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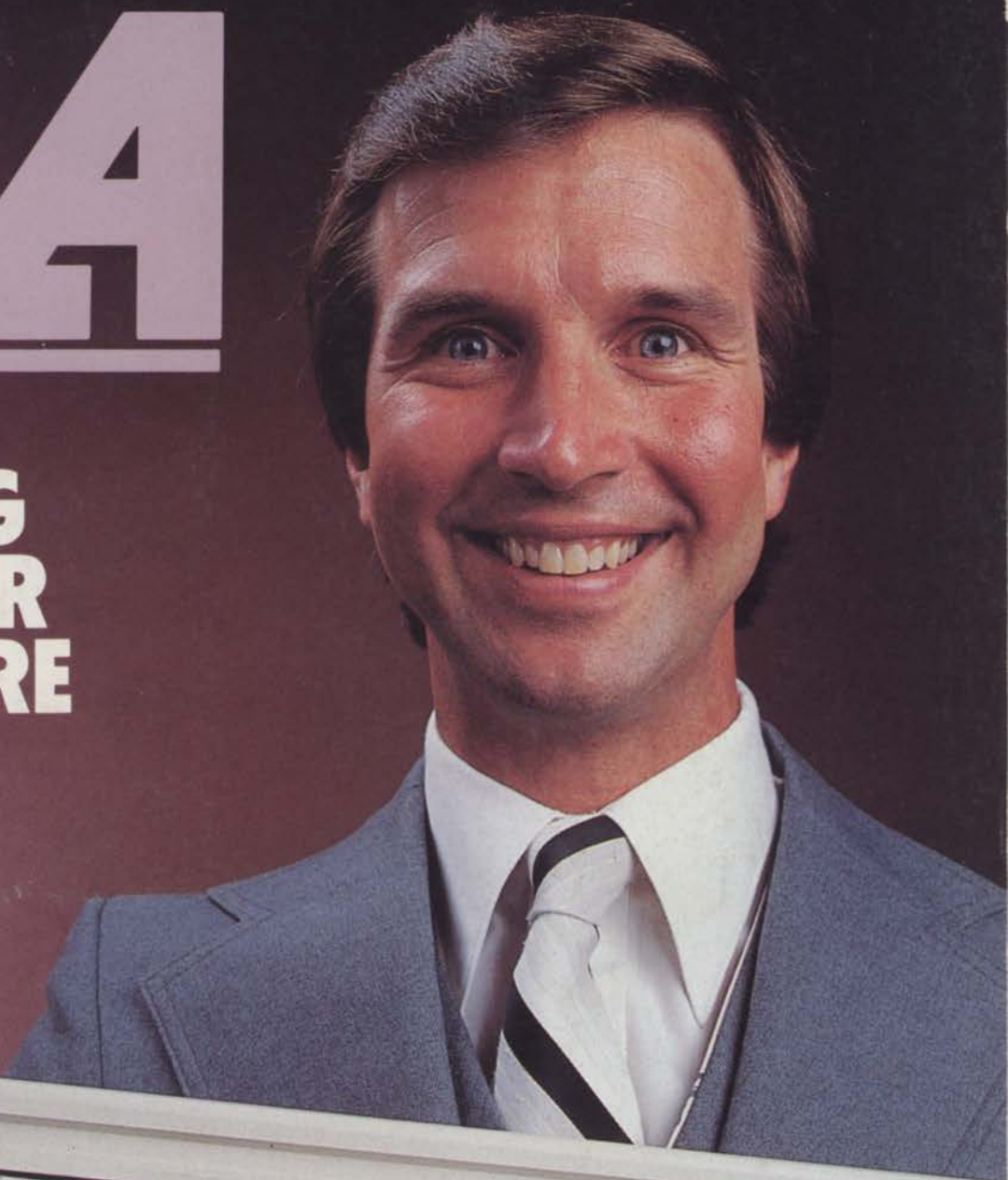
ALA

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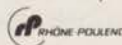
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ALA

AUGUST 1987
VOLUME 8 NUMBER 8

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COVER

Selecting computer hardware can be baffling, but some handy guidelines will enhance your search. (Cover photo by Barney Taxel)

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could also handle
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*Hard-to-control weeds like oxalis, ground ivy, prostrate spurge and wild violet.

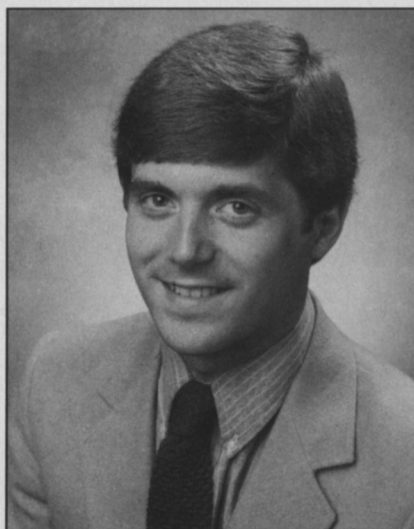
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INSIDE STORY

Most of you have probably at least *thought* about purchasing a computer if you haven't already taken the plunge. Depending on the size of your lawn care operation, you might now be using a system for accounting, mailing lists, or even routing. Well, if you are a relative newcomer to the computer age and happen to be in the market for some hardware, you'll want to turn to page 18, where we've featured Assistant Editor Vivian Rose's article, "Choosing Computer Hardware."

Rose agrees it can be overwhelming venturing out to buy a computer what with all the name-brands and off-brands competing for your dollar. Not to worry, though, Rose outlines a common sense approach for tracking down that ideal hardware. The guidelines are sure to make your hunt more rewarding!

This month's issue of *ALA* also includes an update on the New York State legislature's doings with a series of bills now under consideration. If passed, the legislation will dramatically alter regulation of commercial lawn care. Proposals address everything from pesticide con-



tainers, recordkeeping, and applications to posting. Proponents hope to see the legislation pass next year and claim it was launched in response to faulty lawn care practices. New York State's lawn care operators are coming to grips with the fact that they might very well be working under this tough legislation next year. Though

never the sort to sit back and take the blow, a handful of industry representatives have already taken on the legislature — voiced their concern about the impact of such sweeping changes — and are determined to get their side of the story heard.

We all realize, unfortunately, that the public's concern about pesticides is not likely to disappear altogether. Along these lines, we have a technical feature by Dr. Joseph Vargas titled, "Cultural and Biological Pest Management."

Vargas offers industry practitioners some insights into providing consumers with the quality lawn care they're accustomed to through limited use of pesticides. Vargas, a Professor of Botany and Plant Pathology at Michigan State Univ., takes a look at integrating both cultural practices and biological management techniques to help alleviate some of the criticism.

Finally, we offer our usual assortment of departments, where you'll find the latest news on the industry, its people, and products. Enjoy!

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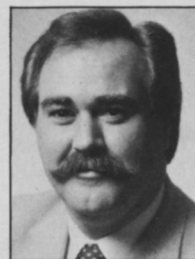
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Gordon LaFontaine is President of Lawn Equipment Corporation, Novi, Michigan. **Dr. William Meyer** is President of Pure-Seed Testing, Inc., Hubbard, Oregon. **Des Rice** is president of The Weed Man, Ltd., Mississauga, Ontario, Canada. **Dr. Al Turgeon** 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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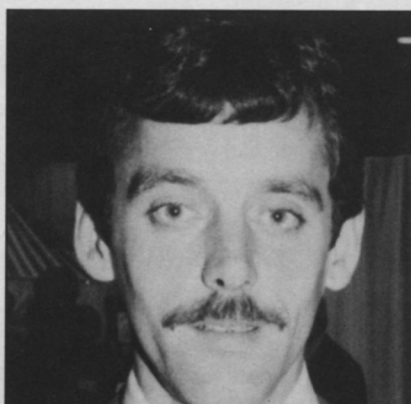
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VIEWS ACROSS THE TURF INDUSTRY

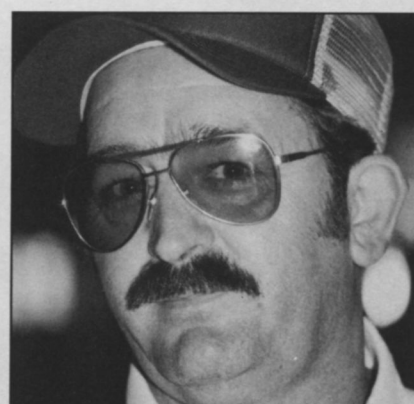
HOW DID YOU SELECT YOUR COMPUTER HARDWARE?



"We don't use a computer for business like general ledger work and other accounting. We're a garden center and a nursery and do some landscaping work. Maintenance is a portion of our business. The computer that we do have was purchased in a computer store. We use it on a limited basis for price lists and mailing lists and things like that. We maintain a customer list and we do some of the price lists that we utilize for our nursery stock and so forth." — *Paul Begick, Begick Nursery, Bay City, Michigan*



"We got brochures and advertising after we inquired at several places. We actually made our selection based more on the software package than the computer. We now have our customer lists and all of our accounts receivable on the computer. It prints out the invoices by geographical areas, but we do our own routing because one day later it's all thrown out of whack anyway: people call because they want you to come earlier or later or the weather throws you off." — *Gene Horning, Lawnpro, Mapleton, Minnesota*



"We recently sold our business in Michigan and moved here. We don't have a computer now because we're too small, but before we left, we were looking at them. We were looking at the IBM systems because they seemed to be compatible to everything. In Michigan, our friend had a computer and we were building and working off theirs. When we got our own system we were going to use it for everything from payroll and the customer list to billing." — *Jesse Gargas II, A-1 Lawn Care, Ltd., Cape Coral, Florida*

CALENDAR

Aug. 27-30

ALCA Exterior Landscape Contracting Division Conference, Red Lion Inn, Portland, Oregon. Contact: Rebecca Crocker, Associated Landscape Contractors Association, 405 North Washington Street, Falls Church, Virginia 22046; 703/241-4004.

Aug. 28-30

Farwest Trade Show sponsored by the Oregon Association of Nurserymen, Portland Colosseum, Portland, Oregon. Contact: Rebecca Crocker, Associated Landscape Contractors Association, 405 North Washington Street, Falls Church, Virginia 22046; 703/241-4004.

Aug. 30-Sept. 4

"New Directions in Urban Integrated Pest Management: An Environmental Mandate" Symposium, New Orleans, Louisiana. Contact: Anne R. Leslie, American Chemical Society, P.O. Box 15666, Arlington, Virginia 22215; 703/557-5017.

Sept. 3

MSU/MTF Turfgrass Field Day, Trade Show, and Auction, Michigan State University, East Lansing, Michigan. Contact: Dr. Bruce Branham,

Department of Crop and Soil Sciences, Michigan State University, East Lansing, Michigan 48824; 517/353-2033.

Sept. 10

Ohio Turfgrass Research Field Day, Ohio State University, Columbus, Ohio. Contact: Dr. John Street, Ohio State University, 234 Kottman Hall, 2021 Coffey Road, Columbus, Ohio 43210; 614/292-2601.

Sept. 22-23

Virginia Tech Turfgrass Research Field Days, Virginia Tech, Blacksburg, Virginia. Contact: J.R. Hall, III, Virginia Polytechnic Institute, Virginia Cooperative Extension Service, Blacksburg, Virginia 24061; 703/961-5797

Oct. 6

Ohio Turfgrass Foundation Golf Tournament, Columbus Country Club, Columbus, Ohio. Contact: Dr. John Street, Ohio State University, 234 Kottman Hall, 2021 Coffey Road, Columbus, Ohio 43210; 614/292-2601.

Oct. 24-29

ALCA Interior Plantscape Division Conference,

Hyatt Regency Crystal City Hotel, Arlington, Virginia. Contact: Rebecca Crocker, Associated Landscape Contractors Association, 405 North Washington Street, Falls Church, Virginia 22046; 703/241-4004.

Oct. 25-28

1987 International Irrigation Exposition and Technical Conference, Orlando, Florida. Contact: Irrigation Association, 1911 North Fort Myer Drive, Suite 1009, Arlington, Virginia 22209; 703/524-1200.

