

How harmful are pesticides to non-target species: birds, fish?

BY WHITNEY CRANSHAW

One public and visible issue of pesticide use on turfgrass and in landscape plant protection involves harm to desirable 'non-target' species such as birds, fish, earthworms, and other wildlife.

Pesticide applications can harm these organisms as they control the intended target pest species—grubs, webworms, billbugs, etc/

Inadvertent wildlife kills can draw intense scrutiny to the applicator of pesticides. Federal laws protecting wildlife have caused further regulation of this issue. At the same time, landscape practices such as gardening to attract wildlife to yards and the expanding popularity of fish ponds increasingly bring fish and birds in close contact with landscape plantings which may need pest protection.

Potential hazards to fish and birds are some-

times not well communicated on the label directions. Often some generic warning exists which doesn't give much appreciation of the relative hazard amongst the many other label warnings that tend to wash over the reader after time.

How toxicity is determined.

However, it's in the interest of the turf care professional to become aware of potential special hazards associated with products so that problems can be minimized.

The relative toxicity of various chemicals, including pesticides, is often evaluated in terms of their LD₅₀ value. This is the lethal dose of the chemical which kills

See **HARMFUL** on page 16

LAWN CARE INDUSTRY

Serving the needs of the professional lawn care operator

AUGUST 1991

VOLUME 15 NUMBER 8



Where there's smoke, there's fire? There will be less of both in Oregon's Willamette Valley where thousands of acres of turf seed are harvested annually. The turfseed industry, which burns its fields annually to prepare for the coming season, and state lawmakers reached an agreement which will reduce the acreage turfseed producers will be allowed to burn. This dramatic scene was captured by Larry Kassell.

Industry/lawmakers agree to reduce turfseed acreage burned in Willamette Valley

To burn or not to burn issue resolved

SALEM, OR—This is the summer when the oftentimes heated field-burning controversy here finally flickers out.

In late June negotiators found common ground between an industry-backed House bill and a more-

restrictive Senate bill concerning the burning of grass seed fields each summer and fall.

Turfseed growers—mainstay of a \$280-million industry in Oregon's Willamette Valley—say that field burning is the most

effective way to clear their fields of unwanted straw. They insist that burning improves crop yields of many varieties of turfseed; indeed some varieties cannot be grown economically without burning.

But the big clouds of smoke annually attract criticism. And when seven people died in a 23-vehicle crash in the smoke which drifted over I-5 from a burning field near Albany, OR, in 1988 anti-burning forces suddenly found themselves with lots of new friends.

Actually, Oregon lawmakers voted to outlaw burning in the mid 1970s but backed off under industry pressure. Even so, in 1979 the acreage limit was set at 250,000 acres, where it's stayed since.

The new compromise—expected to become law this summer—raises about \$1 million a year (half from state lottery money, half from fees imposed on burns) to find new ways to use up straw and clean seed fields.

See **BURN** on page 4

9-0! LCOs Lose Top court unanimous that FIFRA gives berg pesticide authority

Within days of a June U.S. Supreme Court ruling, citizens within some communities revitalized their efforts to leash LCO use of pesticides.

In Mayfield, Ohio, for instance, councilman Santo Basile said the decision will now allow that village, just east of Cleveland, to enforce a pesticide notification law it adopted in 1987.

"I'd stop these lawn care trucks and tell them about the law. They told me to blow it out my you know what," he said. "Now, we can start enforcing it."

The U.S. Supreme Court, in a 9-0 ruling, determined in late June that local political subdivisions can make their own rules concerning pesticide use.

The ruling is unwelcome by the agricultural industry and by the majority of professional pesticide applicators. Groups representing chemical suppliers and

See **9-0** on page 3

NEX

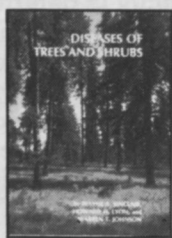
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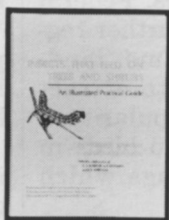
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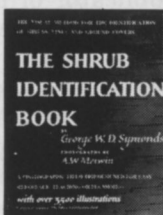
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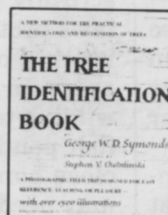
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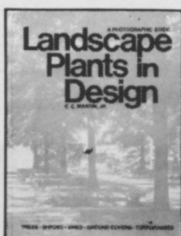
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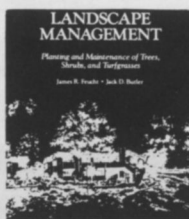
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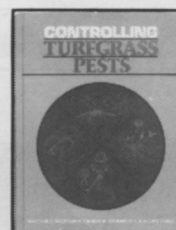
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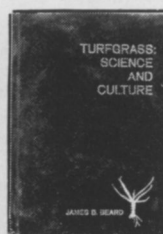
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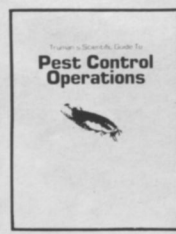
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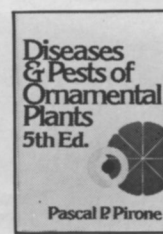
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9-0

from page 1

commercial users had maintained—Courts in some instances had concurred—that the 1972 Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) preempted local regulation of pesticide use.

The U.S. Supreme Court said that was not one of the intents of FIFRA. Its decision has, seemingly, multiplied the potential sources of pesticide-use regulation.

Professional lawn care, because of its visibility with the public, may feel the consequences of the ruling first, say industry spokesmen.

But enforcement, even at the village level, might be more difficult than lawmakers had envisioned. Mayfield Building Commissioner Gus Amendola admitted: "I don't know how we're going to enforce it."

That won't stop the village from notifying applicators that the law is in effect and will be enforced, said village law director Fred P. Ramos. "We want to be fair. We don't want to be citing people tomorrow."

Phil Fogarty, of Crowley Lawn Service and president of the Ohio Lawn Care Association, said industry's next step is to meet with communities, like Mayfield, that have (or are drafting) pesticide use laws and work out sensible laws. These rules, hopefully, would be similar from community to community within market areas.

Fogarty said it would be unwise to "draw battle lines" in light of the Supreme Court decision.

The case, *Wisconsin Public Intervener v. Mortier*, focused on pesticide use laws adopted by Casey, WI, (pop. 400). The town had passed an ordinance requiring a permit for the application (60 days prior to application) of any pesticide to public lands, to private lands subject to public use, or for the aerial pesticide applications.

A resident, Ralph Mortier, applied for a permit for aerial spraying of a portion of his land. The town gave him the permit, but forbade any aerial spraying, and also restricted the lands on which ground spraying would be allowed.

Mortier, in conjunction with Wisconsin Forestry/Right-of-Way/Turf Coalition, started court action against Casey. The dispute found its way to the Supreme Court of Wisconsin which, in a 4-3 decision, concluded that FIFRA preempted Casey's ordinance. The town, through the Wisconsin Public Intervener (an assistant Wisconsin attorney general), carried the case to the U.S. Supreme Court, which conducted oral arguments in April.

Justice Byron White, who delivered the opinion for the Supreme Court, wrote: "We conclude that FIFRA does not preempt the town's ordinance either explicitly, implicitly or by virtue of an actual conflict."

Elsewhere he wrote: "...the statutory language tilts in favor of local regulation. The principle is well settled that local governmental units are created as convenient agencies for exercising such of the governmental powers of the state as

may be entrusted to them."

The case now goes back to the Wisconsin Supreme Court which likely will reverse its earlier decision against the Town of Casey.

The U.S. Supreme Court decision has far-reaching implications for pesticide-using industries.

"The decision creates an unworkable framework for the regulation of

FIFRA does not preempt the town's ordinance—Justice Byron White

pesticides," said Ralph Engel, president of the Chemical Specialties Manufacturers Association. "Jurisdictions by the tens of thousands now have the authority to

impose regulations that may potentially conflict with those with those manufacturers must already comply with at both the state and federal level—making it extremely difficult, if not impossible, to continue marketing pesticide products."

Even though it's unlikely thousands—or even hundreds—of villages or cities will rush to implement their own pesticide regulations, the mechanism is certainly now in place to do just that.

Deb Strohmaier, director of public relations for ChemLawn, says the nation's largest lawn care com-

pany, doesn't expect a rash of local action, but that communities that have previously attempted to limit LCOs will probably become active again..

This coming spring, (Spring is when anti-pesticide activists traditionally seek media coverage and politicians try to generate some "environmental" press.) should give LCOs some feel about how much impact the ruling will have. LCI

Jurisdictions by the tens of thousands now have the authority to impose regulations—Ralph Engel, president of CSMA

PLCAA seeks help in monitoring ruling's impact on local legislation

The June 21 decision by the U.S. Supreme Court is likely to have different impacts in different parts of the country.

