long-term hedge against inflation. Their values quickly reflect any change in government policies, economic development or world crisis.

Second, the earnings and dividends of precious metals companies are highly leveraged. For example, say the price of gold climbs from \$300 to \$400, a 33 percent increase. If that were to happen, it would not be uncommon for the earnings of a mining company to increase three or four times, depending on the cost structure or the life of the mine.

(Conversely, on the down side, a drop in the price of gold can have as significant an impact on earnings and dividends.)

And third, there is very little liquidity in the precious metals common stock market, meaning it's difficult to move large amounts of money in and out of the market easily. This is because investors tend to perceive economic changes or policy shifts quickly and simultaneously. As investors rush to try to move large amounts of capital in or out of the market, the mining stock may experience some dramatic price changes.

To a large extent, the price of gold over the near term is tied to the value of the dollar. When the dollar is strong, the world's investors often view dollar-denominated investments as more attractive investments than gold. Once the dollar begins to lose its luster, however, it's likely that the value of gold will rise.

An investment in a precious metals fund should not be considered, by itself, to be a balanced investment program. —
IDS Financial Services Inc.



Goodrich



Speer

MARY ELIZABETH LAFETRA, former president of Rain Bird Sprinkler Manufacturing Corp., recently died of cancer. She was 79.

LaFetra served as president of the firm, which she and her husband **Clement LaFetra** founded in 1935, from 1951 to 1976. She retired as chairman of the board in 1977. Her husband died in 1963. Since 1977, her son, **Anthony LaFetra**, has held the position of company president.

Well-known for her numerous philan-

thropic activities, LaFetra served on the board of directors for many local and national organizations. She was elected president of the LaVerne College board of trustees in 1971, a position she retained until 1982.

Snapper President **Richard Robinson** was recently given the added responsibility of chief executive officer.

Robinson joined Snapper in 1971, was elected vice president/administration in 1972, vice president/finance in 1973, senior vice president/finance in 1984 and president in 1986. A certified public accountant, Robinson worked in the audit divisions of Arthur Andersen and Co., Peat, Marwick, Mitchell and Co. and Allstate Insurance Co. before serving as controller of Macon Breakthrough Housing Venture.

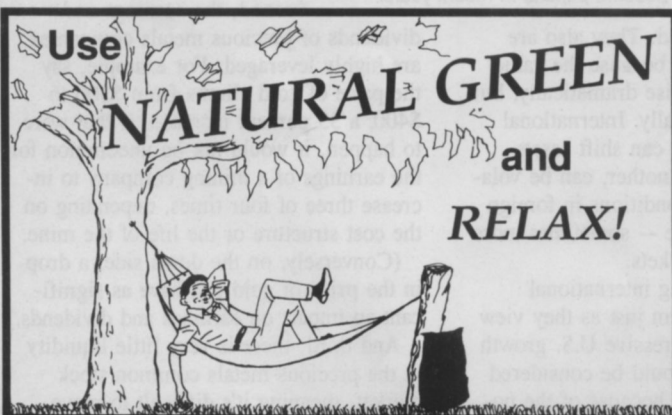
Weather-matic recently appointed **James Goodrich** technical services manager. He was previously Weather-matic's south central regional sales manager, a position he

held for four years. His new responsibilities will include customer technical assistance, development of service manuals, technical service seminars, warranty administration and technical bulletins.

In a related move, **Don Cooper** has been promoted from technical services manager to product manager where he will work with sales, engineering and manufacturing in new product development.

The Dow Chemical Co. recently promoted **Larry Speer** to business director for industrial and specialty markets. Previously he was marketing manager for industrial insecticides and turf products. He has been with the company since 1967 holding a number of product marketing positions, as well as serving as district sales manager and regional sales manager.

Mike Layel and **Rick Elyea** have been appointed national accounts managers for the ProTurf Division of O.M. Scott &



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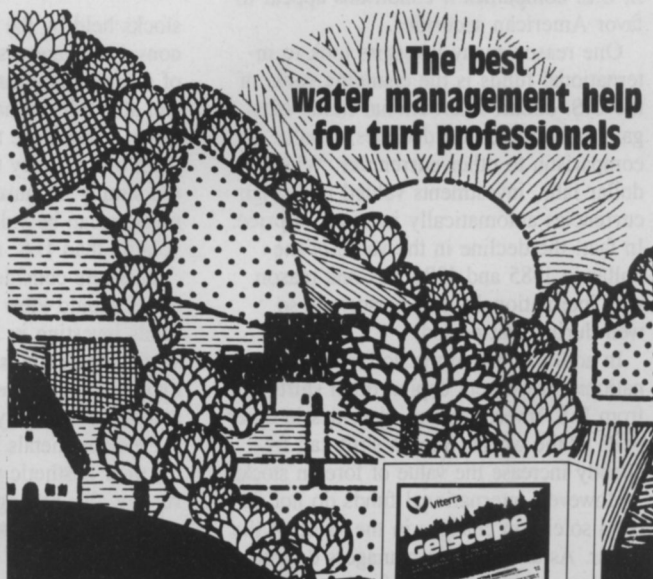
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Sons Co.