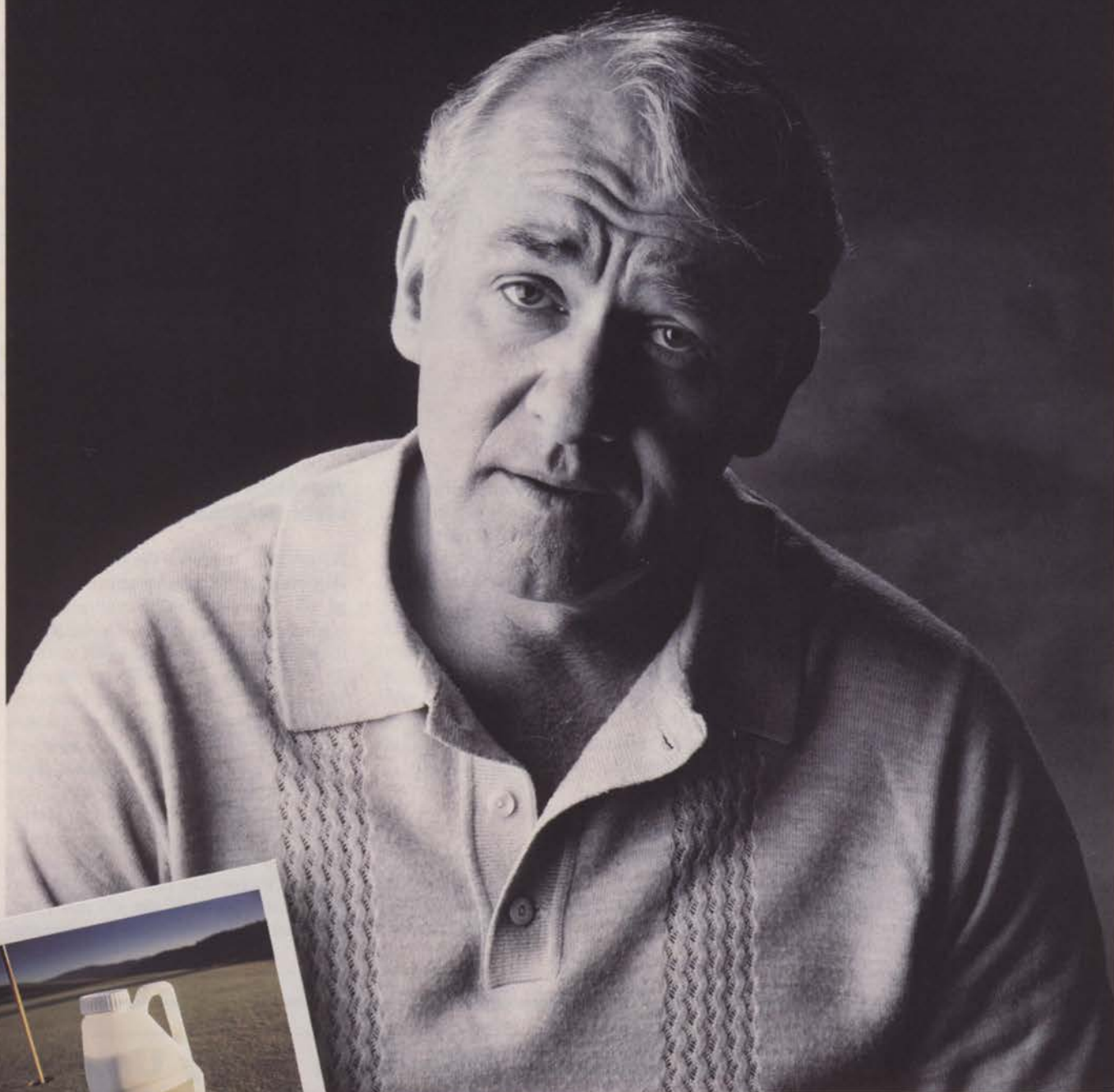
Nov. 7-11

ALCA Landscape Management Division Conference, Hyatt Regency Crystal City Hotel, Arlington, Virginia. Contact: Rebecca Crocker, Associated Landscape Contractors Association, 405 North Washington Street, Falls Church, Virginia 22046; 703/241-4004.

Nov. 12-15

Professional Lawn Care Association of America's Conference and Show, San Antonio, Texas. Contact: Doug Moody, PLCAA, 1225 Johnson Ferry Road, NE, B-220, Marietta, Georgia 30068; 404/977-5222. ■

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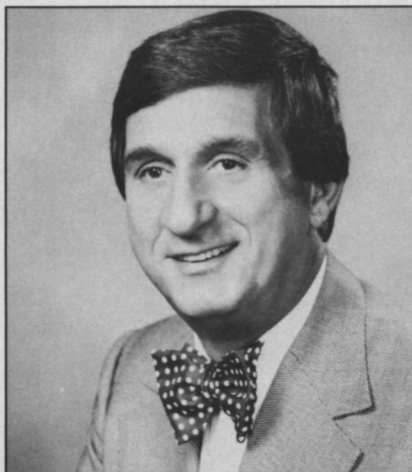
NEWS IN BRIEF

3PF SCORES WINS IN WAUCONDA AND MARYLAND

The Illinois Supreme Court handed down a decision on June 16, declaring that the town of Wauconda was preempted from regulating pesticide applications. The Court declared that Wauconda could not pass the ordinance which called for extensive posting of treated landscapes and buildings because two state laws already controlled that area of the law. The Court's decision was prompted by a lawsuit brought by the Pesticide Public Policy Foundation (3PF) in an effort to halt the adoption of patchwork local regulations that discriminated against professional pesticide applications.

In a related case, the Fourth Circuit Court of Appeals today upheld a district court decision that struck down local pesticide ordinances adopted by Prince Georges County and Montgomery County, Maryland. The lower court had ruled that these ordinances were preempted by federal law. The ordinances required the posting of signs in yards and on lawns following treatment by professional applicators.

Bob Kirshner, 3PF's Associate Program Director believes the Wauconda decision represents the last word in preemption of local ordinances in Illinois. He says the Maryland decision has much broader precedential value. "It is the decision of a United States appellate court stating that FIFRA legislative history makes it clear that local jurisdictions are preempted from regulating pesticides," says Kirshner. "This has nationwide applicability. I would hope that it would dissuade other local jurisdictions from wading into this quagmire."



A. A. Malizia

SNAPPER PURCHASES F.D. KEES COMPANY

On June 15, A.A. Malizia, Chairman of the Board of Snapper Power Equipment, announced that his company purchased the F.D. Kees Manufacturing Company. F.D. Kees manufactures commercial lawn and turf equipment. Malizia stated, "The high quality commercial products Snapper will produce at our new facility will expand our present line which has a proven record of performance and durability. The present management at Kees will continue to operate the facilities and become part of the Snapper family."

POPE SPRINKLES LAWNS IN DETROIT

Two Detroit designers, Robert Lebow and Peter Gahan, have fashioned lawn

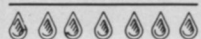
sprinklers in the likeness of Pope John Paul II, according to a story in the June 8 issue of *People* magazine. Made of half-inch plywood and hand painted with oil-based enamel, the \$55 papal sprinklers stand 36 inches high and house a spray jet in each uplifted arm. "We mean no disrespect," says Gahan. "It's just like having a ceramic Madonna in the yard."

The two got into the business of making sprinklers with a personality after the prototypes they built caught on with their friends. When nearly 100 orders for the sprinklers came in one week, Lebow and Gahan incorporated as The Fun Company. They now plan to market a series of personality sprinklers, including Jim and Tammy Bakker, Liberace, Elvis, and Moses. "We might even do Marilyn Monroe with water coming from her shoes to blow her dress up," says Lebow.

TRU GREEN BUYS LAWN GROOMER

As of July 1, Lawn Groomer, Inc. of Bloomington, Illinois became the property of Tru Green Corporation, headquartered in Alpharetta, Georgia. Tru Green President Howard Evers says the Lawn Groomer name will be retained at some of the company's four locations. "There are some markets where it makes sense to use the Tru Green name and there are some markets where it makes sense to use the Lawn Groomer name," says Evers. "It just makes sense for us to stick with the Lawn Groomer name in those markets where they have been doing business longer than Tru Green." He says he is really proud of the job that Lawn Groomer management has done in run-

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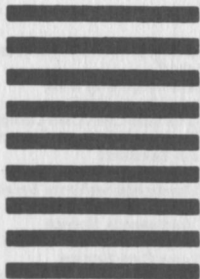
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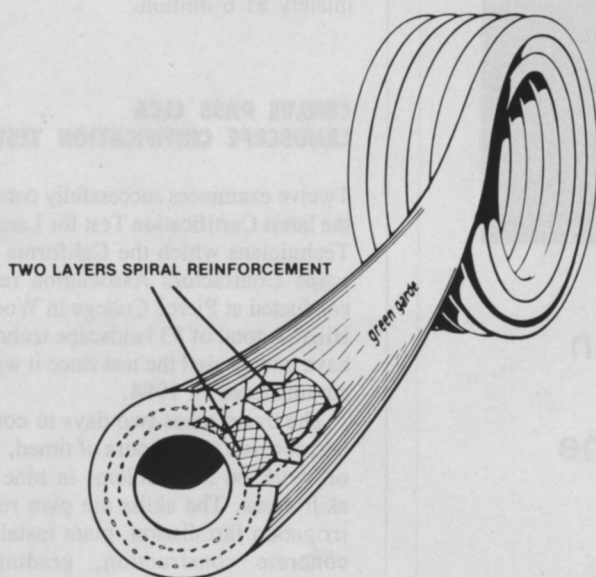
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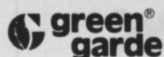
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ing the company.

"I am as excited about this acquisition as any we have ever done," says Evers. "It is a really first rate organization. They have good branch management and tremendous systems for a smaller company." He says the existing Lawn Groomer management has a good handle on the business in terms of customer service and sales marketing. Evers intends to keep the management team intact and "make very few changes if any." Keith Woodruff, ex-president of Lawn Groomer, will stay on in a managerial capacity.

Aside from Lawn Groomer's Bloomington, Illinois headquarters, the company also has branch locations in Champagne, Peoria, and Decatur, Illinois. At peak season, there are currently 50 individuals employed at Lawn Groomer. The company's 1986 gross revenues were approximately \$1.6 million.

TWELVE PASS CLCA LANDSCAPE CERTIFICATION TEST

Twelve examinees successfully completed the latest Certification Test for Landscape Technicians which the California Landscape Contractors Association recently conducted at Pierce College in Woodland Hills. A total of 83 landscape technicians have now passed the test since it was first administered in 1984.

The exam takes two days to complete and consists of 15 hours of timed, hands-on work on 30 problems in nine major skill areas. The skills are plan reading, irrigation installation, plant installation, concrete construction, grading and drainage, brick-on-sand construction, sand box construction, seed and sod installation, and equipment operation.

Applicants must earn a passing score on each of the 30 problems in order to become certified. Those who succeed become Certified Landscape Technicians (CLTs). Application information is available from Micheyl Hannon, CLCA Headquarters, 2226 K Street, Sacramento, California 95816; 916/448-CLCA.

CORRECTION

The table in *ALA* June, 1987 (page 26), which listed common beverages and foods and their potential carcinogenicity, was labeled incorrectly. It should have read:

(*ppb = parts per billion;
1/1,000,000,000)

Our apologies for the error.

PEOPLE

Our thoughts and prayers are with **David Dietz**, Program Director, Pesticide Public Policy Foundation, as he recovers from a recent automobile accident. Though it looks like a long road to recovery, friends report he's becoming more and more lucid and doctors are optimistic about rehabilitation.

"David is recovering quite well," says **Ervin Czimskey**, 3PF Officer Manager. "He is no longer in a coma and has started physical and speech therapy. They expect to be performing a lot more therapy on him over the next several months."

"He's still not communicating verbally," Czimskey adds, "but he seems to recognize people pretty well. In conversations he can respond to simple commands and he seems to be conscious of what's going on."

Correspondence can be addressed to: **David Dietz**, Program Director, Pesticide Public Policy Foundation, 1270 Chemeketa St. N.E., Salem, Oregon 97301.



Fred Monji

Fred Monji, a successful Bakersfield, California landscape contractor, passed away January 7 in a Bakersfield hospital following a brief illness. He was 67 years

old.

A native of Guinda, Monji grew up in Long Beach before moving to Bakersfield. He had been a landscape contractor since 1955 and founded the award-winning firm Valley Landscaping. Monji was an active lifetime member and past president of the California Landscaping Contractors Association.

He will be remembered for his creativity in the art of landscaping throughout Bakersfield and Kern County, where his work will be displayed for years to come.

Monji was also a member of the 3rd Degree Knights of Columbus, Council 977. He was a veteran of the Korean conflict and served as a captain in the U.S. Army.

Mass of the Resurrection was celebrated at St. Francis Catholic Church. Burial was at Greenlawn Southwest Cemetery.