That ruling, says that political subdivisions below the state level are within their rights to develop pesticide use laws.

Communities that had previously tried to restrict pesticide use (Milford, MI, Montgomery County, MD, etc.) are likely to reinvestigate legislative options.

Some states (West Virginia, Florida, Louisiana, Minnesota, and Pennsylvania) have laws allowing them to preempt local ordinances that conflict with those of the state. While California, Colorado and New Jersey require that local pesticide ordinances be approved by the state.

Neal DeAngelo, president of the Professional Lawn Care Association of America, says it's more important than ever that PLCAA receive the support of state lawn care associations. He said all lawn care groups must work together to address pesticide-related issues as they arise.

"If we can nip a lot of these (proposed regulations) in the bud, and stop them from ever beginning in the first place, I think we'll do our industry a great service," said DeAngelo.

PLCAA issued a special summons to LCOs to become more politically aware; to, in a sense, become partners with PLCAA in tracking and dealing with regulations as they emerge in cities and towns.

PLCAA says it would like notification of all such activity. It needs:

- Early notification of the proposed ordinance.
- A copy of the ordinance.
- Dates, times and places of meetings where the ordinance will be discussed.
- A list of available local people to help you.
- A phone/fax number through which PLCAA can provide you information.
- A list of members, committees, or boards proposing the ordinance, including names, addresses, and occupations.

tions.

• A local government's contact person to call for updates as the ordinance moves.

• Reason why the ordinance was introduced.

"You or an organized group need to monitor the legislative process in all the local government jurisdictions in which your company operates," says a release from PLCAA.

"There should be a coordinated uniform plan within each state for all pesticide users working with community groups. Meetings with other pesticide user groups should be held right away. It will take a certain kind of person to testify at a hearing or speak for a group, and that representative needs to be prepared."

Although the Federal Insecticide, Fungicide and Rodenticide Act is up for reauthorization (industry has argued for years that FIFRA denied cities and towns the rights to make their own pesticide-use laws), it's uncertain if local preemption will be an issue again.

LCI



We're only one of the user groups that this decision affects. This is bigger than us—Thomas Delaney, government affairs, PLCAA



Joint AAN/MADD/American Forest Council tree planting ceremony. Above, Robert J. Dolibois, being interviewed after the American Association of Nurserymen combined with Mothers Against Drunk Drivers in a commemorative ceremony in Washington D.C. late this spring. Right, AAN President Richard J. Henkel (left) with Rotary Director T.D. Griley, II, as AAN and Rotary announce more plantings.



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LAWN CARE INDUSTRY (ISSN 0160-6042)
is published monthly by Edgell Commu-
nications, Inc. Corporate and Editorial Offices:
7500 Old Oak Boulevard, Cleveland, Ohio



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Accounting, Advertising Production and
Circulation offices: 1 East First Street,
Duluth, Minnesota 55802. Subscription rates:
\$30 per year in the United States; \$55 per
year in Canada. All other countries: \$100 per
year. Current single issue copies (pre-paid
only): \$3.00 in the U.S.; \$6.00 in Canada;
elsewhere \$10.; add \$3.50 for shipping and
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\$10.; add \$3.50 per order for shipping and
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publication: Edgell Communications, Inc., 1
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Who really knows FIFRA?

Thomas Delaney, isn't convinced anybody does. Delaney, government relations specialist for the Professional Lawn Care Association of America (PLCAA) attended the oral arguments before the U. S. Supreme Court of *Mortier vs Town of Casey*, the case involving a community's right to enact its own pesticide use laws. Delaney says the Federal Insecticide, Fungicide and Rodenticide Act is so complicated that it's literally impossible to know all of its provisions. Or, in some instances, what the Act means to accomplish.

Basagran® herbicide from BASF may now be used on turf in California. Basagran is used to control yellow nut sedge and other broadleaf weeds in turf. Basagran is a restricted use material in California.

The Bethesda, MD, office of Earle Palmer Brown will handle ChemLawn's advertising. The ChemLawn account is somewhere between \$3 and \$5 million. "We were impressed with Earle Palmer Brown's...presentation. Their credentials dovetailed with our particular needs in the landscape services industry," said Mike Kelly, vp of marketing and residential sales for ChemLawn.

Two genetically engineered agricultural pesticides finally reach the U.S. market. They're aimed at

vegetable-crop pests. Mycogen Corp., San Diego, says i MVP and M-Trak contain natural toxins. Scientists cloned the gene responsible for producing this toxin (derived from *Bacillus thuringiensis*) and inserted into the cell of another bacterium that can be mass produced. These cells are killed and encased in tiny "biocapsule" that preserves the toxins until they're ingested by the target pest., says Mycogen.

"Golf courses have to be environmentally friendly places." That's what U.S. EPA official Lewis Crampton told a group of GCSAA members in Washington D.C. recently. The Golf Course Superintendents Association of America has increasingly beat on the environmental drum in recent months.

More about GCSAA. David R. Schwall, Sky Top, PA, became the 1200th person to become a Certified Golf Course Superintendent. Thought has been given to creating a similarly prestigious title for professional lawn applicators who meet certain standards, but nobody's been able to nail down the standards yet.

Must go back? California lawmakers consider a bill requiring anybody filling or selling containers of five gallons or more with liquid hazardous material to accept those containers back from purchaser once emptied. California's definition of liquid hazardous material: is pretty general.

No going back? Richard Steinau, president of Greenlon, Cincinnati, and former PLCAA president makes this point about safe driving in the latest issue of PLCAA's *Lawn Care Technician*. "We use a simple rule for drivers of tanker or box frame trucks. No backing! No excuses!...Every company comes to the point where they've knocked down too many mailboxes, torn off too many passenger-side rear view mirrors and reseeded too many tire-rutted lawns."

Turf Supply, Ltd., Plainfield, IL, formed a lawn & garden supply division. Turf Supply is a distributor of professional turf and lawn care products.

The New York State Department of Environmental Conservation issued a proposed regulation banning the sale in the state of insect repellents containing more than 30% DEET. N. N-diethyl-m-toluamide, or DEET, is the active ingredient in many repellent products. The DEC says the use of too much DEET can create health problems for some people.

To the Dome. After two years at the Indiana State Fairgrounds, the Indiana State Lawn Care Association has taken its Nov. 12-13, 1991, conference and trade show to the Indian Convention Center and Hoosier Dome, Indianapolis. Robert E. Andrews of the ISLCA says the move gives everyone more room.

LCI

Details of Oregon grass field burn compromise

•Acreage limitations applied to propane flaming. Propane-flamed acreage limited to 75,000 acres this year. From 1998 on, propane flaming would be allowed only if it met pollution standards.

•A ban on open field burning, propane flaming and burning of straw stacks once "economically feasible, environmentally acceptable alternatives" developed.

•Registration fees to

increase from \$1 to \$2 per acre to open burn, and a new fee of \$1 per acre on growers who propane burn. Fees also would be levied when fields are actually burned. Fees would increase from \$2.50 to \$8 for every acre that is open-burned in the Willamette Valley, and \$4 outside that area. New fees for burning straw in stacks would be \$2 per acre from 1992-97, increasing to \$4 in 1998, \$6 in 1999, \$8 in

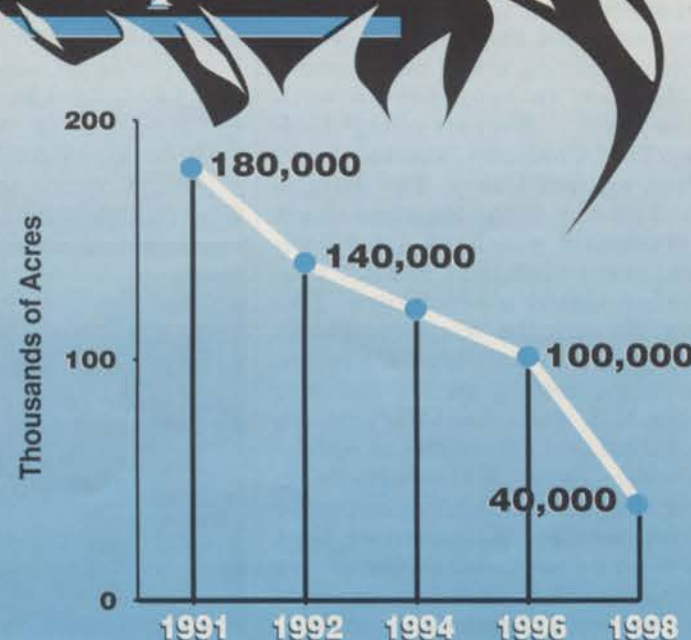
2000 and \$10 from 2001 on. A new fee \$2 fee also would be levied for propane-flaming. Money from these fees (estimated at \$500,000 a year) would pay for regulation of field burning and

research into alternatives.