Layel will focus on developing new programs and coordinating support for management companies and multi-course operating groups. Elyea will be responsible for developing programs that recognize the unique requirements of golf course architects and builders.

Formerly an executive technical representative, Layel joined Scott in 1975. He handled sales in Bermuda, the southern half of West Virginia and virtually all of Virginia. Elyea started at Scott in 1986 as a technical representative, covering Chicago and neighboring counties in Illinois and Indiana.

ChemLawn Services Corp. named **Steve Shelton** vice president/operations planning and development. Shelton will be responsible for coordinating field operations and corporate support programs.

Before joining ChemLawn, Shelton was assistant vice president and general manager of Sparkletts in California, a division of McKesson.

Craig Ruppert, president of Ruppert Landscape Company has recently announced the formation of branches within the corporate structure. Named as the landscape contractors' first branch managers are: **Donald Jarratt**, MD/Landscape Management; **Kenneth Hochkeppel**,

VA/Landscape Management; **Richard Schubach**, MD/Landscape Construction; and **Kenneth Thompson**, VA/Landscape Construction. These individuals will now be responsible for all operations within the separate divisions.

Ken Ablard, formerly regional sales manager for Dow's south central region, has been named marketing manager for industrial insecticides and turf products. He joined the company in 1961. He has held a number of field sales assignments, and served as a sales manager and product manager for the company.

Sid Funk becomes sales representative for Dow's industrial insecticides and turf products in Illinois, Wisconsin and Minnesota. He is based in the Chicago area. Previously he was sales representative in the company's Row Crop Division. He's been with the company since 1985.

Deutz-Allis Corp. named **Leonard Sievers** product marketing manager/lawn and garden and **Joel Rowley** manager of lawn and garden products.

The move is part of a reorganization of the company's lawn and garden operation. Sievers will act as chief of the division with Rowley as second in command.

Before joining Deutz-Allis as lawn and garden product manager in 1987, Sievers worked as product manager for Ingersoll

Equipment Co. in Winneconne, Wis., and as a district sales manager for J.I. Case Co.

Rowley, Deutz-Allis lawn and garden merchandising manager since 1987, has held numerous advertising and marketing management positions in the industry. He initiated a distributor/dealer advertising and merchandising evaluation program for Gilson Brothers Co., Plymouth, Wis.

Dan Smith has joined the Parker Sweeper Co. of Springfield, Ohio, as advertising manager. His duties include management of Parker's nationwide advertising program and trade show participation by the company.

In addition to 25 years experience in advertising and promotion, he brings to his duties more than two years service as a training specialist and nearly twice as many years of experience in direct sales.

Jacobsen Division of Textron named **Ralph Nicotera** manager of national accounts and branch operations, **Ron Pettifer** national sales manager, commercial products and **Harleigh Pepler** national sales manager, turf products.

Nicotera is responsible for the development of sales programs for national accounts and supervision of Jacobsen-owned domestic distribution outlets. He joined Jacobsen in 1974. ■

Sometimes Big Isn't Better

Discover the Mid-Size Walker Mower



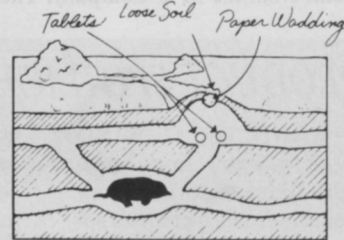
Accepted practice in the lawn maintenance business has been to use the BIG commercial rider mower for open areas and walk-behinds for trimming. Now maintenance operators all across the country are discovering a new, fast efficient way to mow landscaped areas... for many jobs the maneuverable MID-SIZE WALKER MOWER does the whole job saving time, labor, and equipment investment. And Walker offers high productivity without sacrificing a quality cutting job, sure to please the most discriminating customer.

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Circle 38 on reader service card

MOLE CONTROL

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Circle 40 on reader service card

PRODUCTS

WETTER WATER, AN ORGANIC SOIL wetting agent and penetrant, is now available from **TFS Systems**. The product is designed for use on soil and turf to promote distribution and penetration of water by breaking the water's surface tension so that it flows between the grains of soil.

Wetter water will loosen compacted soil and help it absorb water more readily; help prevent water build up in adobe and clay soils; allow uniform distribution of fertilizers; and aid in the prevention of soil erosion. In addition to being biodegradable, it is non-toxic to plants and animals.

Circle 101 on reader service card

THE BROUWER TURF ROLLER model 235 is designed for effortless rolling operations on medium to large turf areas. The model 235 includes features such as the Honda four-cycle engine rated at 8 h.p. (increased from 5 h.p. on the previous 230 model); larger capacity hydrostatic transmission for excellent reliability; and built-in hydraulic oil reservoir providing increased oil capacity for better cooling and performance.

Other features include: special rounded edges on roller drums designed to prevent turf damage; extra large steering wheel for ease of operation; single lever forward/reverse control; comfortable driver seat; and two water fill/drain plugs in each roller.