Monji is survived by his wife, Beverly; sons Robin, Gregory, Michael and Dan; daughters, Michelle and Alanna; brothers, James and George both of Atascadero; and six grandchildren. ■

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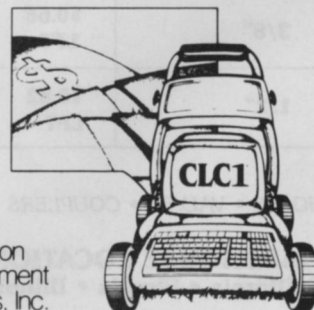
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PLCAA UPDATE

This year the Professional Lawn Care Association of America has taken a new approach to learning at its regional seminars, starting with the first regional seminar held on June 11 in the Atlanta area at the Gwinnett Area Technical College. The Atlanta seminar, and all the seminars to follow this year, focus primarily on the significance of safety awareness. In keeping with the safety theme, the Atlanta seminar featured regulatory and safety experts. After the presentations, attendees were treated to a Tex-Mex buffet, followed by hands-on safety demonstrations.

The first seminar attracted considerable interest and even drew a few applicators from out of state. A total of 87 professionals were in attendance, comprised of 44 applicators and 43 owner/operators. A mini-trade show staffed by 15 exhibitors was also available for the attendees.

For the day's first presentation, "Lawn Care Risk Management — A Field Inspector's Perspective," George Moore, a field agent for the Georgia Department

of Agriculture, explained the importance of the product label in the event of an investigation.

"The label is the law as far as a product is concerned. It will tell you where you can and cannot use chemicals," says Moore. "Read the *whole* label. When we investigate a complaint, we try to determine if you are using the chemical within the limits described on the label."

"We're not a court of law," says Moore, explaining the role of the field agent.

"We take soil tissue, and waste samples; whatever it takes to present a complete picture." If the situation finally does come down to litigation, Moore says he will try to go to bat for the applicator whenever possible.

During the session titled, "Lawn Care Vehicle Safety," Eben Jones, Director of Safety and Insurance at Rollins Industries reminded operators that summer — the peak business season — is a time ripe for motor vehicle accidents. "We're out there trying to get the production work really

going and (that's when) we're running the biggest risk of having an accident."

However, safety can be made manageable if applicators are trained as professional drivers through a certified course, says Jones. He adds that a "Professional Driver" patch reflecting such a program was added to the Orkin uniform a few years ago.

James Brooks, PLCAA Executive Vice President, commented in his session, "Pesticides, Press and PLCAA," that although the pesticide controversy continues in the press, there is less intensity this year.

In an effort to combat unbalanced media coverage, PLCAA has compiled its own press kit, says Brooks. Already distributed throughout the trade press and national news media, the various news releases included in the kit cover such topics as zero risk, 2,4-D, and accidental deaths. Since distribution, PLCAA has had numerous requests for the packets as well as offers to appear on radio and TV talk shows. ■

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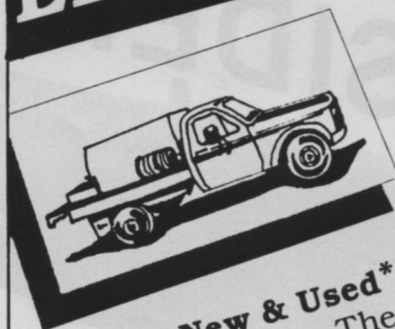
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CHOOSING COMPUTER HARDWARE

Only you can choose the computer that's right for your lawn care operation. However, here are some guidelines for making your hunt for hardware a little bit easier.

There's a war going on in today's business world. It's the battle of the computers. Hundreds of name-brand, off-brand, and no-brand computers are fiercely competing for the consumer's dollar. As if purchasing a computer wasn't confusing enough with the proliferation of newer, bigger, and faster machines, now the availability of low-cost IBM PC clones has made your buying decision even more difficult. How do you determine a winner from a loser? Are the initials I.B.M. worth the extra dollars? Name brands and off-brands aside, what should you look for when choosing computer hardware?

No one can tell you which computer is best. Someone else's dream machine may bring computer nightmares to your business. It all depends on your organization's computer needs. Once you have chosen appropriate software that is tailored to the lawn care industry's mode of operation, you need to sit down with a computer sales representative to discuss your hardware needs.

"There are so many questions that need to be answered before a sales rep can make any kind of intelligent decision on what hardware to buy," explains Debra Murphy, Manager of a ComputerLand branch in Dayton, Ohio. "How many customers is the lawn care operator servicing? Does he want to do all accounting on the hardware? Does he want to do word processing?" she asks. "They need to know the sizes of accounts. For instance, if they're going to have accounts receivable they need to know how many monthly customers they have. If that number changes drastically from month to month, they have to take the largest month they think they'd ever have and multiply it by 12. They need to know how many mailings they want to send out, too. How many potential customers are in their area? There may be 15,000; there may be 50." Whatever the population is, that information is necessary to determine lawn care operator's computer memory, storage, and power supply needs.

As software gets more sophisticated, more memory is required. And since memory is relatively cheap, it's best to go for 640K, according to Erick Wujcik, a computers writer for *The Detroit News*. Disk drives have also dropped in price, he says. He recommends that every new computer have at least one floppy drive, preferably two, and a large-capacity hard-disk drive. Purchasing a 20-megabyte hard drive system is a minimum, Wujcik says, adding that 30- and 40-megabyte drives are attractive

options.

The size of the hard drive should be determined by the volume of business that a lawn care operator is conducting. "If you have a hard drive that does not have enough room for expansion, then you're obviously not going to be able to put all your data on one hard drive," according to Debra Murphy of ComputerLand. That can pose problems, especially when trying to retrieve files, she says. "If your hard drive is filled up, it takes a long time to access information. So you definitely want to get a large enough capacity hard-drive."

Power supply is also important. Today's computer buyer should look for hardware equipped with 135 watts or better. Wujcik of *The Detroit News* says this is necessary to drive hard disks and to power any circuit boards (also known as "cards" because of their thin, rectangular shape) that may be added later on.

Expandability is another key consideration. You want to know that your computer is capable of expanding as your business grows. If you're trying to build your customer base, make sure you buy a computer that can be upgraded to process a heavier data load. You shouldn't have to buy a whole new system.

Jim Malaney, Manager of LaFlamme Services, Inc., Milford, Connecticut, speaks from experience when he says, "Get a system that's big enough. It may be bigger than you are now, but in a year you'll grow out of it."

In fact, buying a computer is not unlike buying clothes for a growing child. If you're lucky both will fit for a year, maybe two, before requiring alterations. And LaFlamme Services will attest to that analogy. The company computerized its operation over three years ago, initially purchasing the Tandy 1200. However, it wasn't long before the company realized it had outgrown the system. In order to have the capability to expand and power additional equipment, LaFlamme purchased an IBM AT. Since the new acquisition, the company has not had any problems adding memory or any other peripherals. The Tandy is now only used for word processing.

Most of the popular computers on the market today have expansion capabilities built into them, according to Debra Murphy of ComputerLand. Typically, she says, systems come with anywhere from five to eight expansion slots to accommodate memory board upgrades, graphics, modems for communicating over telephone lines, printers, and other add-ons. While manufacturers

intentionally left space inside their computers for owners to customize their machines at will, keep in mind that you cannot overload a computer with a lot of add-ons if its power supply is not strong enough to handle them.

Almost any personal computer will provide you with some growth leeway, but if you're anticipating elaborate computer upgrades, it's best to start off with a more powerful machine, Murphy recommends, such as an IBM AT or Compaq 386.

While a 20-megabyte hard-drive personal computer will suffice for most small- to medium-size lawn care operations, larger firms will need to consider networking or a system with multi-user capability. According to John Blackford, Managing Editor of *Personal Computing* magazine, a multi-user computer is one powerful computer with several low-power or non-intelligent terminals hooked into it. This type of set-up will allow more than one person to access the same records at the same time, he says. However, the state-of-the-art solution is networking. "A network system takes a bunch of stand-alone PCs and links them together. This system is more flexible and you get more processing power locally (at each individual computer terminal)," he explains.

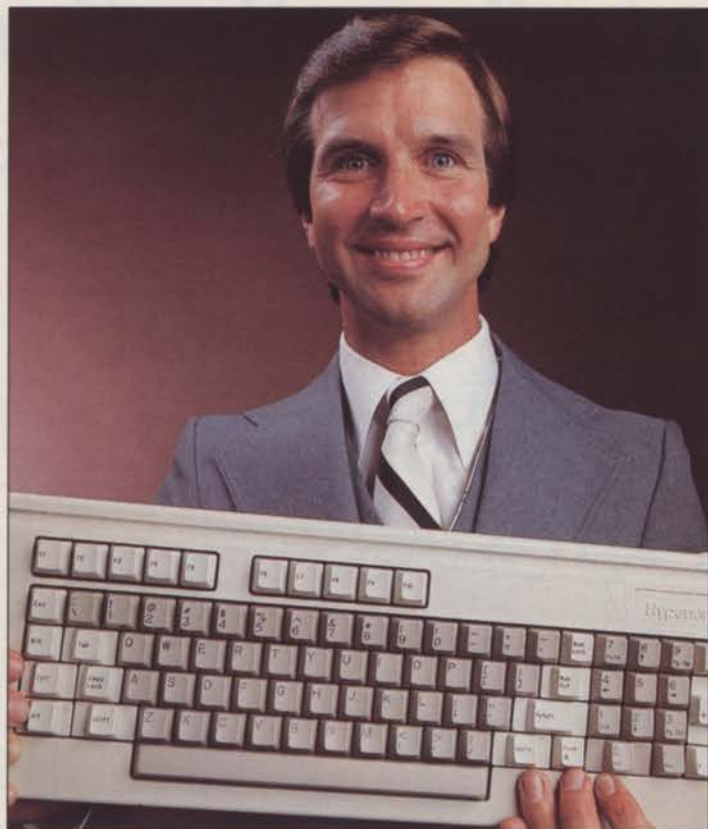
A computer store sales representative will be able to help you determine if you need a network system or multi-user capability. Unless you have a very large accounting department, it's unlikely that you will.

Personal preference will dictate some choices you make when selecting a computer. For example, the keyboard and monitor must *feel* right. "If the person who is using the system has had typing or has worked with some kind of an electronic typewriter, then they would want that computer keyboard to be laid out as simple as possible and as close to a keyboard on a typewriter as possible," notes Debra Murphy. "And Keytronic is the only company that really makes a keyboard that is a clone of a regular typewriter."

On the IBM PC and many of its clones, the return and shift keys are the same size as other keys and they are marked with arrows rather than words. While this might not bother some people, *Consumer Reports* magazine cites this design as erroneous since it is easy to hit the alternate or control keys on the left rather than the shift key. In addition, the magazine reports that the cursor-control keys share space with numerals on the numeric keypad, which is often inconvenient because you have to "shift up" to enter numbers on a spreadsheet, then "shift down" to move the cursor to another cell.

If you want a keyboard that has the left shift key where you intuitively look for it and an oversized return key labeled as such, you should consider *Consumer Reports* magazine's recommendations for a Zenith Z-148, Kaypro PC, or Epson Equity I. Of course, Murphy points out that the user usually adapts to any keyboard differences pretty quickly. "I've seen function keys across the top and I've seen them to the right. Quite frankly, I like them to the right, but other people tell me they like them across the top. It just depends on your personal preference."

The same goes for monitors. With the growing popularity of graphics, you need to consider whether you want a color or monochrome (single color such as green or amber) high-resolution monitor. If you computer operator spends most of the day inputting text, then a color monitor is not advisable, Murphy explains. "Text mode on a color



monitor is very difficult to read and it's also an eye strain. A monochrome screen is best if you're doing nothing but text."

However, if you want the option of doing graphics in addition to text, she recommends purchasing a computer that offers both a color and monochrome display screen with the flip of a switch. According to Murphy, ComputerLand is the only company that offers such a monitor at the present time.

Another important piece of hardware you'll be choosing — often called the lifeblood of your computer system — is a printer. Get yourself a workhorse, one that's capable of churning out work tickets, invoices, and accounting reports day after day.

While the laser printer has been touted for its velvet-black characters and high speed, it's really not practical for the lawn care industry. Besides costing at least twice as much as a good computer, laser printers do not handle continuous-form paper. And since they don't print by striking a ribbon, multi-part forms, which most lawn care operators use for printing work tickets and invoices, are also useless. They don't accommodate the popular #10 size envelope, either. Strike three — they're out. That leaves you contemplating over the daisy wheel or dot matrix printers. Cash in on the latter. A new breed of dot matrix printers has replaced yesterday's models, which were notorious for their slow letter-quality speed, and hence not recommended for heavy correspondence use. While graphics are still a dot matrix trademark, today's new 24-pin machines can crank out fast drafts, fancy drawings, and letter-quality characters, making them a favorite over the daisy wheel.