•The state would pay \$500,000 a year to subsidize the grower-financed research efforts from 1992-1997.

LCI

Field burning compromise



Acreage limits could increase by up to 25,000 per year because of exceptions for steep terrain and special grass-seed crops.

Source: Oregon Legislature

Ohio community stops use of pesticides, fertilizers at parks

LYNDHURST, OHIO—This small community just southeast of Cleveland quit using chemical fertilizers and herbicides at its parks.

Lyndhurst Mayor Leonard M. Creary said the city is seeking other to care for the grass.

He took the action after a woman complained of numbness and itching following a visit to Shaffer Park where fertilizers and a product containing a herbicide were being applied.

A doctor reportedly told the woman she was reacting to chemicals.

She wrote a letter to the editor in a newspaper and prompted three other residents complained.

LCI

NY confab set

WHITE PLAINS, NY—Professional Turf and Landscape Conference, Wednesday, Jan. 15, 1992. Westchester Center.

LCI

UPFRONT

We're so darn good I can hardly stand it!



BY RON HALL
editor

So many long faces. So much uncertainty.

What's to keep an LCO from curling up in a ball in a corner. Then acquaintances can say things like—*"Ain't it a shame."*

Or. *"His therapist says he's making progress."*

So, who's giving too much attention to all the criticism aimed at professional lawn care?

We are, that's who.

LAWN CARE INDUSTRY magazine mailed questionnaires to 1,000 of its readers earlier this year and 270 returned them. Many LCOs, the returns tell us, are questioning their industry, maybe even themselves. We wrote about this in June's LCI.

And some LCOs—according to the advertising done by a few companies this spring—are apologizing for all the horrible things industry does to the environment, but offering a "new" type of lawn care, which is horse manure—the marketing that is. Who knows what's in the fertilizer they're peddling.

Others (not in the business) say we better find a new line of work. We're spraying poisons all over the place; they're mad as hell; they're not going to take it anymore. That would be laughable except for the attention they attract.

I know most of what they're saying is malarky because the proof is all around me, even as I write this.

Edgell Communications headquarters, the building in which I work, is located on several acres of the most intensively managed turf in the Cleveland area (outside of a golf course anyway). It's a showcase of turf and colorful annuals.

If somebody is harming the environment because we

love all this green grass and beautiful flowers, they better inform the geese that take up residence here each spring.

Or the three young foxes that spend an hour early each morning wrestling and tumbling just outside our windows.

Or the hummingbirds. This place is awash in hummingbirds, the shiny green ones about half as big as a sparrow, and tiny dark green and yellow ones. These are so tiny and fear-

less that, without close examination (you can walk right up on them) you'd swear they're hornets.

If what we're doing is so terrible, why don't all these critters go across the street in the brush and weeds instead of hanging around our place?

What's been created here with the grass and the ponds and the flowers is marvelous.

We should pat ourselves on the backs every morning for the positive things we,

as an industry, do for the environment and customers' lives.

All this worrying and fretting keeps us from focusing on what we should be doing:

- Providing real service and building healthy lawns.
- Receiving a fair price for what we do.
- Making a profit.

Ron Hall

ChemLawn to post a profit?

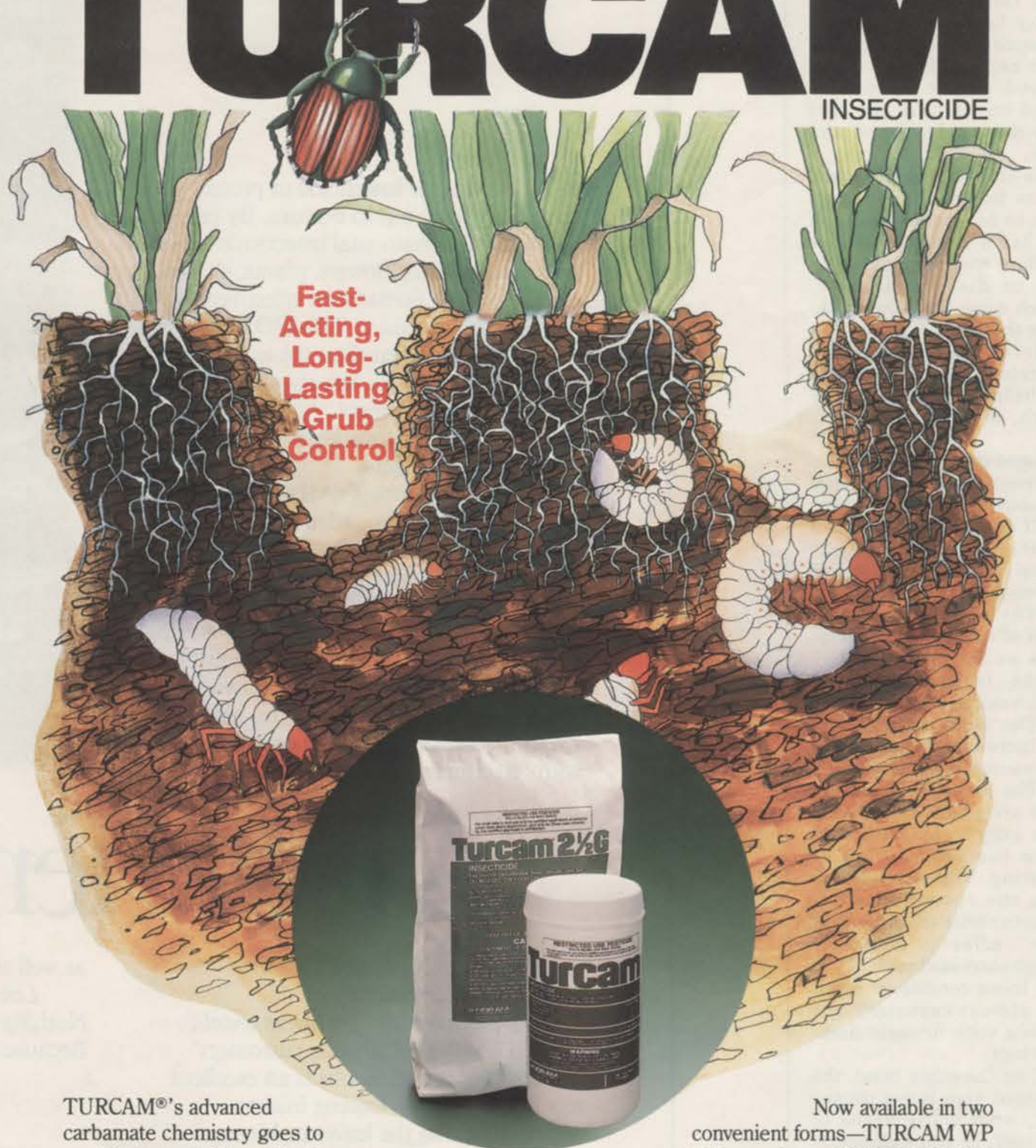
MINNEAPOLIS—David Siegfried, president of Ecolab Inc.'s ChemLawn Services Corp. said the nation's largest lawn care company should post a profit this year.

He made the statement in a story appearing in the Minneapolis-St. Paul Tribune this summer.

ChemLawn recorded losses in 1987, 89 and 90 totaling \$56 million. The company posted a \$13.9 million profit in 1988. LCI

TURCAM[®]

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TURCAM[®]'s advanced carbamate chemistry goes to work fast—and offers effectiveness that lasts—against white grubs as well as mole crickets, chinch bugs, sod webworms and other destructive pests. This hard-working insecticide is odorless...cost-effective...easy to apply. What's more, TURCAM won't tie up in thatch or damage turf and ornamentals.

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Now available in two convenient forms—TURCAM WP a wettable powder and TURCAM 2 1/2 G granular—this versatile insecticide can take care of your toughest pest control problems. For more information on TURCAM, contact the NOR-AM Communications Department or your local distributor.

CAUTION: TURCAM[®] is a restricted use pesticide.

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IMPORTANT: Please remember always to read and follow carefully all label directions when applying any chemical.

FROM THE FIELD

Were our problems caused by drought or summer diseases?



BY CHRISTOPHER SANN

The unprecedented high heat and dryness this summer caused many LCOs to put their concerns about summer disease control in the background. Their efforts centered on keeping the turf they managed watered and alive.

As this dry spell ends, we as turf managers will have to determine if some of the lawn problems we're battling are drought damage or disease damage. Which came first, the chicken or the egg?

Here are some simple indicators that you can use to help you determine which, in fact, came first.