Circle 103 on reader service card

MANEUVERABILITY AND VERSATILITY are key features of a series of power brooms from the **M-B Company**. The



M-B Company's power broom.

brooms are easily mounted to wheel loaders for a broad range of applications.

The power brooms, model TK-H, are available in widths up to 10 feet. A 32-inch diameter segment-type brush, powered by the loader's hydraulic system, provides effective clean-up, snow removal and related maintenance work.

Center pivot mount on the TK-H brooms permits the broom head to be hydraulically swung 30 degrees left and right. The broom head is supported by two 4.80 by 8 six-ply caster wheels which swivel 360 degrees for maximum maneuverability. The loader lift arms raise the entire broom, including the caster wheels, for easy transportation to and from the job site.

Circle 104 on reader service card

RECOGNIZING A NEED FOR INCORPORATING clients' security requirements into the design of their landscaping, **Customline Inc.**'s electronic gate openers along with electronic gates and fences, can be planned into the landscape design

to prevent trees and shrubbery from having to be destroyed or relocated when installing security systems.

Planning gate operators, security gates and fences now, whether light industrial, commercial or residential, will save clients from high insurance rates, parking lot thefts, and wasted hours opening and closing gates.

105 on reader service card

THE GRASSHOPPER COMPANY'S 11 h.p. model 411 mini-hopper with 35-inch cutting width brings Grasshopper zero-turn-radius performance to the compact class. It's easy to store and is capable of passing through most standard yard gates.

The mini-hopper offers smooth and simple operation with a clutchless, hydrostatic drive. Dual levers give operators instinctively natural control of speed, turns, braking and forward/reverse motion. The outfront deck and zero-turning-radius maneuverability allow the mini-hopper to reach under low-hanging trees and shrubs, maneuver between and around obstacles and mow square corners with unlimited visibility. An optional deck-driven quick-d-thatch® vacuum grasscatcher and optional high-back seat with armrests are available.

Circle 106 on reader service card

THE HAKO POWER SWEEPER cleans lawns by picking up leaves and debris and packing them into the eight-bushel capacity hopper for easy dumping onto a compost pile or tarpaulin for removal.

The Hako power sweeper can be converted to a lawn dethatching device by switching a flail dethatching shaft with the power sweeper broom.

107 on reader service card

AN INDUSTRIAL SAFETY catalog is now available from **Labelmaster** to assist in safety efforts of industry professionals.

The new catalog contains a variety of items designed to help protect user health and safety when working with

PRODUCT SPOTLIGHT

A HAND HELD WIND speed indicator from **Spectrum Technologies Inc.** is now available enabling pesticide applicators to measure wind speed when applying pesticides to turf and ornamentals.

The pocket-sized turbo meter is an electronic, hand held air speed indicator. A three-digit display provides extra reduction and excellent viewing contrast in bright sunlight.

Just one switch selects any of four built-in scales: miles per

hour (0-100), knots (0-88), feet per minute (0-8,800) and meters per second (0-45). To ensure maximum sensitivity and accuracy, the turbine is suspended on sapphire jewel bearings, and its rotation is sensed by an infrared light beam which adds no friction.

The product is ideal for documenting and assessing the impact of wind speed when applying pesticides and fertilizers.

Powered by the AAA batteries (not included with the



product), Spectrum's turbo meter is weather and shock resistant.

102 on reader service card

hazardous chemicals.

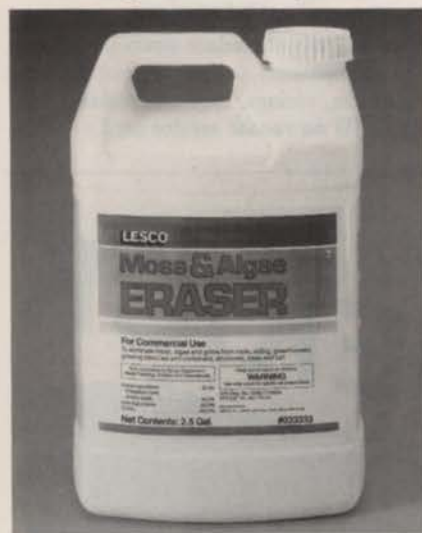
Included are the hazardous materials identification right-to-know labeling system, computer software programs for training documentation and label printing. Shown are spill control products, flammable liquid storage containers and warning signs. Also included are a community right-to-know workbook, National Fire Protection Association products and items used with safety recognition programs.

Circle 108 on reader service card

MOSS AND ALGAE CAN NOW BE selectively controlled in turfgrass and other areas with a new product from **LESCO Inc.**

LESCO moss and algae eraser is a quick-acting, natural fatty-acid herbicide that is registered for use on all turfgrasses. The product also eliminates moss and algae on roofs, sidewalks, decks, trees, growing containers and other surfaces.

Convenient and easy to use, LESCO moss and algae eraser is a liquid concen-



LESCO's moss and algae eraser.

trate that can be applied with any type of sprayer. It is packaged in 2 1/2-gallon containers.