(continued on page 22)

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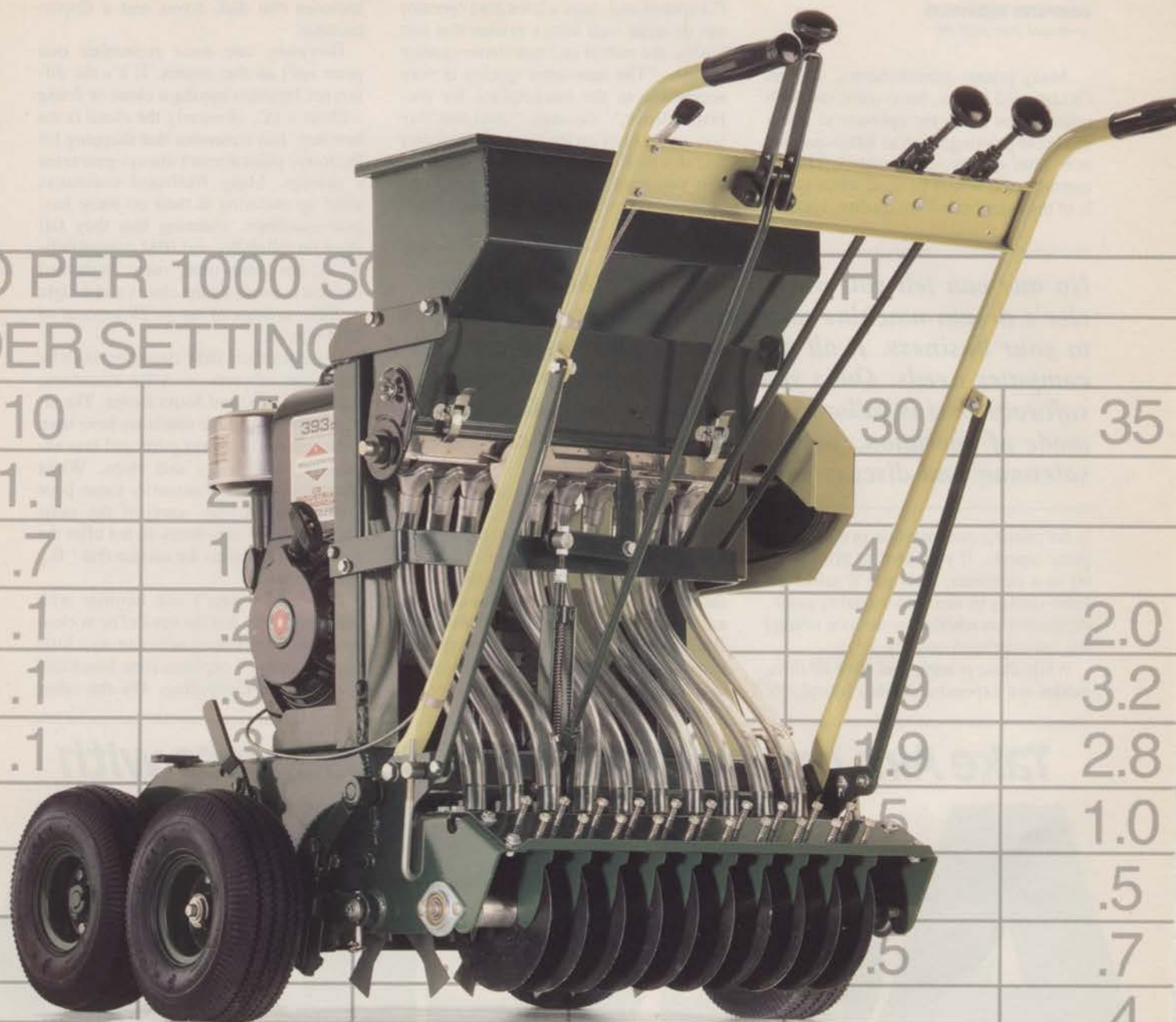
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COMPUTER HARDWARE

(continued from page 19)

Many printer manufacturers, such as Okidata and Epson, have come out with printers that allow the operator to select modes of printing, such as letter-quality, near-letter-quality, or dot matrix. The dot matrix mode would be used when speed is of the essence and not quality, typical-

ComputerLand, says a lawn care operator can do quite well with a printer that just has the dot matrix and near-letter-quality modes. "The near-letter-quality is very acceptable in the marketplace for correspondence," she says. "And that way you save money on the price of the printer and still pick up two of the key functions that you want."

Money is often a determining factor

includes two disk drives and a display monitor.

However, one must remember that price isn't all that counts. If it's the difference between buying a clone or doing without a PC, obviously the clone is the best buy. Just remember that shopping for the lower price doesn't always guarantee a savings. Many frustrated customers wind up swearing at their no-name bargain machines, claiming that they fall short on reliability and IBM compatibility. At the same time, many contented customers swear by the clones and delight in their savings of up to 75 percent of IBM's price.

Most nameless IBM clones are built by low-wage laborers in Asian countries, such as Taiwan and South Korea. The ultra-cheap compatible machines have been redesigned with fewer parts and less expensive disk drives and chips. While cheaper does not necessarily mean poor quality — IBM uses some of the same parts, in fact — the clones do not offer the name and reputation for service that "Big Blue" does.

"A person who's not familiar with computers may feel the need to be in close touch with somebody who can do a little hand-holding," explains John Blackford of *Personal Computing*. On the other

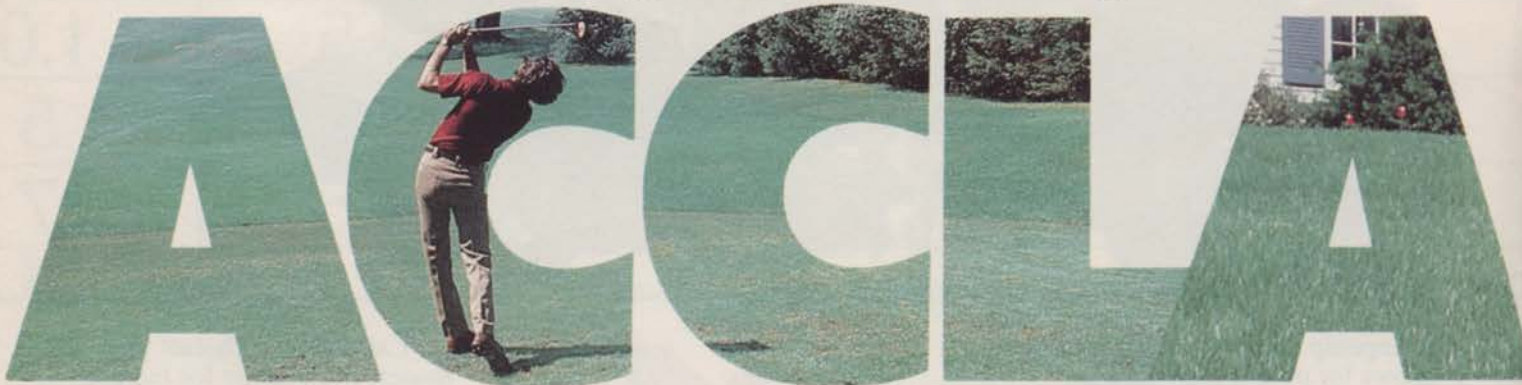
No one can tell you which computer is best. Someone else's dream machine may bring computer nightmares to your business. It all depends on your organization's computer needs. Once you have chosen appropriate software that is tailored to the lawn care industry's mode of operation, you can sit down with a computer salesman and discuss your hardware needs.

ly for printing customer lists or daily computer reports. If you want to print a letter to a customer, then you'd select the letter-quality or near-letter-quality mode, depending on whether or not you needed the letter printed quickly.

While those printers that have all three modes are expensive, Debra Murphy of

when it comes to business purchases. Fortunately for today's computer buyer, a glut of Asian-built IBM clones has driven the price of a computer system down to an all-time low. According to *Business Week* magazine, discount electronics stores in New York now sell IBM-copcats for as little as \$700, and the price tag

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hand, if you are an experienced computer user, the IBM name alone may not justify the price you pay for service. Nonetheless, clone seekers should ask all no-name clone makers about their warranties, especially those mail-order manufacturers.

"The problem you run into with mail-order clones is getting them serviced," according to Debra Murphy of ComputerLand. "You may have an IBM clone that you spent \$700 on and it may work great, but then if something goes wrong you have to box the thing up and send it back to the manufacturer. It may take weeks or months to get it back," she explains. "It's better to buy a product that's universal, something that you can take into any computer store in your area to find out what the problem is."

And there will be problems, Murphy says. "Every piece of hardware will run into a manufacturing problem down the road. They're all going to have a hard drive problem or a monitor problem or a printer problem or a keyboard problem, even if it's IBM or Compaq. But you want to look at the history of reliability before you make a decision to buy a clone."

"People are intimidated by computers," she adds. "If they know that training is available from the store where they purchased their computer, they feel a lit-

tle bit more confident about that purchase. Being able to get your computer fixed in a short period of time and knowing that you *can* get it fixed is important in a buying decision."

In addition to reviewing the warranty of an off-brand IBM-clone, you should check its vital signs for compatibility with the real McCoy. Does the clone use the same Intel 8088 microprocessor as the IBM PC? Does it run at the same 4.77 megahertz clock speed? Is it designed to run under the MS-DOS operating system? Does it use the same 5.25-inch disk drives with a capacity of 360K bytes? Does it have expansion slots that can accommodate a full-length expansion card? Not all of the answers need to be affirmative to maintain a high degree of IBM compatibility, but you should understand how any differences between a look-alike and the original IBM PC might affect compatibility.

Try running IBM's PC-DOS operating system on the machine you're looking at. If it can run PC-DOS and its own version of MS-DOS, then the computer is probably adhering close to IBM's special input-output routines.

Next, try running some popular applications software on the machine, such as the IBM PC's versions of Lotus 1-2-3,

dBase III, and WordPerfect. If fully compatible, it should run any popular package right off the shelf. Make sure you have the dealer demonstrate the software packages you use in your lawn care operation.

After running some software, try a few expansion boards on for size. Popular expansion cards like those from IBM, AST, Hayes, Intel, and Hercules should work in any computer that's fully compatible. Make sure you try a variety of expansion cards, including a multifunction board, an internal modem, and a color display card.

Finally, get a reference from the dealer of someone who is using the machine you're interested in, preferably someone who also works in the lawn care industry. Call that reference and ask him or her about compatibility problems and other computer concerns.

Remember, you can purchase computer hardware almost anywhere today — in computer stores, electronics discount stores, major department stores, or discount chain stores such as Best Products and Target. The key is to know *your* needs. By doing your homework you can make an intelligent computer purchase. —
Vivian Rose

The author is Assistant Editor of ALA magazine.



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BUFFALO BILLS

The New York State legislature is poised to enact the most sweeping regulatory legislation ever considered, but the state's lawn care operators won't give in easily.

The series of bills now under consideration by the New York State legislature, if passed, would constitute the most sweeping regulatory legislation on the books. As proposed, the legislation stipulates that pesticide dealers and distributors must accept the empty or partially filled containers that held the pesticides they sold to New York State commercial applicators. Violation of this section of the bill calls for a civil penalty fine of \$1,000 for each violation! Another section sets up a deposit/refund fee system for all restricted use pesticide containers.

There are also recordkeeping requirements and a requirement that applicators enter into written contracts for all applications to one and two family dwellings. Prior to the application of a pesticide, residents must be provided with a copy of the label of the pesticide being applied. All applicators are also required to register with the Department of Environmental Conservation and pay increased registration fees.

Applicators would be required to post "decals or stickers and markers at various places on and about the premises being sprayed." The length of time the signs have to be up has not yet been decided upon.

The use of 2,4-D and diazinon would also be prohibited under the law and application of any pesticide during a rain would be prohibited as well.

Primary support for this legislation has come from State Assemblymen Maurice Hinchey and Francis Pordum. Hinchey, Pordum, and other members of the Assembly's Environmental Conservation Committee have held public hearings this year to listen to both sides of the debate over the wording of the proposed legislation. At the most recent hearing on May 29 in Buffalo, Pordum defined the purpose of the hearing.

"We are here today to find out the concerns of not only the industry, but also the consumers of the state, so that hopefully the legislation that we have proposed will be able to pass next year in the



New York State legislators at Buffalo hearing.



Francis Pordum

New York State Assembly and Senate," explained Pordum. He went on to say that the legislation was initiated in response to improper lawn care business practices that were brought to his attention by his constituents. He admitted that most of the industry is reputable, but because of its phenomenal growth (260 percent since 1979, by his calculations), the number of unsavory operators must also be growing.

Because of "health and environmental risks" that the "public" brought to his attention, his office did a report entitled, "In Our Own Backyard." He said the report is based on testimony given by the Environmental Protection Agency using federal statistics. Pordum stated that the committee is now looking for reactions to the proposed legislation from the lawn care industry and the people it "affects".