Drought-damaged turf

Drought-damaged turf has some telltale indicators:

- If the damaged turf is a constant brown or light brown with little or no live turf visible.
- The area exhibits any signs of mechanical damage such as stripes from tire marks from mowers or other vehicle or foot traffic.
- The damaged area has not increased in size since the resumption of watering.
- The leaves in the damaged area have taken on a dark gray or blackish cast since the resumption of watering. This color comes from the spores of minor opportunistic disease that only effects severely drought-stressed turf.

If these conditions exist, you almost certainly are dealing with drought-damaged turf.

If, on the other hand, the damaged area is not consistent, with many areas of live turf, or the damage is diffuse and not well defined, and the damaged area has actually increased in size or has only appeared since the resumption of watering, then it's likely that you had or have an active summer disease problem.

Summer Patch

Summer patch is the

classic summer "patch disease" that, at various times over the past 25 years, has been called Fusarium Roseum, Fusarium Blight, Fusarium Blight syndrome, etc.

Diagnosing Summer Patch is relatively easy. The patches start at about 6" in diameter up to about 24". They range in shape from roughly circular to U-

shaped or occasionally crescent-shaped and frequently have an apparently healthy green growing center, frequently giving the patch a donut-shaped appearance.

The dead turf within the patch will remain upright for up to several weeks until mechanically crushed or pushed down by rainfall or watering.

The patches most often

appear when a very hot dry spell immediately follows a very wet spell.

The onset of new patches stops with a good watering or with the application of a fungicide that has demonstrated good control of the disease.

Controlling Patch

The primary host of Summer Patch is bluegrass,

usually showing the greatest damage in areas or restricted root structures or areas that are subject to substantial reflected heat.

Stopping the emergence of new patches can be as simple as just thoroughly watering the affected areas or occasionally applying an effective fungicide at curative rates.

It might be better

It only takes one insecticide to protect your customers from top to bottom. By using TEMPO® 2 Ornamental Insecticide, you can treat home lawns, flowers, plants, shrubs, even trees with unmatched effectiveness.

Reduce exposure. TEMPO uses 80% less active ingredient than the leading insecticide, so there's 80% less chemical to impact the environment. And that reduces the potential for exposure to your customers and their pets.



TEMPO reduces exposure to your customers, your employees and the environment.

Since TEMPO is a broad-spectrum, advanced generation pyrethroid, it gives excellent control at low dosage rates.

This allows you to control tough surface-feeding pests like sod webworms, cutworms, armyworms, even ticks without yellowing the grass or interfering with fertilizers or fungicides.



A Little Tempo Will

On top of all that, TEMPO is practically odorless.

No phytotoxicity on ornamentals. Using TEMPO on all your customers' flowers, plants and shrubs is an excellent way to control leaf-feeding insects without burning the leaves or blooms.

Plus, the fast knockdown and long residual of TEMPO make it effective on tough pests like pine shoot moths, webworms and sawflies.

And again, 80% less chemical means less handling, mixing and disposal hassles,

as well as less impact on the environment.

Less chemical needed to spray trees. Nothing is better on trees than TEMPO. Because not only are you spraying less



TEMPO effectively controls surface and leaf-feeding pests like tent caterpillars, Japanese beetles and bagworms.

to attempt to prevent patch formation in areas that have a disease history by convincing the property owner of a thorough and timely watering program into the cooler fall months.

Where regular irrigation is a problem, monthly preventive applications of a fungicide such as triadimefon starting in late May and continuing through August have recently shown to provide acceptable control.

The application rates will range from light to heavy depending on the availability of water and the history of the location.

Foliar Pythium is proba-

bly the most misunderstood and misdiagnosed of all the summer diseases. It's also likely the most damaging.

Pythium symptoms

Unlike Summer Patch, the symptoms of Pythium are much less distinct. It can have rings similar to Brown Patch or circular patches like Summer Patch but without the live centers. It can exhibit a diffuse off-color gray-green cast in its very early stages.

The three things most consistent about Pythium are: an almost complete collapse of the affected leaves often with a "slimy" appear-

ance in the final stages; a disheveled appearance of collapsing leaves in the middle stages; and it often appears during wet and humid periods following hot weather. It gets worse with watering and irrigation.

Pythium control

Control of Pythium can be difficult. It's active over a wide range of temperatures—from 55 F. on up. It has been isolated from about 90% of all samples submitted to a major turf products manufacturer but it only exhibits symptoms over a relatively narrow set of environmental circum-

stances—high heat, humidity and wetness.

Preventive applications of the appropriate fungicides may be effective when applied 15 to 30 days before the anticipated onset of symptoms, but if conditions favor the onset of symptoms, the light rates generally used in preventive applications can easily be overwhelmed.

Curative applications of fungicides at high rates are usually effective at controlling the symptoms, but the tremendously disruptive nature of Pythium usually causes lots of damage.

Luckily, the narrow set of

conditions that favor this disease are usually short lived.

Best defense

The best defense against drought and summer diseases are good cultural practices: consistent watering that avoids saturation or dryness, maintaining a balanced high-quality fertility program, increasing air circulation where needed and learning the early warning signs.

About the author

Christopher Sann is owner of Complete Lawn Service, Wilmington, DE. LCI

ALCA OFFERS PUBLS CATALOG

FALLS CHURCH, VA—The Associated Landscape Contractors of America (ALCA) recently revised the ALCA Publications Catalog, which contains a complete listing of all the publications ALCA has available.

The following new publications are included:

- "Designing Your Accounting System";
- "Crystal Ball Report X—Managing Information Systems";
- "Crystal Ball Report XI—Personnel";
- "Safe Tractor-Loader Operation"; and
- "Safe Truck and Trailer Operation".

For a free copy of the catalog: ALCA Publications Department, 405 N. Washington St., Suite 104, Falls Church, VA 22046. LCI

ITODA is new

WASHINGTON D.C.—ITODA is the name of a new association of distributors who market products to the professional turf and ornamental trades.

ITODA stands for Independent Turf & Ornamental Distributors Association.

Members (there were 29 in June) meet twice a year to discuss industry issues. The next meeting is the ITODA Conference in Hilton Head, SC, Oct. 23-27.

For more information contact ITODA President Herb Hea (301/899-3535) or Membership Chairman Don Hepler (217-352-0591). LCI

Promark move

BRILLION, WI—Ariens Company says it's moved all operations of its Promark subsidiary to Ariens headquarters.

Ariens will focus on Promark chippers/shredders and turf/pavement vacuum products. LCI



Cover The Whole Lot.

chemical into the air, TEMPO also costs less than other leading insecticides.

In addition, TEMPO is compatible with all types of spray equipment and won't cause downtime due to clogging.

And it's effective on such leaf-chewing and leaf-skeletonizing insects as gypsy moth larvae, oakworm caterpillars, leafrollers, bagworms and cankerworms.

With 80% less active ingredient, it only takes a little TEMPO to cover a lot of ground. And that has big advantages for you and your customers.

For more information, contact the Mobay Corporation, Specialty Products Group, Box 4913, Kansas City, MO 64120 (800) 842-8020.



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Turfgrass: stands tall (like trees)

An environmental overview on turfgrass

BY ELIOT C. ROBERTS

Much of the public believes trees are better for the environment than turfgrass.

This is inaccurate. And unfortunate. Lawn grasses and trees *both* create and maintain environmental quality. But, obviously they differ on the degree they do this.

- Trees use more water from the soil per unit land area than turf.

- Trees are not involved in long term carbon dioxide storage.

- Neither turf nor trees are major sources of atmospheric oxygen, although oxygen is produced from their leaves, as a by-product of photosynthesis.

- Turf through its active fibrous root system enriches the soil and improves biological processes, helping decompose all sorts of pollutants.

- Turf cover over the ground promotes the intake of water from rainfall more effectively than *any other* type of vegetation and is greatly superior to non-living organic accumulations and mulches.

Leaf characteristics

Great variation has been noted in leaf size and number and in overall structure of the tree above the ground.

A free standing beech tree that is 80 to 100 years old and 80 feet in height may have a crown that is some 50 feet wide and covers 1,700 square feet. This beech tree may have a crown volume of 97,000 cubic feet.

There are close to 800,000 leaves on the tree, with a surface area of 17,000 square feet. The photosynthetic surface (inner leaf surfaces where cell walls are active in assimilation) The inner leaf surfaces (cell walls active in assimilation of carbon dioxide) may be as great as 1,700,000 square feet.

The dry weight of all the wood (roots, trunk, branches and twigs) of this tree is about 24,000 pounds. About 12,000 pounds of this is carbon.

This tree transforms about 5 pounds of carbon dioxide and 2 pounds of water to make 3 1/2 pounds of glucose each hour during the growth season. As this happens, 6.075 calories of sunlight are used and 3.8 pounds of oxygen are released back to the atmosphere.

Turfgrasses do not have as large a foliar canopy as trees and although equally complex, leaf characteristics have a greater degree of similarity.