Circle 109 on reader service card

A VERSATILE 540 P.T.O. VERSION OF the Bale Chopper is available in several models from **Goosen Industries.**

With the standard flexible 30-foot placement hose, the blower model takes less than 60 seconds to chop and spread a bale for fast and efficient mulching in landscaping and nursery applications.

An available 180-degree directional spout provides easy application from the tractor seat at 35 to 45 seconds per bale. A retractable bale carrier holds four bales. Available accessories include a P.T.O. trailer capable of carrying 25 to 30 bales at a time.

Circle 110 on reader service card

"**GROW!**," DESIGNED TO HELP your business grow, is a two-page customer newsletter offered to the green industry on a subscription basis, up to six times a year. It is published by **Focal Point Publications** and can be ordered as a stock item, or custom-designed exclusively for an individual company. It is printed in two colors, on 80-pound-coated stock and includes photographs.

Grow! is written with a light touch to appeal to homeowners and deals primarily with lawn and garden topics in a friendly, informative manner.

Circle 111 on reader service card

A NEW COMPUTER SOFTWARE package from **Data Enterprises** has been developed specifically for the lawn, maintenance industry. A single-entry package, the service billing program is designed for efficient organization and control of invoicing and accounts receivable.

The program allows the user to create an infinite number of billing service codes. Prices are coded according to services rendered, by date and by customer. Invoices can be entered either by customer code or route.

Entries are posted to the accounts receivable program for up-to-the-minute

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Circle 60 on reader service card

reports on sales, cash flow, customer aging, customer history, etc. So the user has instant access to totals by customer and/or service. Data may be retrieved by route, service or customer for MTD or YTD totals.

The service billing program is easy to understand and use. It sells for \$1,695 with a 60-day money-back guarantee. The program can be used with DOS, UNIX, XENIX and most multi-user systems.

Other modules available are accounts payable, payroll, general ledger, inventory, purchase order, wholesale distribution, mailing address system and point of sale.

Circle 112 on reader service card

ROOTS INC. CROP SCIENCE COMPANY is now offering **ROOTS™**, a root growth enhancer for commercial and residential turfgrass and nursery stock. Developed with researchers at Yale University, the product is designed to improve growth, strength and overall plant health.

ROOTS is a non-toxic, liquid concentrate which includes marine algae, plant enzymes, humic acid and several other ingredients. While not a fertilizer itself, ROOTS improves the efficiency of chemical fertilizers so that fewer chemicals in

smaller amounts are needed.

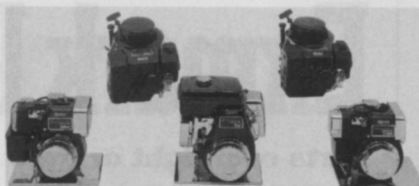
Roots is particularly effective in speeding up commercial sod production; building traffic resistant turf in golf courses, stadiums and other commercial turf installations; and accelerating nursery production and reducing plant loss in landscape installations.

ROOTS will be available in selected markets in the Northeast and Southeast this year and nationally in 1990.

Circle 113 on reader service card

THE SOVEREIGN OVERHEAD VALVE engine series from **Teledyne Total Power** consists of 10 4-cycle models, offering power ranges from three to 18 h.p.

In addition to three vertical shaft models, the series offers seven horizontal



Teledyne's Sovereign OHV series.

shaft models — including the new W01-300 (9 h.p.) and W01-340 (11 h.p.). Two of the models, the W02-510 (16 h.p.) and W02-560 (18 h.p.), feature horizontally

opposed twin cylinders.

Sovereign models are compact and lightweight, yet durable. The engines feature a crankcase of one-piece diecast aluminum to resist corrosion and dissipate heat more effectively; a cast iron cylinder liner, ribbed for greater strength and integrally cast into the crankcase; forged steel crankshaft; forged aluminum connecting rods; automotive-type pistons of cam-ground aluminum alloy, in a three-ring design; chrome compression and oil control rings; intake and exhaust valves of heat resistant steel alloys; and dual ball main bearings.

Circle 114 on reader service card

AIR LIFT COMPANY OFFERS 150 polyair spring suspension aid applications for cars, vans and light trucks to improve handling performance and safety, as well as prolong the life of suspension components.

The suspension accessory fits coil and leaf springs and is used primarily for load support purposes to prevent sag, bottoming out, poor handling and loss of steering control. By providing extra load support, polyairs reduce strain on suspension components and help extend the life of shocks, springs, tires and brakes.

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Circle 58 on reader service card

Arrowhead
(continued from page 23)

understand that they're going to get more for their money. That's a challenge, but through quality service and effective personnel, we can do that.

Q. Who is your competition? Do you actually compete with area landscapers?

A. Snyder. I don't think any company is identical to any other in the industry. Every company operates differently. As far as our competition goes, I'd say we have 10 to 15 larger competitors. We're fortunate because our strength is in our financial backing. We have tremendous financial backing and we're here for the long haul. We can endure the economic slumps and the difficulties that come about.