One of the people testifying on behalf of the affected people was New York State Attorney General Robert Abrams. Abrams began his testimony by thanking the people who brought "lawn care into public light," including Karen Blake and

other members of H.E.L.P. (Help Eliminate Lawn Pesticides) and "the excellent educational reports provided by members of the Buffalo media." He praised the Buffalo ChemLawn branch for offering its customers alternatives, such as pesticide-free lawn care programs.

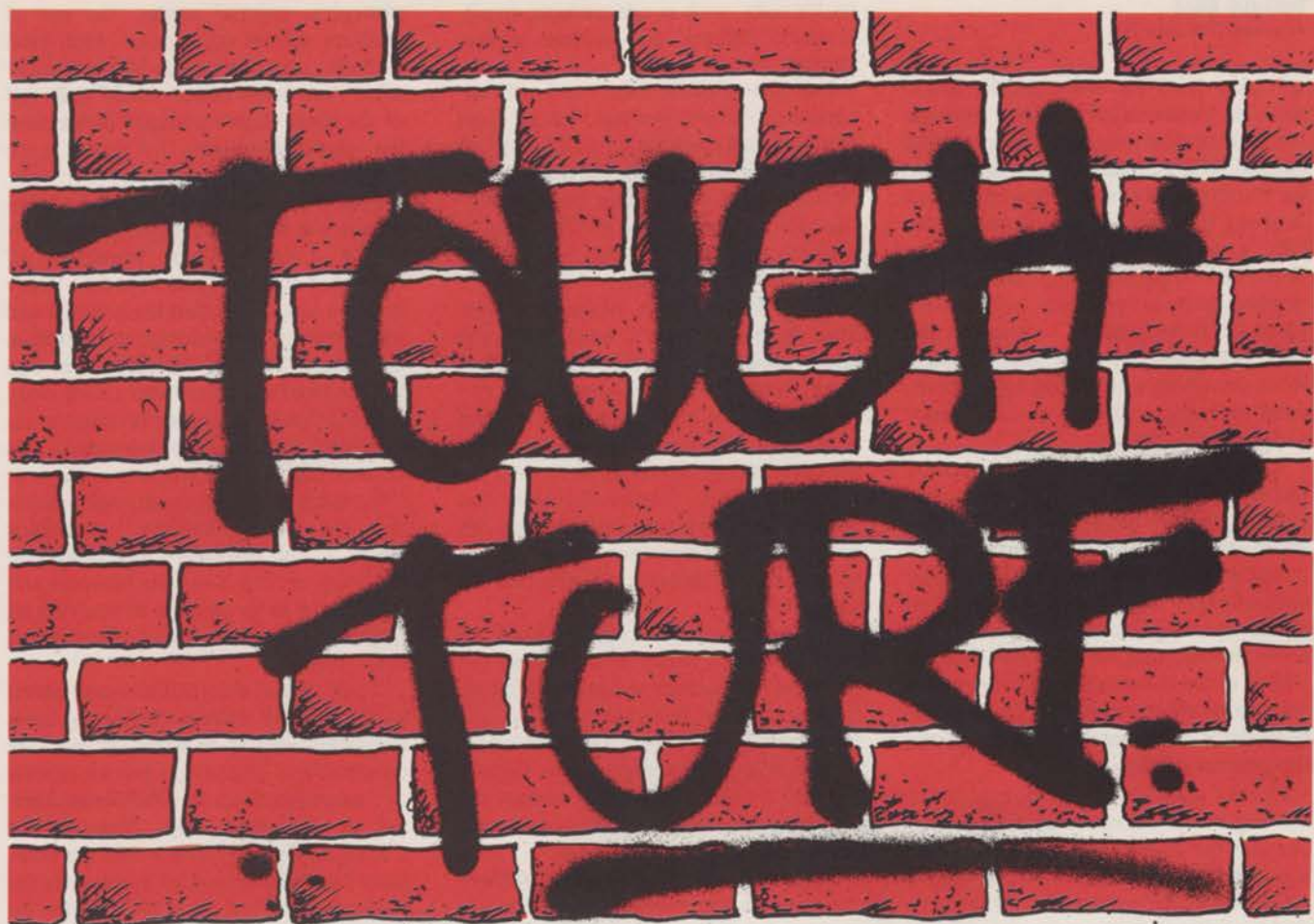
Abrams bemoaned what he perceives as the inadequate body of information on the safety of lawn care pesticides currently being used on residential lawns. He also criticized the EPA's slow pesticide re-registration process and their lack of understanding of the neurotoxic and neurobiological effects of pesticides. He flatly stated that "scientific data indicates that 2,4-D is carcinogenic."

Abrams says his office has "talked to several lawn care applicators who received little or no training in regard to pesticide toxicity." He says applicators frequently wear insufficient protective clothing and are not aware of their rights under the New York State right-to-know law to be informed of the materials they are handling. "One lawn care operator told us that his only safety concern for his applicators was their driving record," said Abrams.

Automatic renewals, which are standard in the lawn care industry, also bother Abrams. "Customers should know that this is not binding," said Abrams. "Automatic renewals should be prohibited unless a clear agreement for continuing service has been signed by both parties."

Abrams would also like to see the New York Department of Environmental Con-

(continued on page 28)



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servation keep the fines it collects for pesticide violations to establish a pesticide law enforcement program. That comment pleased DEC Bureau of Pesticides Director Marilyn Dubois who followed Abrams in giving testimony. Dubois expressed the DEC's support of the proposed legislation. She said pesticide regulation will be stepped up by a "pesticide enforcement guidance memorandum" signed by the DEC Commissioner which will "demand strict compliance, establish an enforcement presence, and provide consistency and unity."

Dubois said the DEC receives "literally hundreds of telephone calls from concerned citizens ranging from inquiries about pesticide useage to reporting of potential pesticide misapplications. "The application of lawn pesticides offers the possibility of significant human health and environmental exposure," stated Dubois. "Most of the chemicals used in lawn care are general use pesticides which are readily available to commercial applicators and the general public."

Dubois' chief concern is the inadequate staffing of her bureau within the DEC. She said the 75 staff members are spread too thin to address all of the state's pesticide regulatory needs. "At the present time, there are approximately 35,000 certified pesticide applicators in the state of New York," said Dubois. "Approximately two to three times that many individuals are applying pesticides under the direct supervision of a certified applicator."

Those who testified in opposition to professional lawn pesticide applications ranged from members of organized anti-pesticide groups to hypersensitive individuals who complained of being forced from their homes by lawn applications. But perhaps the most unusual anti-pesticide testimony was presented by Hope Hoetzer, a United Farm Workers Union volunteer. She loosely tied "documented" cases of farm worker injuries due to agricultural pesticides to similar harm possible from exposure to lawn pesticides. Hoetzer spoke of suspect agricultural pesticides as though the same pesticides were being used on lawns, non-residential pesticides such as Captan and Dinoseb.

One of the most caustic harangues against the lawn care industry came from Karen Blake, one of the founders of H.E.L.P. "We are forced to breath toxic, choking, nauseating fumes, not only from the initial spraying, but from the vaporization of residues, particularly in hot weather," said Blake. "We are paying to contaminate our homes and families with known poisons that have known

health risks, such as miscarriage, sterility, birth defects, and nervous system damage."

The pro-pesticide camp at least outnumbered the anti-pesticide forces, with such industry luminaries as Dr. A. Martin Petrovic of Cornell University, Dr. Thomas Watschke of Penn State University, Dr. Roger Yeary of ChemLawn, Gary Clayton of the PLCAA, and Donald Burton of Lawn Medic.

James W. Taylor, Jr. of the New York State Pesticide Users Council made the observation that, in the state of New York, commercial applicators apply only 10 percent of all the pesticides applied in the state. Yet, lawn care applicators are the only user group targeted by the proposed legislation. Taylor estimated that 45 percent of pesticide consumption can be attributed to homeowners, while the remaining 45 percent is consumed by agriculture.

Taylor called for regulation of all pesticide users, rather than exempt the powerful homeowner and agriculture lobbying interests. "Pesticide regulation and legislation has now come to a point where no one should be exempt," says Taylor. "If they are really looking to address the problem, it is time to address pesticide consumption across the board."

He appealed to the committee to leave the issue in the hands of the scientific community where all the complexities of pesticide safety can be realized and worked out. "In recent years it appears that pesticides are a political issue and not a scientific issue," says Taylor. "Today there are very few acceptable alternatives."

Before Taylor took the podium to express the pro-pesticide side of the story, most of the local media representatives had already left the room.

The scientific community was represented by Dr. Tom Watschke and Dr. Marty Petrovic of Cornell University. Watschke spoke on his five years of work on pesticide movement in run-off water at Penn State University, while Petrovic addressed alternatives to chemical lawn care. "We had a surprise when we compared sodded with seeded slopes we found that when we have a well-vegetated slope, there is almost no run-off," reported Watschke. "In any suburban watershed, where the vegetative portion is substantially high quality turf, the amount of water that moves off that suburban watershed is less than 5 percent of the total run-off." In other words, the better the turf quality, the better its ability to tie up pesticides and prevent them from getting into the groundwater.

Dr. Petrovic expressed his doubt to the committee on finding acceptable alternatives to chemical lawn care. He identified four possible lawn pest control

strategies: cultural means, the use of resistant species or cultivars, biological controls, and pesticides. Petrovic identified drawbacks which would make all of the other three strategies impractical for implementation by lawn care companies.

Also representing the scientific community was Dr. Roger Yeary, who is currently ChemLawn's Director of Employee Environmental Health. Yeary is also a board-certified toxicologist and was professor of toxicology at Ohio State University. He told the committee that ChemLawn has entered into a joint study with the National Cancer Institute to investigate the potential of lawn pesticides to cause cancer in ChemLawn employees. "We spray herbicides many more times than the Kansas farmers," explained Yeary. "The National Cancer Institute was very excited about the prospect and we are now in the process of studying all employees employed with ChemLawn since 1969."

Yeary stated that claims made about adverse health effects caused by lawn chemicals need to be based on fact, not on superficial analysis of journal reports or "data taken from the *Wall Street Journal* or the *New York Times*." For ChemLawn's part, Yeary said the company has been testing its employees for pesticide exposure since 1976. In the interest of third party review of their testing process, he said ChemLawn has entered into contract with the University of Cincinnati.

Like Taylor, Yeary called for non-selective regulation of pesticide users. "If we believe there is a true risk from use of lawn care pesticides, to simply regulate the lawn care industry and neglect homeowners is both discriminatory and hypocritical," said Yeary. "To require additional training of specialists, while these same pesticides can be used by untrained homeowners, does not solve the problem."

Testimony presented by representatives of the lawn care industry at the hearing was, for the most part, quite restrained, unlike the very emotional appeals made by some of the lawn pesticide critics. The one possible exception was Donald Burton, President of Lawn Medic, Inc. of Bergen, New York, who didn't mince words when he took the podium. Burton railed at what he perceived as a battle between those for and against the use of lawn pesticides without any input from the public at large.

"In western New York in 1986, out of a possible 60,000 properties receiving professional lawn care, 129 advocates have succeeded in spreading apprehension about the service we offer," said Burton. "We categorically deny that the health issue raised here today is a legitimate and

spontaneous concern of the average homeowner. Lawn care bashing is by design, well-planned in advance and deliberately staged by activists."

Burton said that "the public is a little bit tired of innuendos, conjecture, hearsay, and deliberate falsehoods." Assuming lawn care chemicals are not safe, Burton said the proposed legislation will do very little to actually reduce the toxicity of unsafe pesticides. "If they are unsafe," asked Burton, "why support a law that will create a larger bureaucracy and increase the cost of our service?" He also made the very perceptive point that the millions of homeowner lawn chemical applications, made with the same materials used by professionals, have never produced the kind of toxic "horror tales" portrayed by activists.

Most of the representatives of the lawn care industry who testified at the Buffalo hearing did so in the hope that they could at least make some of the stipulations in the proposed legislation somewhat less restrictive. Most, including Burton, felt that the Environmental Conservation Committee of the New York State Assembly had already decided to place new regulations upon the state's lawn care industry.

Gary Clayton, PLCAA Research/Tech-

nical Director, who testified on behalf of the PLCAA, thought the industry's message might have had more impact if its representatives could have had the opportunity to speak earlier in the day. "It lasted so long that there was less and less interest, more and more dwindling of the people in the courtroom," said Clayton. "I thought Yeary gave an excellent testimony. If we could have had him up earlier that would have been great, but we couldn't pick the batting order."

Aside from a television interview that ChemLawn officials managed to orchestrate prior to the hearing, the lawn care industry's side of the story got little coverage in the local media. However, Clayton was relieved to see that the headlines the next day drew little attention to the lawn care industry in particular and the accompanying reports on the hearing were not sensational. "It had quotes from two or three of the hypersensitive people who testified and Abrams and Pordum," says Clayton. "If I were a reader in the Buffalo area, I don't think it would have been something that would have kept my attention over coffee and eggs in the morning. People are basically beginning to get a little melted down over this whole thing."