Turfgrasses vary in canopy structure, leaf area and growth habit depending on genetics within the cultivar, environmental conditions and cultural practices, such as clipping height. Leaf area index can be used in the assessment of canopy density, plant growth characteristics and physiological responses.

The narrow leaves of red fescue contribute to a low leaf area index, a reduced transpiration rate, a lower demand for available soil moisture and a greater potential for drought survival.

Drought resistant grasses frequently have a higher root to shoot ratio. Some species have a reduced leaf area but show no reduction in transpiration because of an increase in the size and number of stomata.

In general, a higher cutting height increases the leaf area index, thus providing a greater capability to absorb light and synthesize carbohydrates.

Trees with much larger leaf areas per unit of ground surface take more carbon dioxide from the air and release more oxygen back to the air during photosynthesis.

They also use much larger quantities of water in this process than turf. Since turf is green for a longer time during the year than deciduous trees (from 2 to 6 months longer), some equalization of photosynthetic capability can be expected.

Also, tree leaves may be green and wilted under moisture stress and at these times limited photosynthesis takes place. Whereas any time severe moisture stress is imposed on turf, it turns brown and



Turf, through its fibrous root system enriches the soil and improves biological process—Eliot Roberts, The Lawn Institute

becomes dormant. In the instance of turf, it is obvious that carbon dioxide assimilation, oxygen release and transpirational cooling have ceased; in the instance of woody vegetation, the cessation of these benefits may not be obvious.

Atmospheric Composition

With current concern for global warming, much emphasis need be placed on an understanding of atmospheric composition - past, present and future projections:

The atmosphere has a mass of 5,610,000,000,000,000 tons (quadrillion). The carbon dioxide content of the atmosphere amounts to 1,870,000,000,000 tons (trillion). Since carbon atoms make up 0.273 of the total mass of the carbon dioxide molecule, the total mass of carbon in the atmosphere is 682,000,000,000 tons (billion).

The atmosphere consists mostly of nitrogen (79 percent) and oxygen (21 percent) with small amounts of argon (less than one percent), carbon dioxide (0.03 percent) and methane (1.7 parts per million). Should there not be a regular release of carbon dioxide to the atmosphere through the oxidation of carbon, the relatively few years supply would become depleted. This would be disastrous for plants that rely on carbon dioxide for photosynthesis.

Carbon dioxide in the air at a concentration of 0.03 percent by

volume would amount to 3 parts in 10,000 parts air or 300 parts per million. In the year 1750, the earth's atmosphere contained 280 parts per million carbon dioxide. Now, the atmosphere contains 346 parts per million.

Combustion of fossil fuels has amounted to an increase of carbon dioxide emissions from 93 million tons per year in 1860 to about five billion tons per year in 1988. As forest lands are cleared to crop land, more carbon dioxide is released to the atmosphere.

CO₂ levels rising

Carbon dioxide levels in the atmosphere are increasing. This is a function of our oxidation of carbon from fossil fuels and from the clearing of forest lands for agriculture and development. As populations increase world wide and as people aspire to higher standards of living, the use of these energy rich resources will continue.

Although computer models predict future global warming, there is no firm evidence of this to date. Larger computers with greater capacities for analyzing global variables are needed before this can be predicted with accuracy.

Water use by turf and trees

Turfgrass irrigation is conspicuous; tree irrigation is not. Whenever a lawn is watered, associated trees and shrubs benefit as much as the

lawn grasses.

We also know that a plant requires from 60 to 70 gallons of water to produce one pound of dry matter. All additional water is used to transport nutrients, maintain proper levels of hydration for growth and to cool plant tissue.

Turf water use

An acre of turf on a cool summer day will lose about 2,400 gallons of water through evaporation and transpiration. On a hot, sunny, dry, windy day, an acre of turf can lose in excess of 10,000 gallons of water. This amounts to about 1/3 of an inch of water.

During the growth season, fine turf uses on an average 1 inch of water a week. This amounts to 625 gallons per 1,000 square feet.

On an average day, this would amount to close to 90 gallons.

Turf that is to be kept green and growing will require this amount of water from a combination of natural rainfall and irrigation. Soil and climatic variables may require the adjustment of these needs up or down throughout the growth season.

Tree water use

A free standing beech tree loses from 75 to 100 gallons of water during a summer day.

An apple tree loses about 300 gallons of water a day during active growth.

An acre of apple trees will take up some 15,000 gallons of water per day. This amounts to a little over 1/2 inch of water.

Some mature orchard trees transpire as much as 600 tons of water per acre per day (1,200,000 pounds of water, 144,000 gallons or as much as 5 inches of water).

One large tree in full leaf may lift as much as a ton of water a day from the soil (240 gallons or 0.4 inch of water if roots involve a soil volume beneath the tree with 1,000 square feet of soil surface).

The formation of 100 grams (3.5 ounces) of wood cellulose requires 55 grams (2.0 ounces) of water. But while the tree increases its weight by only 100 grams, it loses through transpiration nearly 100,000 grams (about 26 gallons) of water. Large trees may form up to 50,000 cubic feet of organic matter, mostly wood.

Turf is efficient

Turfgrasses, because of smaller leaf areas and production of a smaller biomass and a more limited root system within the soil, use less water than trees.

At times when there is a moisture deficit within a region, trees will draw down moisture reserves in the topsoil to a greater extent than turf. Turf irrigation may make it seem that lawns are using too much water and in many instances lawns are over watered.

Much biomass produced

Both trees and turf use carbon dioxide in photosynthesis. It's a difficult process to evaluate for either.

A tree is able to use about 10 percent of the carbon dioxide in the air at any given time.

Only about one percent of the solar energy that falls on a leaf is used with the carbon dioxide for photosynthesis.

Also, many of the interior leaves receive only one percent or even less of the sunlight received by peripheral leaves. These low light intensities often favor stomatal closure.

High light intensity often raises transpiration rates and a reduced water content of leaf cells. Under these conditions, photosynthetic rates may drop. Photosynthesis is most efficient when wet cell surfaces are in contact with the air so that exchange of carbon dioxide and oxygen can take place.

A square inch of leaf may have thousands of stomata (some



Eliot Roberts, who will be retiring as director of The Lawn Institute, this year, and Jerry Roche, right, editor of *Landscape Management* magazine. The two toured turfseed production areas in the Pacific Northwest in June.

For excellent shade performance . . .



Most turf experts agree — good natural resistance to powdery mildew is an important factor in a bluegrass' adaptability to shade. Tests and use show Ram I to have excellent resistance to powdery mildew, lending to its outstanding shade performance.

Reaction of Kentucky bluegrass cultivars and selections to powdery mildew in a spaced-plant nursery at Adelphia, New Jersey.

Cultivar or Selection*	Powdery Mildew Rating 9 = most disease
RAM I	0.0
Glade	0.0
Nugget	0.0
Mystic	0.0
Touchdown	0.0
Sydsport	0.5
Plush	2.0
Baron	3.0
Cheri	3.5
Victa	3.5
Geronimo	4.0
Majestic	5.0
Bonnieblue	6.0
Adelphi	6.5
Vantage	6.5
Rugby	7.0
Parade	7.0
Pennstar	7.0
Fylking	7.0
Merion	8.0
Windsor	9.0

*Commercially available Kentucky bluegrass varieties.

Whatever your bluegrass specifications, remember . . . what you seed is what you get . . . sow Ram I.

Ram I is a release of the U.S. Golf Association Greens Section/Rutgers University/Lofts Seed Inc.

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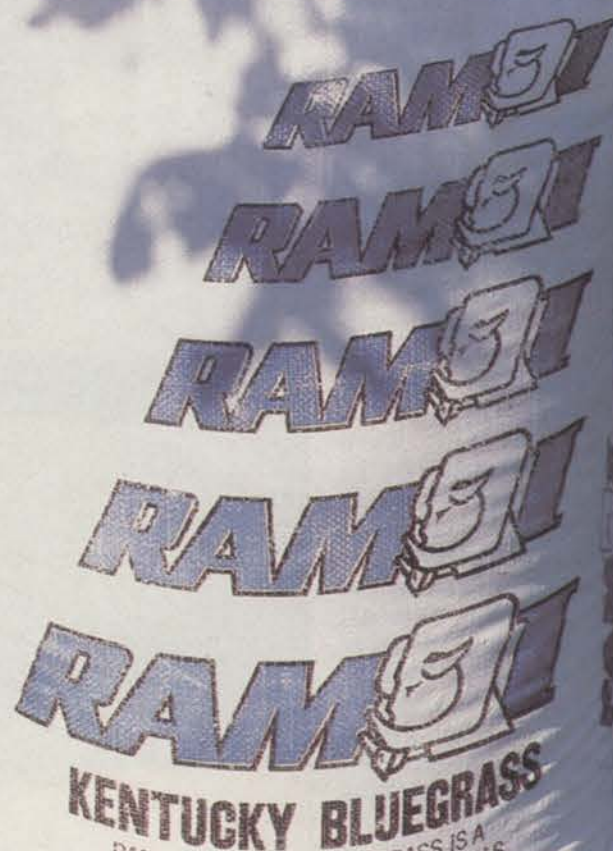
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RAM I KENTUCKY BLUEGRASS IS A VARIETY PROTECTED UNDER THE U.S. PLANT VARIETY PROTECTION ACT. P. V. P. NO. 7800069
UNAUTHORIZED SEED MULTIPLICATION PROHIBITED BY LAW.