Q. How much untouched business remains in the industry in the Southwest United States?

A. Snyder. Right now, there's more than enough companies to take it on. As a matter of fact, there's not enough jobs to go around for all the competition. And that's why through this economic cycle, we're going to lose a few. We're already losing a few. In fact a couple of them have gone bankrupt this year or are out of bus-

iness. And we're going to see some more in the next 18 to 24 months.

There's not anything really left to go around right now, however, I anticipate that the sunbelt communities are going to continue to grow. We really are overbuilt here. The real estate, construction and related services industries are really hurting here more so than in other areas. We're not as bad off as Denver, but we're following in their footsteps.

There's new customers in the sense that you can go and take customers away from competitors, but as far as new developers and new real estate people moving into the valley, that's very minimal right now. I think it'll happen again, but it will be awhile.

Q. What role does water conservation play in your landscape projects?

A. Meyer. It's getting bigger and bigger. People like lush landscapes, but we're learning to make use of plants with lower water requirements. Water may not always be there to accommodate summer and winter grasses, so you have to keep pace with what's available. This is where arid landscaping comes into play.

Water is replenishing itself, but not as fast as the water tables are dropping. They're bringing water in from Colorado,

but not enough to keep up with growth. Certain areas are fighting too restrictive water constraints, but it's more of an individual effort rather than a group effort.

Q. What motivates you? What makes you want to remain in the landscape business?

A. Snyder. What's my driving force? I ask myself that question every day. I think it's a real important question to ask every day because I'm a seeker — I'm an innovator. And innovators, in terms of their personality, are the ones that like to make things happen. I like to start things up. And I love great challenges and very difficult challenges.

I've always been very competitive, whether it be business or sports. I have a family history of innovators and entrepreneurs. My grandfather influenced me greatly as I watched him become very successful in the oil business. Then I watched my father and my uncle become incredibly successful innovators. I guess I'm kind of motivated a great deal now at living up to the reputation.

It's just a real natural thing for me to seek challenging environments, difficult environments. Starting a business like this is as difficult an environment as I've ever encountered. I thrive in it.

(continued on page 62)

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Tractor Issues

(continued from page 31)

complete tractors with five horsepower sizes ranging from 15- to 35-h.p.

127 on reader service card

J.I. CASE CO. Trudy Brunot, product manager for 200 series tractors at J.I. Case Co. said the company's product line is upgraded in two- to two-and-a-half-year cycles, incorporating easier operations, attachment compatibility and expanding the attachment selection.

Case offers five tractors in the under 40-h.p. range called the 200 series. These compact tractors with PTO horsepowers of 15.2 to 27 have a designed control system, a lighted dash panel, contoured seats and an expanded selection of tire sizes.

Easy-to-install attachments include cultivators; mid-, rear- and front-mounted mowers; snow throwers; and loaders.

128 on reader service card

GRAVELY INTERNATIONAL. Gravely International offers garden tractors ranging from 12- to 20-h.p. and up to 22 attachments, according to Rick Murray, vice president of marketing. "We also have a two-wheel tractor which is a walk-behind and has 20 attachments. We have interme-

diated mowers (walk-behind) and riding out-front cutters with 40-, 50-, 60- and 72-inch cuts and different horsepowers," he said.

The top of the line for Gravely is the Promaster 18H, a riding mower with an 18-h.p. engine and a 16-inch mower. There's also a 30H with 30-h.p. and a 72-inch mower. They are both hydrostatic.

129 on reader service card

ARIENS COMPANY. Ariens Co., Brillion, Wis., entered the market in 1973 with 18- to 20-h.p. Kohler engines, according to Mike Thuecks, Ariens tractor program manager. Its systems are fully hydraulic and employ 25 accessories and attachable back hoes.

The mid-size is the HT tractor 16- to 18-h.p. Kohler hydrostatic transmission. Electric lift and PTO clutch are standard, as are wrap around head and tail lights. It also has 42-, 48- and 60-inch mow deck options and a quick attachment system.

130 on reader service card

THE TORO CO. Toro is producing more wide-area mowers and wide-area walk-behinds from 12- to 18-h.p. with 32- to 52-inch decks. The Groundsmaster is just that type. Another feature of Toro is a mid-size walk-behind with a 32-

inch deck, allowing it to fit through gates.

131 on reader service card

KUBOTA TRACTOR CORP. Kubota Tractor Corp. introduced its first four-wheel-drive series of tractors for commercial landscapers, apartment maintenance crews, cemeteries and residential use in 1986. Also new is an excavator tow articulated wheel loader and trencher.

The KH007, a compact excavator, is 32.3 inches wide for use in tight spaces. It has an 8.5-h.p., two cylinder liquid-cooled diesel engine.

The two articulated wheel loaders, the R310 and R410 offer the same quality and versatility as the R400, but are equipped with a strong channel frame and feature LST — load sensing transmission. This automatically changes from high speed with low torque to low speed with high torque as load conditions vary.

Each of the models has a liquid-cooled, four-cylinder engine with 26.6-h.p. and 39.5-h.p. respectively. They are designed for low noise. They have four-wheel drive and steering at angles of about 40 degrees.