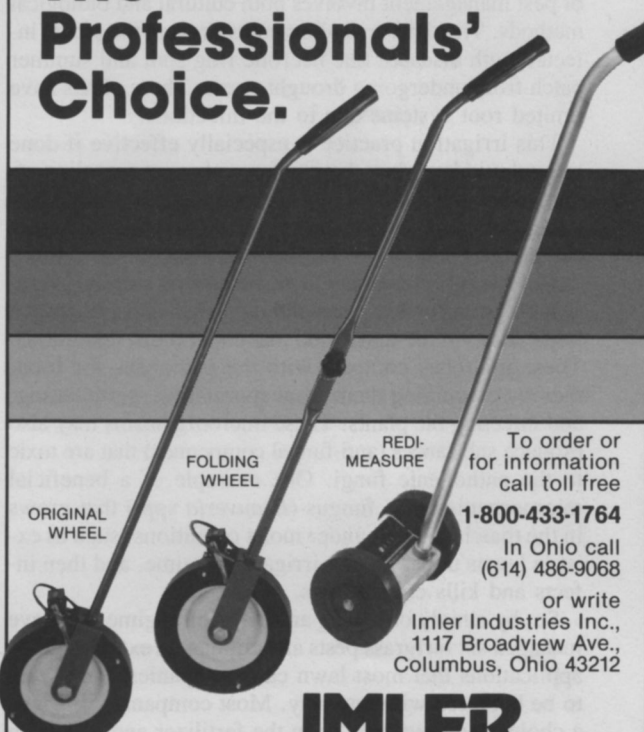
Still, Clayton finds it disappointing

that the media is attracted to the anti-pesticide side of the story and tends to ignore what the lawn care industry has to say. He says he and Executive Vice President Jim Brooks did manage to give some radio interviews outside room where the hearing was being held, but they were passed over by newspaper and television reporters. "They interviewed Dr. Rapp, but they didn't want to have Dr. Yeary in the interview," said Clayton. (Dr. Doris Rapp is a "specialist in environmental medicine" who made statements during her testimony like, applicators are "marinating themselves in chemicals" and "lawns emanate toxic vapors 30 days after treatment.")

CONCLUSION. New York State lawn care operators are coming to grips with the very real possibility that they may be working under some very restrictive legislation next year after this proposed legislation is put to a vote. The lawn pesticide issue has become a political hot potato that lawn care applicators are beginning to realize can't be tossed aside. But a few brave industry representatives are plying their oratory skills at statehouse podiums in an effort to talk legislators into some compromises. And that's the name of the game. — *Tim Weidner* ■

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CULTURAL & BIOLOGICAL PEST MANAGEMENT

The industry still must rely heavily upon pesticides to satisfy its customers, but new biological management products can help reduce the amount of pesticides needed.

Concern over the lawn care industry's use of pesticides is not going to go away. As industry practitioners, we know it is not possible to provide the consumer with the type of lawn he or she wants without the use of pesticides. But this matters little to the people who vehemently oppose the use of pesticides. To help alleviate some of the criticism, we as an industry need to take a look at integrating cultural practices and biological management techniques wherever possible and practical into lawn maintenance programs. The following will be a discussion of the managing of home lawn pests with cultural and biological means.

IRRIGATION. The practices of heavy, deep, infrequent irrigation and, allowing the turf to go under drought stress before irrigating in order to encourage deep rooting, were based on a theory. Studies have now shown that the root systems of cool-season grasses become shallower as the soil temperatures increase during warm weather, regardless of irrigation regimes. The effect of the higher soil temperatures on root growth is too great to be overcome by any irrigation regime.

More important for lawn care businessmen, this type

of irrigation practice leads to the development of diseases like necrotic ring spot, summer patch, *Helminthosporium* melting-out, and leaf spot. The concern that daily irrigation will shorten the roots can be best answered this way: Try telling your customer that he or she is going to have to tolerate diseases and insect problems on the lawn because you want to cultivate a deep root system. Your customer will no doubt start looking for another lawn service.

Customers are only interested in green top growth, and if you can give them that, they will be happy. Leave the deep root debate to the turfgrass researchers. They don't have to make a living by trying to keep homeowners satisfied with the appearance of their lawns.

A daily irrigation program of about 1/10-inch per day will help manage the above mentioned diseases as well as damage done by billbugs and chinch bugs. This type of pest management involves both cultural and biological methods. The daily irrigation helps prevent the plants infected with diseases like necrotic ring spot and summer patch from undergoing drought stress. These plants have limited root systems due to the infections.

This irrigation practice is especially effective if done around midday when the plant can also get a cooling effect during the hours of most severe heat stress. The daily irrigation also helps plants that are being fed upon by chinch bugs and billbugs from undergoing further stress.

The biological management benefit in a daily irrigation program comes from building up beneficial microbial populations in the thatch and mat under moist conditions. These microbes compete with the pathogens for food, thereby preventing them from sporulating, germinating, and infecting the plants. These microorganisms may also produce substances (anti-fungal compounds) that are toxic to the pathogenic fungi. One example of a beneficial microorganism is a fungus (*Beauveria* spp.) that grows in the thatch and mat under moist conditions, such as exist in lawns under a daily irrigation regime, and then infects and kills chinch bugs.

So, by simply changing an irrigation regime, we have managed six turfgrass pests and eliminated extra pesticide applications that most lawn care companies don't want to be bothered with anyway. Most companies, if given a choice, only want to be in the fertilizer and herbicide application business.

BIO-MANAGEMENT PRODUCTS. I realize it is difficult to



Helminthosporium leaf spot lesions on Kentucky bluegrass. (Courtesy of the New York State Turfgrass Association.)



Summer patch on annual bluegrass.



Necrotic ring spot on Kentucky bluegrass.



Pythium blight on ryegrass.



Brown patch on ryegrass.

get many customers to irrigate even occasionally, let alone every day. There is a second option for those of you with customers who won't follow a daily irrigation program. It involves using biological management products. The best program, of course, would involve using these biological management products in conjunction with a daily irrigation program. However, if this is not possible, these biological management products by themselves will suffice.

The secret of biological management is to encourage the beneficial microorganisms in the turf to work for you. This can be done by removing the harmful substances that naturally build up in the turf and prohibit the development of high populations of beneficial microorganisms and then add nutrition to help support their development. This is the concept behind the products produced by Agro-Chem, Inc. Their product, called Nutra Aid[®], when applied early in the spring, removes or flushes materials in the turf that prohibit good microbial growth.

This is then followed by either Strengthen and Renew[®], for lawns with severe necrotic ring spot problems, or Green Magic[®], for lawns with moderate necrotic ring spot problems. These two products, in addition to containing major and minor elements for plant nutrition, also contain plant and microorganism extracts and byproducts which have been shown to be inhibitory to the growth of the necrotic ring spot organism (*L. korrae*) in

laboratory culture work. In the field, the combination of the products has been shown to promote the recovery of existing necrotic ring spot patch and prevent the development of new ones.

The secret to managing any diseases with biological management products is to apply them on a regular basis or as part of a disease management program. They won't work if applied only once, the way you would typically apply a fungicide.

I don't think we will be able to eliminate the use of pesticides in the foreseeable future, especially where weed management is concerned. But we do have cultural and biological means of managing some of the insect and disease problems on turf, and these should be used, wherever possible, to reduce the amount of pesticides put into the environment.

Lawn care industry professionals are concerned about the environment. Unfortunately, we are not often perceived as environmentalists, and we need to find a way to enhance this image. One way is to make the public aware that we are using cultural and biological management products whenever possible. — Dr. J.M. Vargas, Jr. ■

The author is Professor of Botany and Plant Pathology, Michigan State University, East Lansing, Michigan. He is also a member of the Advisory Board of ALA magazine.

SURFACE FEEDING INSECTS

Surface feeding insects cause much of the insect damage found on home lawns. Controlling these pests is basic to any lawn care program.

Lurking behind the blades of turfgrass are surface feeding insects which can distort the beauty of a lawn and cause costly damage. Bob Robinson, an experienced lawn care consultant from Westerville, Ohio, says surface feeding insects account for 15 to 20 percent of the residential and commercial landscaping problems resulting from pests.

"Surface feeders can cause total devastation to landscape and turf if not identified and controlled. The damage is quite costly and time consuming to rehabilitate," says Robinson. Although there are multitudes of surface feeding villains, the three most destructive and commonly found above-ground insects are the billbug, chinch bug, and sod webworm.

"Control is possible if the insect is properly identified and treated at the exact stages of vulnerability to chemical control," says Bob Howe, technical services and development specialist with the Dow Chemical Company.



Sod Webworm



Chinch Bug

BILLBUG. The billbug is a major problem in desirable turf grass. The adults are long-snouted, weevil-like beetles that overwinter and lay eggs in May and June. Emerging in spring, the insect lays eggs in holes gouged out of grass blades.

After four to 15 days, the eggs hatch into larvae, which feed inside the grass stems. As the larvae grow, they move down the stem to feed on the crown and finally end up feeding on the roots.

"Damaged turf can be pulled out easily by hand because the stem breaks off at the crown," says Howe. He adds that billbugs which have been feeding on roots often leave behind a fine white material that resembles sawdust.

"By the time you notice the damage, it may be too late to control. That is why it is important to anticipate and practice preventive insect control," Howe warns. "There is a relatively short period of time to catch the insect off-guard," says the Dow specialist. He suggests using Dursban®, diazinon, or Oftanol® insecticides during the adult stage in the early spring before egg laying. The first step in treating a billbug infestation is to mow the grass and then apply the insecticide. Then the lawn should be watered to move the material into the thatch.

CHINCH BUG. The chinch bug is another major surface pest. As a major thatch inhabitant, the insect is found quite often in residential lawns. The chinch bug sucks juices from the plants and injects salivary fluids causing the blades to turn brown and die.

"Often this damage is masked by hot, dry, conditions, usually in the summer, when the grass is in dormancy," says Robinson. He adds that the sunny parts of a lawn are the main areas attacked.

As the weather warms in the spring, adults leave hibernation and begin to move about the turf. Soon thereafter, females lay up to 200 eggs within three to four weeks, according to Robinson. He says the insect can produce two generations where cool-season grass is present and between three to seven generations annually in warm-season grasses of the Midwest and South.

"Knowing the lifecycle is the best strategy to use in controlling the chinch bug," he says. Mid-April is the appropriate time to spray. The insect is still in the adult stage and has not had a chance to lay eggs in May. He says that by using this strategy, a whole new generation of chinch bugs can be eliminated, preventing damage that is often seen in July and early August.

As the weather warms in the spring, adult chinch bugs leave hibernation and begin to move about in the turf. Soon thereafter, females lay up to 200 eggs within three to four weeks.

Again, Dursban, diazinon, or Oftanol can provide the proper control. A single application rate will control chinch bugs for the entire year unless the population is of high density. Then a second application is recommended to control the nymphs and second generation.

SOD WEBWORM. In the adult stage, sod webworms are

BACK TO THE BASICS

In order to prevent and control devastating insect infestations, lawn care operators must continually review the basic steps. The following basics are suggested by Dow Chemical Company.

- Inspect the grass and roots for any insect pests that might be present.
- Identify the insect properly.
- Understand the lifecycle.
- Choose an appropriate insecticide.
- Apply the chemical properly.

First, inspect for pests. If a lawn had insect damage last year, check that area again this year. Insects can be gathered in a number of ways. Sweep nets can be used to catch flying insects and those feeding on leaf and stem tissue. Also light traps and pitfall traps can be used to make bugs fall into a container. An aspirator can be used to draw insects off plants through suction.

Insects can be brought out of the soil by flooding an area with water and floating them out or sprinkling an area with detergent or other irritants to make them scramble out. Another way to

check the soil is to take a sample with a golf course cup cutter. Inspect the soil sample visually or put it in a Berlese funnel which uses heat to force insects out of the soil.

The second step involves identifying the insects you have found. An important part of identification is establishing which layer of the turfgrass the insect came from: The leaf and stem section, the thatch, or the soil.

You should try to check the identifying details of insects. Your best tool is a simple and inexpensive one — a hand lens of 10X power. If unsure, there are entomologists who can help you identify a pest. Contact them at your state university or county cooperative extension service.

Once you know which insect you are dealing with, it's time for the third step: Study its lifecycle. Insects go through various stages of growth and development. There are certain stages when they are more vulnerable to chemical control. Those are the times to apply the

insecticides.