35,000 per square inch of oak leaf).

With year round growth, tropical forests can produce as much as 36 tons of carbon-containing plant material per acre per year. This is about twice that of a temperate forest.

In contrast, a hybrid corn crop grown in fertile soil can produce only 6 to 8 tons of plant material per acre each year.

Less growth is better

Compared to biomass production of 36 tons per acre for a tropical forest and 18 tons per year for a temperate forest and 8 tons per year for a hybrid corn crop, turfgrass production is insignificant. In fact, the less growth of turf, the better, within limits of normal health and vigor.

What organic matter that is produced by turf when returned through "Grasscycling" is used by soil organisms to enrich the soil.

Oxygen consideration

Since we breathe oxygen, we're concerned about oxygen levels and air quality wherever we are - outdoors, at home or at work. Atmospheric oxygen is vital to our health and well-being.

The average adult breathes in more than 400 cubic feet of air a day. About 1/5 of the volume of this is oxygen.

Eighteen percent of the human body is carbon. A 165 pounds individual contains about 30 pounds of carbon.

Of some 400 cubic feet of air taken in each day, the body absorbs about 20 cubic feet of oxygen. Expired air still contains about 3/4 of the oxygen it had when it was inhaled. Thus, air which has been breathed once is still suitable for re-breathing as it mixes with fresh air on exhalation. Oxygen in expired air will have decreased from 20 to 16 percent and carbon dioxide will have been increased from 0.04 to 4.0 percent.

Although oxygen is the breath of life for all humankind, 20 times more is used each day per person for various combustion services. These include generation of energy for light and heat, as well as for cooking and transportation.

A delicate balance

Should too much oxygen accumulate in the atmosphere, danger from spontaneous combustion would increase. Should oxygen levels drop much below 20 percent, burning and biodegradation would become more difficult.

A leaf surface of about 270 square feet can emit, on a sunny day, as much oxygen as a person requires in that same period.

But, since we breathe at night and in the winter and at other times when there is limited photosynthesis taking place, at least six times this amount of leaf surface is required for a whole year. This would amount to about 1700 square feet of leaf surface.

A combination of tree leaves, shrub leaves and grass leaves in the landscape can help provide this. Approximately 1000 to 1500 cubic feet of green plant

canopy are required per person to provide this amount of leaf surface.

If this canopy were lawn grass with a two inch thickness, then 6,000 to 9,000 square feet of lawn would be required to provide this much oxygen. If this canopy were one tree with a dripline covering 64 square feet of ground, the crown of the tree would have to be from 20 to 30 feet in the air. In more practical terms, a landscape of slightly less than 2000 square feet will generate the oxygen required for one person for an entire year.

Most of the oxygen in the

atmosphere has an aquatic origin. Land plants contribute oxygen too, but this is not thought to be critical to our survival. Nevertheless, it's better to have green oxygen-producing plants in the landscape than the alternative of concrete, asphalt, and dust.

Soil Biology

The greatest benefits of turf and trees come in their protection and enrichment of the soil. It's a matter of how well they support soil biological processes that maintain soil systems as dynamic and living in nature.

All carbon fixed in organic matter (biomass) not submerged in water is in time subject to oxidation. This may be in an accelerated form, such as burning, or as slow biodegradation (decomposition or rotting). In the latter instance, microorganisms are involved in processes that ultimately form humus that enriches the soil.

About the author

Eliot Roberts is director of The Lawn Institute, Pleasant Hill, TN. He was aided in the research of this story by Beverly C. and Tara L. Roberts.



Discover the fine art of broadleaf weed control.

Look closely. This may be the last time you'll see these broadleaves on display.

Only one herbicide lets you paint your turf without broadleaves all season long. Gallery* 75DF pre-emergence herbicide. It's an original work of art. And science. With a chemistry so advanced, it outdates post-emergents, saving you time and labor costs. Our free brochure has all the details.



Grasscycling welcomed near Memphis

Greg Waters (left) and Tim Clark, employees of Beauty Lawn Spray, Memphis, TN, at a grasscycling demonstration lawn in Germantown, TN. PLCAA's Grasscycling program showed homeowners how to reduce landscape wastes in the Memphis area.

Prospects urged to ask questions

PLCAA guidelines for potential lawn clients

MARIETTA, GA—You can help prospective customers choose a lawn care company—preferably yours—by supplying them with these guidelines:

(The Professional Lawn Care Association of America developed these suggestions and distributed them to the media in selected markets this past May.)

1. Determine what you want from a lawn service.

Lawn companies fertilize, control weeds and other lawn-damaging pests, seed, aerate, mow and maintain small trees and shrubs.

2. Find out which companies provide service in your neighborhood. Before looking in the yellow pages or answering an ad, ask your neighbors for a recommendation. It's a solid way to determine the reputation of a company and the quality service it provides.

3. Ask for a lawn inspection and an estimate for service. Beware of companies who quote a guaranteed annual price without seeing your lawn, since they're only guessing what your lawn might need. Deal with a company which has established the cost based on your specific lawn rather than the average lawn in your neighborhood.

4. Ask about the price system and what services are included. The lawn care company may require a yearly contract or a simple verbal agreement giving the customer the right to discontinue service at any time. Find out what happens if you have a problem between applications. Will the service calls be free or is there a service call?

5. Consider annual costs on a service call as well as cost per application. Many companies allow you to pay after each treatment and may offer a discount if you pay the annual cost up front.

6. Have a complete understanding with the company before work starts. Get an explanation of what the service can and cannot do. Find out what treatments are included in the proposed program, about when they will be applied, and what results can be expected.

7. Find out what is, and is not, guaranteed. Some services may offer a guarantee of performance. Others may offer refunds if they fail to meet your expectations.

8. Make sure the lawn care service is licensed for application of lawn care products as required by state law.

9. Membership in a national, state, or local lawn care association indicates the company has access to the latest technical information and is pledged to a code of ethics.

10. For further information on the company's service record, contact your Better Business Bureau. LCI



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You'll see how to brush away 44 of your toughest broadleaves before they start. Chickweed, spurge and white clover, for example. With no reproductions allowed. And no injury to turfgrass, either. Gallery is actually more tolerant to all major turf species of cool and warm season turf—even bentgrass—than other herbicides. And there's little risk of off-site damage to nearby ornamentals.

Find out how to make your broadleaf weed control a fine art. Send for your free brochure on Gallery. Just call toll-free: 1-800-729-3693, ext. 4672.



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The late-summer feeding supplies small, readily available amounts of phosphorus.

Photos courtesy of O.M. Scott & Sons Company

Feed the grass in the fall for healthier, greener spring lawn

BY DR. GEORGE MCVEY

Fertilizing in the fall helps turfgrass make it through the winter. This is not, however, vital to the turf's survival as it has lived through winter cold and other stresses for millions of years without extra help. Why, then, is fall fertilization so important?

Late-season fertilizing eases turf maintenance and improves turf density. Other benefits include better fall and winter color, along with enhanced early spring green-up.

There is an additional reason for a late-fall feeding: turf subjected to high traffic as well as high maintenance stress needs more nourishment to remain healthy.

A late-fall feeding can even be enhanced by fertilizing in late summer. This "sets up" the turf for the fall feeding, by increasing turf density and increasing its ability to absorb nitrogen.

Apply it late but not too late

For cool-season grasses, apply fertilizer as late in the season as possible for best results—late September to early November. This usually coincides with the last regular mowing, depending upon your area of the country and weather. There is more efficient use of nutrients when fertilizer is applied at the same time as the natural slowdown of turfgrass growth.

The application should not be so late in the year the ground is frozen, or close to freezing because nutrients will not be available to the plant in sufficient quantities.

In the South, a late-fall application should be before the first frost. Then, Bermudagrass usually stops growing and becomes dormant, remains so until the soil temperature reaches 60°F.

It should be noted, Bermudagrass roots do remain active about 30 days after the top

growth is dormant. A nitrogen feeding then is as effective as on cool-season grasses. The goal is to supply enough of a feeding for winter storage, but not enough to encourage the Bermuda to start growing. Timing varies from August to December, depending upon climate.