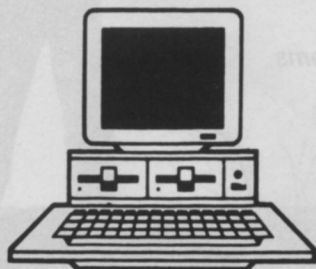
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— Lynn Wolf Dulcie

The author is a free-lance writer based in Cleveland, Ohio.

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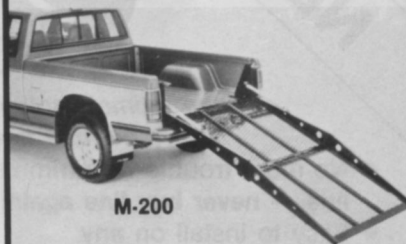
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Landscape News

(continued from page 19)

fertilization, edging, mulching, tree trimming, guying, staking, wrapping and winter protection.

Other services that the landscape management contractor may perform include the planting and caring of seasonal color, irrigation service, erosion control, revegetation, snow removal services and aquatic weed control.

FINANCIAL PROFILE: Cash flow is the most critical financial indicator in a successfully managed landscape management company. The principal reason is that it is a pure services organization, for unlike an installation contractor, it sells labor services and little hard product. The major portion of its disbursement must be written within a short time frame.

For example, labor, which comprises more than 50 percent of all disbursements, must typically be paid every seven days; and equipment expenses, which total another 20 percent of all disbursements, are generally 30-day payouts. Therefore, well over 70 percent of all disbursements must be paid within 30 days or less. How is this done? In the industry sampling, this is accomplished

both through accounts receivable collections and notes from outside creditors, virtually in the same proportion. The preference is to have the company support its needs more on its own resources than on those of outsiders. One way this can be achieved is to reduce the receivable age to something less than 40 days in length.

Since 1979, significant economies and efficiencies can be seen in the manner by which the landscape management contractor manages his business. Yet, profits have seen more than a 50 percent reduction. Much of this decrease can be credited to the contractor's inability to pass along to the client the major increases in the cost of owning and operating equipment.

INTERIOR PLANTSCAPE CONTRACTORS

Type of Company:

Corporation:70 percent
 Sub-S Corp.17 percent
 Proprietorship13 percent

Profile Data:

Years in Business11
 Number of Clients350
 Average Job Size\$2,100
 Total Employees26
 Permanent Employees18
 Average CEO Wages\$28,600

The interior plantscape contractor provides its clientele with a wide range of products and services required for the creation of the interior environment.

These areas of expertise include interior design and horticultural consultation, and the supply and installation of tropical and flowering plants, decorative plants and support materials. Additionally, the interior plantscape contractor provides ongoing maintenance programs, often linked with guarantees, to assure the continuing quality of their products and services. In accomplishing their goals, these contractors often work cooperatively with the architectural and design community to fulfill landscape needs in a wide variety of interior spaces, both in the residential and commercial markets.

FINANCIAL PROFILE: The overall financial profile illustrates a company that, while slightly undercapitalized, operates quite nicely. There are, however, two areas which, if attended to, would result in this company's being a model after which others could pattern themselves.

First, liquidity, while adequate for current operations, suffers as a result of the company's trying to maintain a heavy inventory (105-day age) plus finance some

(continued on page 62)

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CALENDAR

JUNE 2

Advanced Interior Maintenance, DFW Marriott, Dallas, Texas. Contact: Associated Landscape Contractors of America, 405 N. Washington St., Falls Church, Va. 22046; 703/241-4004.

JUNE 5-7

Proving the Technical Case: Groundwater Pollution Litigation, University of Wisconsin-Madison. Contact: Patrick Eagan, Dept. of Engineering, University of Wisconsin-Madison, 432 N. Lake St., Madison, Wis. 53706; 800/262-6243 or in Wisconsin 800/362-3020. Ask for engineering information.

JUNE 15

Sports Turf Association Educational Athletic Turf Field Day, 8:30 a.m. to 4:30 p.m. River Oaks Recreation Centre, Oakville, Ontario. Contact: Robert Allen, 50 Booth Ave., Toronto, Ontario M4M 2M2; 416/392-7261.

JULY 31 to AUG. 2

International Lawn, Garden and Power Equipment Expo, Kentucky Fair and Exposition Center, Louisville, Ky. Contact: Expo 89, P.O. Box 70465, Louisville, Ky. 40270; 800/558-8767.

SEPT. 28-30

International Pesticide Applicators Association Convention and Show, Salishan Lodge, Glenden Beach; Ore. Contact: John Landon, P.O. Box 247, Cackamas, Ore. 97015; 503/222-3161.

OCT. 8-11

The Associated Landscape Contractors of America Interior Plantscape Division Conference and Trade Show, Boston Park Plaza, Boston, Mass. Contact: ALCA, 405 N. Washington St., Falls Church, Va. 22046; 703/241-4004.

NOV. 6-9

The 10th Annual Professional Lawn Care

Association of America Conference and Trade Show, Las Vegas, Nev. Contact: Jim Brooks, 1000 Johnson Ferry Rd. N.E., Suite C-135, Marietta, Ga. 30068-2112; 404/977-5222 or 800/458-3466.