The fourth step: Choose an appropriate insecticide. There are many insecticides which are effective against a diverse number of pests. Availability of some types varies with state and federal laws. And occasionally, an insect becomes resistant to a certain insecticide in a certain locality.

Local experts can best advise you on which insecticides or alternative methods can be most effective for your specific area. Other factors in selecting an insecticide includes the spectrum of control, cost effectiveness of an application, user precautions, residuality, and how easily it is applied.

The fifth and final step is to apply the insecticide properly. The technique will vary depending on which zone of the turfgrass the target pest is in, the season, and geographical location.

These are the steps that are important not only to the professional, but also the customer, who together are concerned with maintaining healthy turf.

small moths causing no damage to turf. However, once they lay eggs, the larvae construct tunnels through the thatch and line them with a silk-like material. Thus the name "webworm."

Some species chew off grass blades close to the plant crown, which is near the base of the plant, says Dow's Howe. "The results can be small spots or trails in the lawn, which can coalesce into large dead areas."

The sod webworm pupate in the thatch in late July, emerging as second generation moths in August to repeat the egg-laying flight. After seven days, eggs produce second-generation larvae which cause more turf damage until late fall when they begin overwintering. Robinson notes that in southern climates, sod webworms have several overlapping generations. In the North, the common species have two generations each year with the first adults appearing in late May or mid-June.

"Dursban and diazinon can be effective," says Howe. "Apply the insecticide in the late afternoon and evening when large numbers of moths are noticed." To catch the first generations as they are hatching or in their early larval form, Robinson suggests spraying in early June.

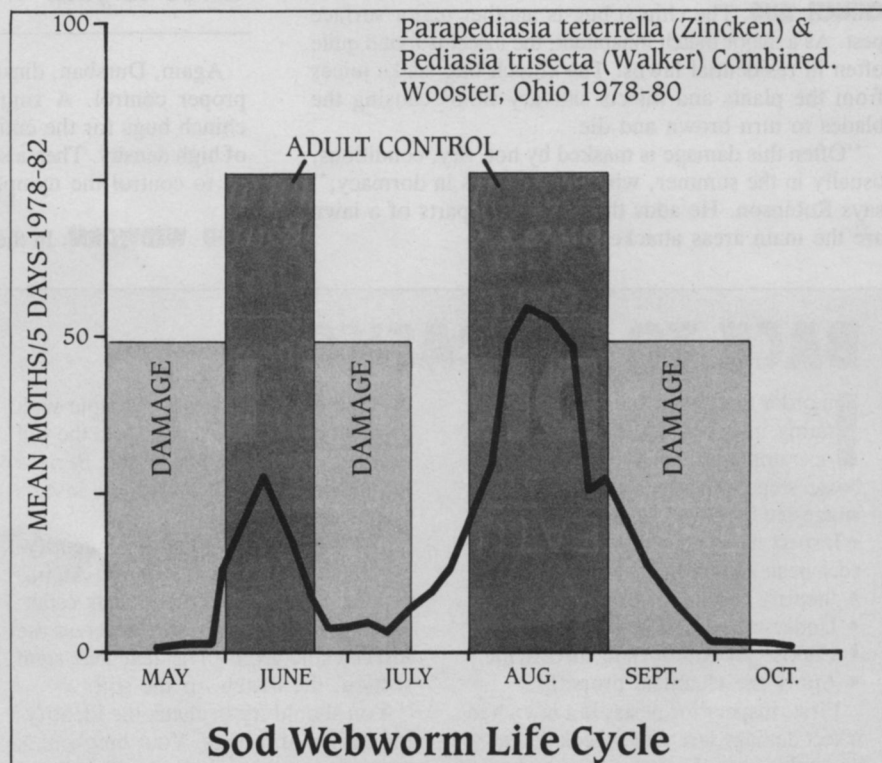
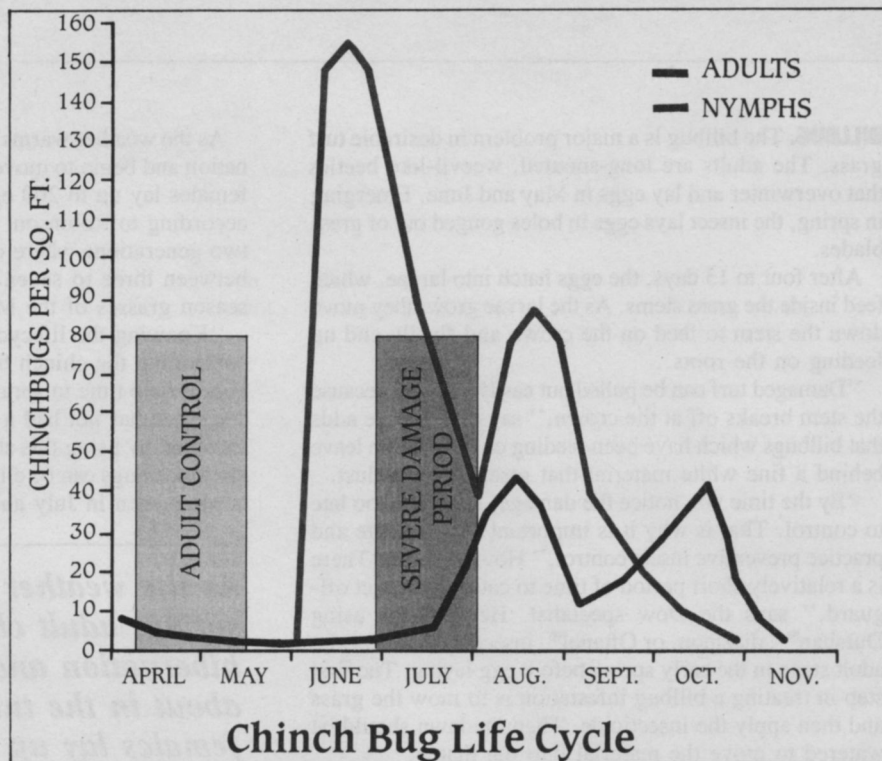
THE TECHNIQUE. Insects are controlled in two ways: by direct contact with an in-

In southern climates, sod webworms have several overlapping generations. In the North, the common species have two generations each year with the first adults appearing in late May or mid-June.

secticide and indirectly through feeding on insecticide residue. For this reason, results may not be immediate, explains Howe. "Application rates and methods will vary, depending on which zone of the turfgrass the target pest is in," he continues.

For liquid applications intended for the leaf and stem section, Howe recommends using a coarse spray. "Read the label carefully for watering instructions following treatment," he says. If aiming for the thatch, he suggests spraying, then watering lightly before the insecticide dries.

When applying a granular insecticide to the thatch area, make sure the grass is dry. This allows the granules to bounce off the blades and sift down into the thatch. "Treat the area twice to ensure an even and sufficient distribution, applying



the granules at one-half the normal rate across the treatment area and again at a right angle," he says. Then spray with an additional half-inch of water to move the chemical into the soil.

Most insecticides require an immediate watering of the material in order to place the chemical in the zone where the target pest is located. Howe concludes that in the fight against insect damage, lawn care operators should draw their attention to

surface feeders.

"Maintaining a healthy turf is our job. By controlling these insects, lawn care operators will earn the satisfaction and confidence of the homeowner." ■

— Jordon Fox

The author is an Account Executive with Bader Rutter and Associates, Inc., the public relations firm representing Dow Chemical Company.

DIESEL MOWERS

Diesel mowers are gaining in popularity, but the experts say they may not be for everybody.

Until recent years, mowing maintenance professionals have had a lot to choose from in mower types and brands, but they didn't have much choice in mower engines. Until the early 1980s, most major commercial mower manufacturers offered only gasoline-powered engines in their larger walk-behind and riding mowers. Now, in addition to all the other variables confronting the commercial mower buyer, there is the decision between diesel- and gasoline-powered versions of many mower models.

The Toro Company, of Minneapolis, Minnesota, was one of the first major manufacturers to debut a diesel-powered

commercial mower with the addition of a Mitsubishi diesel engine option in the company's Groundsmaster walk-behind mower line in 1978. Toro's line of large Parkmaster riding mowers had featured a diesel engine for some time, but the Groundsmaster 322D was the company's first walk-behind diesel mower. The demand for a smaller diesel mower came from the "gasoline crisis" of the late 1970s, a need for greater torque, and a desire for the low maintenance that diesels are known for, according to Richard Smith, Toro's Commercial Service Education Manager.

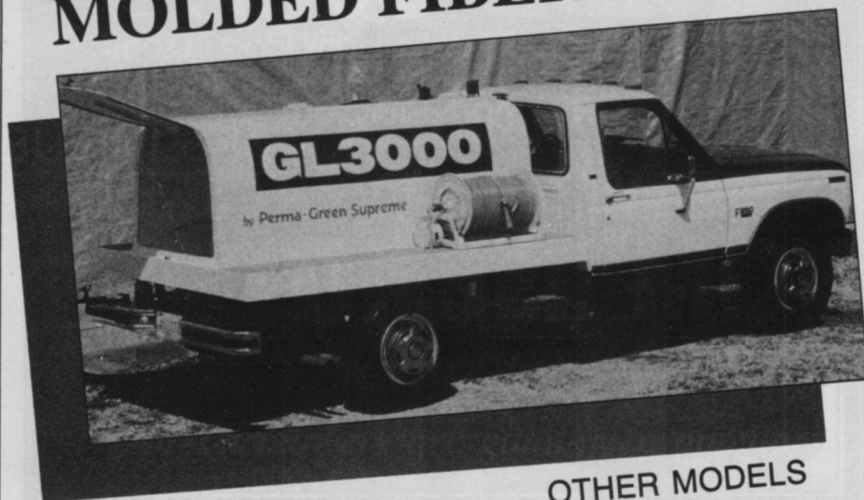
The 322D designation for the Groundsmaster diesel means it is based on the

300 Series frame with a 22-horsepower diesel engine. The comparable gasoline-powered model is the 327 Groundsmaster which has a 27-horsepower gasoline engine. "You have a smaller horsepower rating on the diesel engine," explains Smith, "but it gives you the same amount of torque as the gasoline engine which has a larger horsepower rating."

Although fuel shortages are no longer with us and diesel prices are now about as high as unleaded gas, Smith says diesel engines are still popular with commercial operators. If maintained properly, diesel engine maintenance costs can be considerably cheaper than gasoline engine maintenance costs, according to Smith.



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"There isn't a whole lot of engine maintenance to worry about," says Smith. "You have to be concerned with water separators and filtering systems."

Diesel engines will also perform better than gasoline engines in hot, arid climates. "It will perform better for longer hours without overheating or causing a lot of engine wear," says Smith. Diesels will also run longer between major overhauls.

However, he admits that diesel repair does require the services of trained diesel mechanics and these specialists may be in short supply in some areas of the country. "Our distributorship organization that we work through is relatively comfortable working with diesel."

But there is a convenience factor for companies that are already operating diesel trucks. Switching to diesel mowers will mean that they will have to buy and store only one type of fuel. But switching to diesel fuel, especially for those companies that still store gasoline on the premises, can create a problem in operating diesel mowers. "If an operator who has been on top of a gasoline-powered unit for months or years is given a diesel product, when it comes time to refuel it in the morning, without thinking he will mix the gas and diesel fuel," says Smith. In most cases, this all-too-common

scenario will result in an operator who is stranded in the field when the engine locks up after about a half-hour of operation.

There is also a potential problem with running out of fuel with a diesel engine because the fuel line must then be bled to get it started again. But Smith insists that fuel is really the only big concern for companies that may be considering a switch to diesel mowers. "If the water separator and the fuel filter are maintained properly, the diesel engine is going to run for a lot of hours before having any problems." He also notes that since stored diesel fuel does not survive storage quite as well as gasoline, operators must keep no more than a 30-day supply of fuel on hand and must be kept as free of contamination as possible.

John Deere is one of the more recent entries in the diesel commercial mower market with its first introduction of diesel lawn and garden tractors in 1984. Ray Flamm, Field Service agent at John Deere's Horicon, Wisconsin facilities agrees with Smith that diesel fuel requires special care. For starters, Flamm says diesel can't be stored in galvanized cans because it will react with the galvanized coating which will flake off and clog the injectors in a diesel engine. He says there are microorganisms which will grow in diesel fuel and can also clog diesel engine

injectors.

"You can run into more problems with old diesel fuel just because of the nature of the injection system," says Flamm. "You have to have clean, fresh fuel. That is not a problem in buying fuel, but a guy could have trouble if he wants to use fuel that has sat around in a storage tank all winter. You are pumping the fuel through an injection system with tolerances of 10,000ths of an inch and it just can't stand the kind of contamination that you can have in gasoline. That is probably the biggest concern."