Difficulties can arise on Bermuda turf overseeded with perennial ryegrasses or other cool-season turf. In general, fertilizer rates of 0.5 lbs. nitrogen/1000 sq. ft. and 1.5 lbs. K_2O /1000 sq. ft. will maintain optimum turf quality and enhance winter hardiness.

In the southernmost regions of the country, a nitrogen rate between 0.9 and 1.0 lbs. N/M is needed to maintain healthy turf. This feeding should also include an equivalent amount of potassium.

Understanding the process

After rapid vegetative growth slows in the fall, the plant increases food production (carbohydrates and

proteins) for storage in the crown and root system of the plant. These carbohydrates and proteins are energy sources and are either absorbed by the root system for immediate use or saved for use during the winter.

The nutrition build-up in the plant's roots and rhizomes is, perhaps, the most significant benefit of fall fertilization. With a proper fall fertilizing program, these energy sources provide nutrients for maintenance. This leads to good fall and winter color, an improved, early spring green-up and a healthy, vigorous turf stand next spring.

A complete fertilizer—one with nitrogen, phosphorus and potassium—is the best type for late-summer feeding. For late-fall applications, fertilizers with a high-analysis, controlled-release nitrogen source are ideal for good winter/early spring color and encouraging root system development without excessive top growth.

Nitrogen also increases shoot growth and density; tillering; stolon and rhizome growth; heat, cold and drought hardiness; and recovery.

Don't apply too much nitrogen in late fall. Too much can divert energy meant to enhance root growth to the production of lush top growth, making plants more susceptible to turf diseases and freezing damage to the crown. Controlled-release nitrogen sources usually eliminate these problems.

The late-summer feeding supplies small, readily available amounts of phosphorus to meet plant needs. Its effects can be seen in enhanced shoot density; increased tillering; shoot, root and rhizome growth; and enhanced seedling establishment. Generally, if routine fertilization during the season has supplied 0.6 to 1.0 P_2O_5 /1000 sq. ft., a high analysis feeding of phosphorus isn't needed.

Apply potassium to soil that has less than 75 and 150 ppm exchangeable potassium in sandy and clay loam soils, respectively.

Nitrogen-to-potassium fertilizer ratios in the 3:1 to 2:1 range are fine under these conditions. Generally, it's important to apply potassium when the turf is growing, like late summer, for best uptake.

Secondary elements and micronutrients—calcium, magnesium, sulfur, boron, copper, iron, manganese, molybdenum, zinc—are important to the turfgrass plant. Some or all are often available in many fertilizers.

Importance of pH

The soil's pH level is almost as important as proper nutrition. The optimum pH range is from 5.6 to 6.6. Centipedegrass, carpetgrass, bentgrass, and red fescue prefer the lower end of the range; tall fescue, annual bluegrass, Bermudagrass, perennial ryegrass, zoysia, bahia, St. Augustinegrass, and Kentucky bluegrass prefer the upper end.

"Know" the turfgrass that's being fed. Soil testing can divulge the specific needs of the plants. Each turf area is individual.

About the author: Dr. George McVey is a senior technical associate with the O.M. Scott & Sons Company. This is the third in a series of articles concerning turf fertilizing he's written for LCI.



Late-season fertilizing improves turf density, improves winter color and enhances early spring green-up

Ohio green industry hit by sneaky tax

COLUMBUS, OHIO—This month Ohio consumers began paying sales tax on professional landscape and lawn care services.

The sales tax proposal was to have been signed by Governor George V. Voinovich prior to Aug. 1. (This was written the last week of July and there was still a possibility—a remote possibility—that Voinovich would line-item veto the tax.)

LCOs, mowers, professional landscape providers, etc. will be charging customers an additional five percent, the state's cut, plus applicable county and municipal sales taxes.

The green industry is one

of three service industries being newly required to collect the taxes from customers. The other two are the security industry (burglar alarms, protection and private investigators' services), and 1-900 telephone services.

The new taxes arise from a compromise \$27.2 billion two-year state budget. The bipartisan Senate-House panel that put together the compromise came up with \$292.4 million in new taxes to support the budget. The

negotiation was hammered out behind closed doors. The sales tax on green industry services is expected to generate \$19.2 million.

A spokesman at the Ohio Department of Taxation admitted not all green services providers may as yet be aware of the new sales tax, and, in some cases, they may have to back bill customers.

The spokesman said any LCOs doing over \$5,000 in business a year would have to obtain a service

provider's license and collect the tax.

The tax proposal caught the industry by surprise.

Neal DeAngelo, president of the Professional Lawn Care Association of America, and Phil Fogarty, president of the Ohio Lawn Care Association, fired off immediate protests to the Governor's office.

Some LCOs in Ohio feel the tax puts them at an even greater disadvantage in the competition for consumers' dollars.

Green industry professionals seeking further information concerning the sales tax can contact their nearest regional State of Ohio Department of Taxation regional office.

They are: Cleveland, 216/787-3130; Columbus, 614-895-6250; Cincinnati, 513-852-3311; Toledo, 419/245-2881. There are also offices in Zanesville, Canton, Youngstown, Stubenville, Lima, and Dayton.

LCI

C-G's NEMATODE PRODUCT READY

GREENSBORO, NC—The Ciba-Geigy nematode-based larvicide, Exhibit®, can now be used by lawn care operators.

The company says the product controls surface-feeding turf pests such as sod webworms, billbugs, and cutworms.

The nematodes in Exhibit are third-stage infective juveniles (*Steinernema carpocapsae*, strain 25) that seek out and parasitize target pests. The juveniles carry a bacteria (*Xenorhabdus* spp.).

Nematodes enter a target pest through a body opening and release the bacteria into the pest.

The host pest dies within 48 hours, and nematodes develop rapidly into first-generation adults and reproduce.

Shortly after this, second-generation adults appear and reproduce. The cadaver fills with juvenile nematodes, which then leave and seek out a new host. If they cannot find a host within 14 days, the juvenile nematodes die.

Application rates differ for turf and ornamentals, says Ciba Geigy.

For surface feeders on turf, one container should be applied to 10,000 square feet. Applications should be made when small larvae are first detected.

Each jug of Exhibit contains 250 million entomogenous nematodes preserved in gel. The gel dissolves and nematodes are released when an activating agent and water are added. After approximately 30 minutes, this mixture is added to more water in a spray tank. After these preparations, Exhibit can be sprayed. LCI



Are Chemicals Killing The Chemistry Between You And Your Customers?

It may not be entirely fair, but the media and consumers are in an uproar over lawn care chemicals and any potential negative effects on families, pets, and the environment. Whether or not you think there are potential dangers, undoubtedly some of your customers do.

What's the best answer? Converting to or adding a NaturaLawn franchise, the pioneer and leader in organic-based lawn care.

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*We also offer a 100% pesticide free program.

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Table 1

Acute avian (bird) toxicity of insecticides and miticides used in tree and turf care. LD₅₀ values for single feed acute toxicity of mallard ducks are given unless otherwise indicated.

Pesticide (Trade name)	LC ₅₀ value	Pesticide class
Highly toxic to birds (equivalent to Category 1-Danger/Poison label-pesticides for human exposure, oral LD ₅₀ 0-50)		
bendiocarb (Turcam, Dycarb, Ficam)	3.1 mg/kg	Carbamate
diazinon	3.5 mg/kg	Organophosphate
ethoprop (Mocap)	4.2-61 mg/kg	Organophosphate
propoxur (Baygon)		
Moderately toxic to birds (equivalent to Category II-Warning label-pesticides for human exposure, oral LD ₅₀ 51-500)		
isazophos (Triumph)	61 mg/kg	Organophosphate
chlorpyrifos (Pageant, Dursban)	76.6 mg/kg	Organophosphate
avermectin (Avid)	84.6 mg/kg	Avermectins
acephate (Orthene)	350 mg/kg	Organophosphate
Lower toxicity to birds (equivalent to Category III-Caution label-pesticides for human exposure, oral LD ₅₀ 501+)		
fenprothrin (Tame)	1089 mg/kg	Pyrethroid
malathion	1485 mg/kg	Organophosphate
biphenrin (Talstar)	2150 mg/kg	Pyrethroid
carbaryl (Sevin, Chipco Sevimol)	2179 mg/kg	Carbamate
cyfluthrin (Tempo)	5000 mg/kg	Pyrethroid
fluvalinate (Mavrik)	2510 mg/kg	Pyrethroid

HARM

from page 1

50 percent of the test animals. The figure is adjusted for body weight of the animal and expressed as a number based on milligrams (mg) of pesticide required per kilograms (kg) of body weight. (This is equivalent to parts per million of body weight.)

In this scheme, lower LD₅₀ values indicate higher toxicity.

LD₅₀ values can be developed for various measures of pesticide exposure. The most easily developed—and most widely available—are values based on a single exposure applied either orally (ingestion) or to the skin (dermal). These are often called acute exposure values.