NOV. 7-10

New York State Turfgrass Association Annual Conference and Trade Show, Rochester Riverside Convention Center, Rochester, N.Y. Contact: Beth Seme, P.O. Box 612, Latham, N.Y. 12110; 518/783-1229.

NOV. 8-11

International Trade Fair for Design, Equipping and Care of Amenity Areas, Cologne, W. Germany. Participants include those interested in landscape construction, plants and seeds, chemical and biological products and golf course construction. Contact: Koln Messe, 221/821-2912.

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Young athletes need your help

Let's look at reality... many, maybe even most, of our sports and playground surfaces are in deplorable condition. Many of these are unsafe and even treacherous. We still tolerate this even though we have the finest agronomic knowledge, turfgrasses and equipment at our disposal. Add this to our collective enthusiasm for physical activity... watching and participating... and we have a powerful force to construct quality fields, maintain them, and/or correct existing sports field turf problems. We believe that lack of vital information and blurred focus of intentions have slowed progress. NSTC will take all of this talent, information and material, focus, then project the essence into an active force for sports and playground safety.

Who do we need to get involved? Support from organizations, institutions and associations is essential, but individual efforts from parents, teachers and coaches is mandatory. We need input... emotional, testimonial, technical, statistical and physical. Then we need funds to fuel the mechanism. We need you.

We need community liaison, people who will grab the ball on a local level and run with it. We need people in the right places who can implement a plan to tackle a problem, devise game plans in the community and make them work. We need people of conscience who realize that falling is a part of physical activity and that getting up and shaking it off is a right, and pain and injury are not acceptable. We need you.

You can help by joining today!

Become associated in some category with NSTC and with affiliated organizations.

Give financial aid to NSTC to assure continuity of Safer Sports Turf operations.

Help implement plans on a local/community level.

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I (We) wish to support NSTC in the above category (check appropriate box)

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Please return this membership application and your check to: **National Sports Turf Council**

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 Bldg. 001, Room 333
 Beltsville, MD 20705
 301/344-3655



CLASSIFIEDS

RATES

All classified advertising is 55 cents per word. For box numbers, add \$1 plus six words. All classified ads must be received by the publisher before the 10th of the month preceding publication and be accompanied by cash or money order covering full payment. Submit ads to: **ALA Lawn and Landscape Maintenance magazine, 4012 Bridge Avenue, Cleveland, Ohio 44113.**

ACQUISITIONS

WANTED TO ACQUIRE

Lawn care companies of all sizes in U.S. and Canada being sought by national corporation. Complete buy out or stay and grow with us. If interested please call me directly: Don Karnes, Senior Vice President, Tru Green Corp., 404/442-8700. Strict confidentiality maintained.

WANTED TO BUY

Lawn care companies of all sizes anywhere in U.S. wanted to purchase by national corporation. If interested please respond to: *ALA/Maintenance magazine*, Box 329, 4012 Bridge Ave., Cleveland, Ohio 44113. Strict confidentiality maintained.

FOR SALE

LAWN CARE EQUIPMENT

Hannay reels new in-the-box, E1526s, E1530s, \$349; lawn spray hose, 275 psi and 20 psi, all sizes; original Imler measuring wheels, \$48; glycerin-filled gauges, 0-6 psi to 0-1,000 psi, \$19.95; polypropylene ball valves, 1/2-inch to 2-inch; ChemLawn guns, \$75.95; lawn spray boots, \$16.95; lawn spray gloves, \$1.75-pair.

Call **Hersch's Chemical Inc.**
800/843-LAWN — outside of Michigan
313/543-2200

EQUIPMENT AND CONSULTATION

Custom design sprayers; Professional spray consultation, Flo-jet 12-volt pump; Backpack sprayers; Hannay reels; JD9CT guns; Glycerin gauges; Spray System parts; Hypro and Udor pumps and replacement parts; High Pressure Cleaners. Selling directly to lawn care companies with discounts on parts and proudly shipping 90 percent of same day orders. **Canann Industries, 800/842-7515 (AL); 800/633-7560 (U.S.)**

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LANDSCAPE TRAINING VIDEOS

Intermediate mower maintenance field and shop repair; efficient/profitable mowing techniques; professional shrub trimming, plant installation, basic landscape plan drawing, etc. ENGLISH AND SPANISH. Write for free brochure: C.D. Anderson Landscape Videos, 515 Ogden Ave., Downers Grove, Ill. 60515. 800/937-0399.

BUSINESS OPPORTUNITY



WHAT DIRECTION IS YOUR FUTURE?

Are you considering your own business? Do you need help? Our franchise opportunity may be the vehicle to help you travel the road to

success. The lawn care industry is on the move and has room for more good companies. Even if you own your own company, our professional team can help. Please call collect: Keith Waller or Don Friihauf at 216/255-0380.