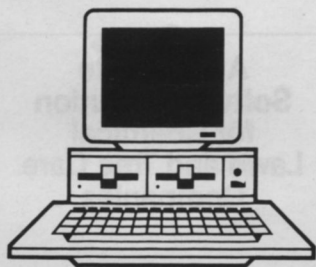
The diesel is a system that actually thrives under long, hard use conditions, according to Flamm. "It works better under constant load. They actually will do better by running eight hard hours a day, than they will one hour a week." The diesel engine's life expectancy is longer than the gasoline engine partly because of the nature of the system and partly because it is water-cooled, although a new John Deere water-cooled gas engine may rival its longevity.

Because diesel engines are a little more sophisticated than gas engines, particularly in terms of the injection pump, Flamm advises those considering a switch to diesel to investigate the service network in the area. If you have to drive 100 miles

(continued on page 40)

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DIESEL MOWERS

(continued from page 36)

to find a good diesel mechanic it may not be worth your while to invest in diesel mowers. While most dealers won't work on internal parts like injection pumps, Flamm says John Deere diesel and gas mower engines are becoming increasingly similar in the number of components they have in common.

He says John Deere area service managers are making a concerted effort to train dealers in diesel repair. "We are probably a leader in that respect because of our experience in the ag industry and the industrial industry which are almost entirely diesel now in the larger tractors," claims Flamm.

Although mechanical problems will require specialized technical expertise to correct, general diesel maintenance is much simpler and less time-consuming than gas engine maintenance. "There are no spark plug changes or carburetor adjustments. The injection system is factory pre-set and there are no owner adjustments on them," says John Deere's Engine Applications Engineer, Rob Feldman.

Diesels now comprise about two-thirds of John Deere's sales in front-mount mowers, according to Feldman. He says the models with diesel engines are more

expensive than their gas-powered counterparts, but the more economical diesel will more than recoup its added cost in fuel savings. Feldman describes John Deere gasoline mower engines as "antiquated technology," but the new generation of water-cooled gas engines may bridge the economy and longevity gap between diesel and gas engines.

"We think our new water-cooled gasoline engines are going to take a share of the diesel market and virtually kill the air-cooled engine," says Feldman. "The liquid-cooling, whether it is gas or diesel, gives you a lot of longevity and also lower noise levels. We think the new liquid-cooled gas will be comparable in a lot of areas, but not all of them."

Although the diesel engine models are about 10 to 15 percent more expensive than gas engine models, Feldman says operators will get the premium they paid back out of the equipment when they resell it. "Most of these guys will hold on to it for two years," notes Feldman. "At that point, the gas engines are pretty much on their last legs. They need a major overhaul. The diesel engine has got another two or three years in it before it needs a major overhaul."

Feldman says John Deere's diesel engine can operate at about two-thirds the fuel consumption of their air-cooled gas engines. "You are talking maybe a little

over a gallon an hour for diesel and 1-3/4 gallons an hour for the gas," says Feldman. "He is looking at saving somewhere around \$.60 and \$.75 an hour on fuel. They are designed for around 2,000 hours of use, so fuel savings alone is pretty substantial."

Feldman echoes his counterparts' concerns about the sensitivity of diesel fuel. But he notes that "the diesel products are giving us much less problems fuel-wise than the gasoline products. Gasoline is so variable around the country right now, and some of it is really bad fuel with lots of alcohol, that it is causing us a lot of problems." He says water can cause problems in diesel systems, but there are built-in water separators that can take out small quantities of water.

Feldman says diesels also require less frequent oil changes than gas engines. A diesel can go about four times as long between oil changes as a gas engine. "If a guy is using it quite a bit, our recommendation on the air-cooled gas engine is 50 hours for oil change intervals," claims Feldman. "He is going to have that in the shop for service essentially every week."

However, Feldman says operators must be aware that some customers and neighbors of customers will be offended by the sound and smell of a diesel mower. "A lot of these commercial guys are

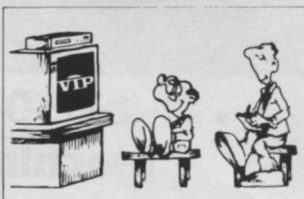
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DIESEL MOWERS

(continued on page 40)

mowing in areas where noise is a problem, like around hospitals or office buildings during working hours," says Feldman. "We have gotten some customer feedback about noise level being unacceptable."

John Deere isn't the only diesel mower manufacturer that has been made aware of customer objections to diesel engine noise and smell. Cushman®, the division of OMC Lincoln that makes the Front Line™ riding mowers, has also gotten feedback from the field on some of the objectionable qualities of diesel engines.

Dick Florer, Cushman's Engineering Manager, says Cushman started making mowers in 1980 and got into the diesel business in about 1983. He says they now sell about as many diesel-powered Front Line models as gas-powered Front Line models.

In addition to the smell and distinctive noise, Florer says there are other diesel drawbacks that a mowing maintenance operator should consider before making an investment in diesel mowers. He says diesels usually don't run at idle speed very well. "They are usually made for full speed running all the time," says Florer. "A lot of them have a high vibration level at off-idle and some of them don't

lubricate well."

If compaction could be a problem, Florer says operators should be aware that diesel engines are heavier than gasoline engines and therefore increase the overall weight of a diesel mower. A bigger problem might arise if the diesel mower is to be used for snow removal in the winter because diesels are "notoriously lousy" performers in cold weather, according to Florer.

"They don't start and their fuel solidifies below -15 degrees. You have to use a special fuel to warm them up and they have a very high compression ratio that makes it very hard to turn them over in the winter." So unless the mowers can be kept in a heated building, Florer recommends gasoline-powered models for winter jobs. But at the opposite extreme, diesel engines will not vapor-lock in hot, arid operating conditions, as will gasoline engines.

There is also the problem that if a company is operating a gasoline-powered truck fleet, they will not want to set up a separate fuel storage and delivery system just for the diesel mowers.

And although diesel parts rarely fail, when they do they are usually expensive to replace. "You can get a \$500 bill really quick if something does break," says Florer. However, while the parts pipeline for diesel parts may not be quite as extensive as the pipeline for gas parts, Florer says the network is adequate to meet any diesel part need virtually anywhere in the country. But finding a competent mechanic to install the part may be another story. "In our town there might be two places to get your diesel fixed and 100 to get your gas fixed."

The diesel buying decision can depend on the length of time an operator intends to keep his mowers. Since diesels tend to last longer, they could be a smart buy for companies that want to hang onto their mowers for a long time. "But if he runs it for two years and gets a new one, then the money saved in buying a gas model appears a good way to go," reasons Florer. "Gasoline engines will run 2,000 hours before an overhaul and a diesel may run 5,000 hours."

Obviously, the decision to purchase diesel mowing equipment requires some forethought and consideration of the possible side effects. Diesels really have few drawbacks and by all accounts they are more economical to operate, easier to maintain, and slower to wear out. Yet, some of the side effects, like noise and exhaust fumes, may be unacceptable to some mowing operations. A dealer demonstration may offer the best basis on which to make a buying decision. — Tim Weidner ■

The author is Editor of ALA magazine.

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PRODUCTS

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A special Mataway Overseeder reel with disc blades on 2-inch spacings opens 10 slits or "furrows" for the seed, which is delivered from the seed hopper through clear plastic tubes. This enables the operator to visually ensure seed is being delivered through each tube. Seed furrow depth can be adjusted with a micro-screw control on the unit, and the all-stainless steel seeder gate and metering system has openings from 0 to 5/8-inch, to accommodate different types of grass seed and varied operating speeds.

The steel seed hopper has a capacity of 0.8 cubic feet and is equipped with a neoprene rotor bar driven by a V-belt from the unit's front wheel drive. The rotor bar engages when the Mataway reel is lowered for operation, and the seeder gate automatically shuts off when the rotor bar is disengaged.

The unit is designed with most of the weight balanced over the rear wheels. For turning, the operator just pushes down on the handle to raise the front drive wheels and turns the unit in the new direction, then lowers the drive wheels to the turf. Although the machine comes as a complete unit, the overseeder unit can be removed by taking out four pins, when the Mataway is to be used exclusively for power raking. The overseeder will be available as an accessory in 1988.

Circle 109 on reader card



Evergreen's Signgate advertising system.

A new advertising system, Signgate, has been introduced for the tailgates of standard size or mini-pickups, from Evergreen. The advertising message system allows the tailgate to function properly, while carrying the advertising message of the company.

Signgate's two-part system includes a galvanized metal holder and a metal message slide-in insert. The slide-in insert can be painted on both sides, allowing the company two interchangeable messages.

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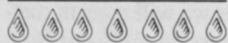
and mulch leaves. It features a 44-inch cut and the mower is offset 3 inches for trimming and mowing next to buildings and obstacles.

The unit has hydrostatic transmissions with variable ground speeds from zero to 6 miles-per-hour and a true zero-turning radius. It uses an 11-horsepower Industrial/Commercial Briggs and Stratton engine. This mower meets the latest commercial safety standards. It has a 6-inch ground clearance for backing over curbs.

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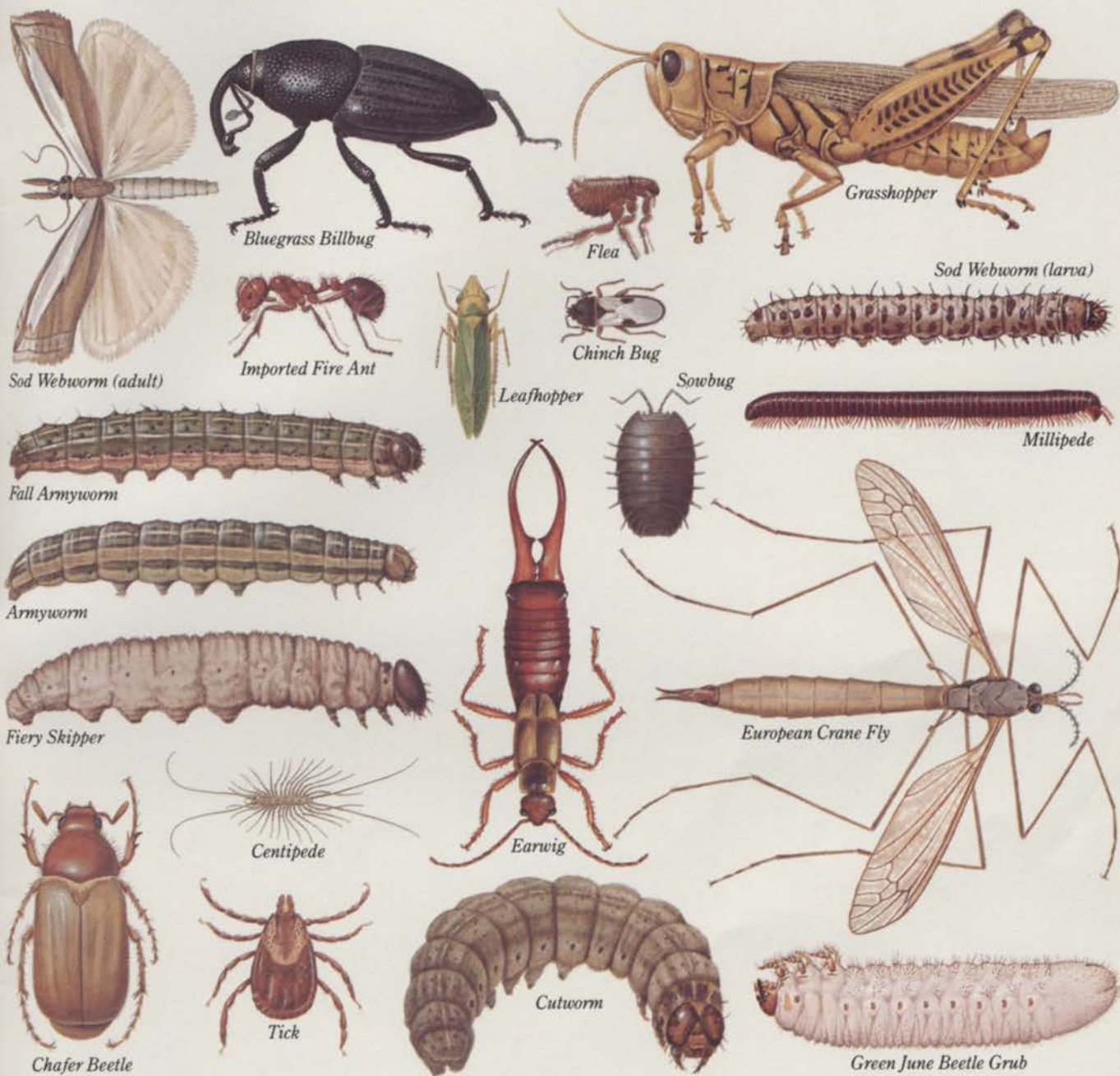
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