HELP WANTED

FOREMAN POSITION

Top firm needs foreman. Quality conscious Texas-based landscape management firm has immediate opening for detail-oriented landscape maintenance foreman. If you have outstanding professional and horticultural skills and are not afraid of hard and healthy teamwork, then you could qualify for a top position with the finest landscape firm in the Southwest. Outstanding compensation and opportunity. Reply today to: *ALA/Maintenance*, Box 325, 4012 Bridge Ave., Cleveland, Ohio, 44113.

LANDSCAPE SALES PERSON

Expanding Southern California company looking for a dynamic and highly motivated person. Industry knowledge will be helpful. Sales experience and ability to communicate with people effectively desired. Please send resume to: Mark Wesel, general manager, Valley Landscape Maintenance, 8001 Canoga Ave., Canoga Park, Calif., 91304.

SALES ENGINEER

Fast-growing Midwest manufacturer of fluid pumping and metering products has an immediate opening for a sales engineer to develop new markets. The position requires a strong technical understanding of electronic and mechanical devices plus knowledge of the lawn care industry. Qualified individuals should send resume and salary history to: Marketing Manager, Great Plains Industries, 1711 S. Longfellow St., Wichita, Kan. 67207

It pays to advertise in the

ALA/MAINTENANCE CLASSIFIEDS

To place an order, write to

ALA/MAINTENANCE,
4012 Bridge Avenue, Cleveland, Ohio 44113

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* Depicts regional advertisement.

Supervisors

(continued from page 28)

nel. Furthermore, when you take an objective look at your organization and decide that all you really need is someone too fill in for technicians during vacations and sick leave, then why hire a supervisor when all you need is a utility man? Hiring a supervisor without giving him the opportunity to grow as a manager, to accomplish his goals and used only as a swing man is personally cruel and a waste of resources.

Lawn maintenance supervisors serve as a controlled extension of upper management, and frontline's "voice" in the decision making process. He works through people to satisfy customer needs, achieve corporate goals, and ensure the well-being of his staff. In this regard, the supervisor may be the most important person in the whole organization. He is a people-oriented individual whose primary responsibilities are to translate corporate goals into action at the frontline, and to provide management with accurate feedback so that proper operating adjustments can be made. — *Mike Holcomb* ■

The author is an urban and industrial entomologist based in Decatur, Ala.

Landscape News

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of its customers through leasing arrangements. Were the company to either cut inventory in half or finance the lease with an outside creditor, or both, the liquidity and capitalization issues would be satisfied.

The second area concerns profitability that, while arguably adequate, can stand significant improvement. Because the margins earned from jobs indicate fair pricing and good labor efficiencies, the issue of profitability rests primarily in overhead control rather than job control.

For example: the heavy inventory levels are driving up stock losses and warehousing expenses; the levels of mileage expense plus gasoline expense suggest the company might be attempting to service too great a geographic area; the advertising and selling expense should be analyzed to determine whether the dollars are most effectively allocated and focused to the company's market; and, interest expense can be significantly reduced were inventory reduced and the leases eliminated. ■

Contact ALCA for more information on this report: 405 N. Washington St., Falls Church, Va. 22046; 703/241-4004.

Q. What is the most difficult aspect of your job? What causes you the most frustration?

A. *Snyder.* I would say it's a toss-up between the terribly unsophisticated market we're in and the fact that our competitors are not charging enough for the sacrifice and the effort.

It's raising those standards that's challenging, but you have to do it. You have to lay down the law and say we're paying you for an honest days work, and we all have to give 100 percent or it's not going to work. I think there's also frustration with the lack of qualified and experienced personnel. The industry demands that you have training programs, that you be an expert with a personnel-intense type of business. That's what we are. We're selling people's time and their services. So we've got to be good at that.

That's part of the frustration because it's a constant challenge and you always want your success before it's time. I grew up with that view for immediate self-gratification.

Q. What advice can you give to new and growing companies in the lawn maintenance industry?

A. *Snyder.* Let control and profit determine your growth and be very careful and cautious about taking on large and especially new work that you haven't done before.

You don't want to jump in with both feet in the frying pan. Be careful about it. Not only work hard, but work smart. All the hard work in the world is great, but working smart may take staying up an extra hour at night and getting up an extra hour early in the morning. Those are the keys to success.

A. *Meyer.* Read until it hurts. Read everything and anything that will give you a sense of where the industry's going and where the business is.

Keep your equipment in good condition and keep your eye on labor and budgets. Know which jobs are making a profit and don't make a habit of doing free jobs for your customers. — *Cindy Code* ■

The author is Editor of ALA/Maintenance magazine.

COMING NEXT MONTH

The June issue of *ALA/Maintenance* magazine will include a report on 1989 seed varieties and the latest research developments in seed tolerance, color and disease resistance. We'll also bring you some water conservation tips and what you need to know before selling and installing irrigation systems.



Give grubs an inch and they'll take a whole yard.

Grubs feed at many levels in a yard, but it's at 1" to 1½" below the surface where they do their real damage. And because grubs are constantly moving from one level in the soil to the next, a single treatment of most insecticides will only get the ones closest to the surface.

But with OFTANOL® insecticide, you have the strength to knock out those grubs closest to the surface now, and the staying power to deal with grubs, rising up from the depths, in the future.

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