Effects of pesticides to fish and other aquatic organisms are measured somewhat differently. Instead, an LC₅₀ value is given, based on the lethal concentration of the pesticide diluted in water. Studies on fish are usually run over a 4-day period (96 hour) and LC₅₀ values are expressed in parts per

million (or parts per billion) of the pesticide in water.

For both LD₅₀ and LC₅₀ values, the technical (i.e. unformulated) pesticide is almost always tested. The values given in Tables 1 and 2 reflect this. Formulated pesticides may have different values, since the other ingredients added during formulation can affect uptake by fish or birds.

Toxicity of pesticides to earthworms, an important group of animals in lawn health, is not routinely determined in laboratory trials. Information on this subject is based on some field trials that have been conducted by turfgrass researchers, often entomologists.

Earthworms

Earthworms are essential to lawn health. They're macrodecomposers that help recycle organic matter such as thatch. They also naturally aerate soils. Destruction of earthworms can disrupt a healthy soil ecosystem, contributing to other problems, notably build-up of thatch layers.

Older insecticides in the chlorinated hydrocarbon group, such as

chlordane, devastated earthworms creating unhealthy lawn environments. Currently used pesticides apparently have considerably lesser effects on lawn decomposers. However, even among current products some can have potentially great impact on earthworms.

The most recent data on lawn care pesticide impact on earthworms was produced by Dr. Dan Potter at the University of Kentucky. In field trials (Table 3), only a few of the tested products significantly impacted populations two weeks after treatment. These primarily included the carbamate insecticides (carbaryl, bendiocarb) and fungicides (benomyl), along with the organophosphate insecticide ethoprop (Mocap). Most other commonly used insecticides and fungicides had little, if any, impact on earthworm populations.

Birds at extra risk

The insecticides most toxic to birds (Table 1) are primarily organophosphate insecticides such as diazinon, Dursban, and Mocap. Bendiocarb (Dycarb, Turcam) is the lone carbamate among the higher risk insecticides. Most of these insecticides are considerably more toxic to birds than to mammals. Diazinon, for instance, is 100 times more toxic to birds (LC₅₀ value 3.5 mg/kg) than for mammals (about 350 mg/kg), a few granules of the 14G formulation being a lethal dose to many birds. This insecticide typically carries a label indicating only moderate toxicity (Warning) whereas it would be in the highest risk category if risk to birds was the basis for label direction warnings. (Concerns about toxicity have recently resulted in more restrictive diazinon-product labels.)

Fish, a different pattern

Fish show a very different pattern of susceptibility to insecticides and miticides. The newer insecticides, pyrethroids (Talstar, Mavrik, Tempo) and avermectins (Avid), dominate the high risk insecticides to fish (Table 2). Most are extremely toxic to fish, at least in the clear water tanks in which these studies are conducted. For example, bifenthrin, the active ingredient in

Talstar has an LC₅₀ value equivalent to 1 teaspoon per 8,680,560 gallons of water.

It's regularly pointed out by manufacturers of pyrethroid insecticides that organic matter in natural ponds binds to most of the insecticide. This greatly reduces risk hazards of these products, although they remain inherently toxic to fish and need to be used with special caution in and around fish-bearing waters. Concerns about these compounds has greatly affected registration progress in recent years, particularly where endangered

Applicators should always attempt to make applications that best avoids exposure to any non-target species.

aquatic species occur.

Many of the miticides (Pentac, Kelthane, Vendex) also show considerable toxicity to fish, whereas they are of much lesser risk as a group to mammals and birds. Organophosphates, so highly toxic to birds, generally fall towards the bottom among insecticides toxic to fish.

Be aware of risks

These data indicate the variable effects that pesticides can have on different types of organisms. Becoming aware of these differences can allow the applicator to use them with greatest care and avoid harming susceptible species.

This can allow avoidance of hazardous materials in areas where highly sensitive species occur. This also shows you're knowledgeable.

However, the most important factor in determining hazard of a pesticide use is how the pesticide is applied. Applicators should always attempt to make applications in a manner that best avoids exposure to any non-target species. Time of application, limiting the area treated, control of drift, rates and formulation are all important factors limiting unintended effects.

The pesticide applicator understands and controls these variables at the job site if there are concerns about non-target species.

LCI

Table 2

Acute toxicity of insecticides and miticides used in tree and turf care to rainbow trout. LC₅₀ (lethal concentration in water) values for 96 hour exposure.

Pesticide (Trade name)	LC ₅₀ value	Pesticide class
biphenrin (Talstar)	0.15 ppb	Pyrethroid
cyfluthrin (Tempo)	0.68 ppb	Pyrethroid
fluvalinate (Mavrik)	2.9 ppb	Pyrethroid
avermectin (Avid)	3.6 ppb	Avermectins
isazophos (Triumph)	6.3 ppb	Organophosphate
hexakis (Vendex)	6.6 ppb	Organotin
fenprothrin (Tame)	10.3 ppb	Pyrethroid
dienochlor (Pentac)	50 ppb	Chlorinated hydrocarbon
dicofof (Kelthane)	53-86 ppb	Chlorinated hydrocarbon
diazinon	635 ppb	Organophosphate
ethoprop (Mocap)	1.02-1.85 ppm	Organophosphate
bendiocarb (Turcam, Ficam, Dycarb)	1.55 ppm	Carbamate
carbaryl (Sevin, Chipco Sevimol)	1.95 ppm	Carbamate
malathion	2.00 ppm	Organophosphate
chlorpyrifos (Dursban, Pageant)	3.0 ppm	Organophosphate
acephate (Orthene)	1000 ppm	Organophosphate

ppb = parts per billion; ppm = parts per million

Table 3

Effects of pesticides on earthworm populations

(Based on data from Dr. Dan Potter, University of Kentucky.)

Pesticides which affected earthworm populations two weeks after treatment (% population reduction)

Dursban 4E (-32.3)	Sevin SL (-89.8)*	Benomyl (Tersan 1991) (-60.0)*
Triumph 4E (-59.4%)	Turcam 2.5G (-99.0)*	Mocap 10G (-96.8)*
	Diazinon 14G (-58.4)	

Pesticides which did not have significant effects on earthworm populations

2,4D	Pendimethalin (Pre-M, etc.)	Isofenphos (Oftanol)
Dicamba	Chlorothalonil (Daconil 2787)	Trichlorfon (Proxol)
Triademphos (Bayleton)	Triclopyr	Propaconazol (Banner)
	Senariol (Bubigan)	

*Pesticides which had significant effects on earthworm populations 20 weeks after application. Reduction of earthworm populations at 20 weeks ranged from 79%-40%.

PLCAA event coming

Theme of 12th annual conference Nov. 18-21 is "Meet the Challenge"

TAMPA, FL—The Professional Lawn Care Association of America's 12th annual conference is Nov. 18-21 here.

The theme is "Meet the Challenge."

"PLCAA members have every opportunity to get the competitive edge over their non-member competitors through education sessions covering topics of vital importance," says Dale Lybarger, conference education chairman. Working with Lybarger is conference committee chairman Daryle Johnson.

Conference sessions

They've scheduled sessions on the following topics:

- **Basic business.** What's the true cost of equipment, tracking business expenses, managing cash flow, financing information your banker needs.

- **Marketing in the 1990s.** Developing a marketing program, value-added selling, marketing aeration.

- **Facility management.** Mixing pesticides and fertilizer products, management of recycling systems.

- **Fertilizer technology.** What is organic nitrogen fertilizer, new fertilizer technology, biostimulants.

- **Technical problem solving.** Broadleaf weed control, hand sprayer usage, nozzle selection, growth regulators, employment management, drug free workplace, effective use of employees.

- **Environmental.** Composting yard waste, product development, nitrogen/pesticide movement.

- **Government relations.** State pesticide issues.

- **Insurance.** Liability insurance.

- **Company issues.** Diversification in business (pros and cons of irrigation, pest control, etc.), direct and indirect costs, Grasscycling.

Conference registration includes entry to the Green Industry Expo 91 which will include over 250 companies exhibiting Tuesday and Wednesday, Nov. 19-20.

On Thursday, Nov. 21, an Outdoor Equipment Demonstration are set.

For more information: call PLCAA at 404/977-5222. LCI



Sad reminder

A copy of this photograph sits on the desk of Neal DeAngelo, president of the Professional Lawn Care Association of America. It shows, l. to r., Dave White, Coron Corp., Mike Kravitsky III, Grasshopper Lawns, Senator John Heinz (R-PA), DeAngelo, Lawn Specialties, and Lawrence Ellmaker, Deiter Bros. Lawn Care. The four representatives of lawn care met with Senator Heinz and posed for this photo just days before Heinz's untimely death in a plane crash late this spring. LCI

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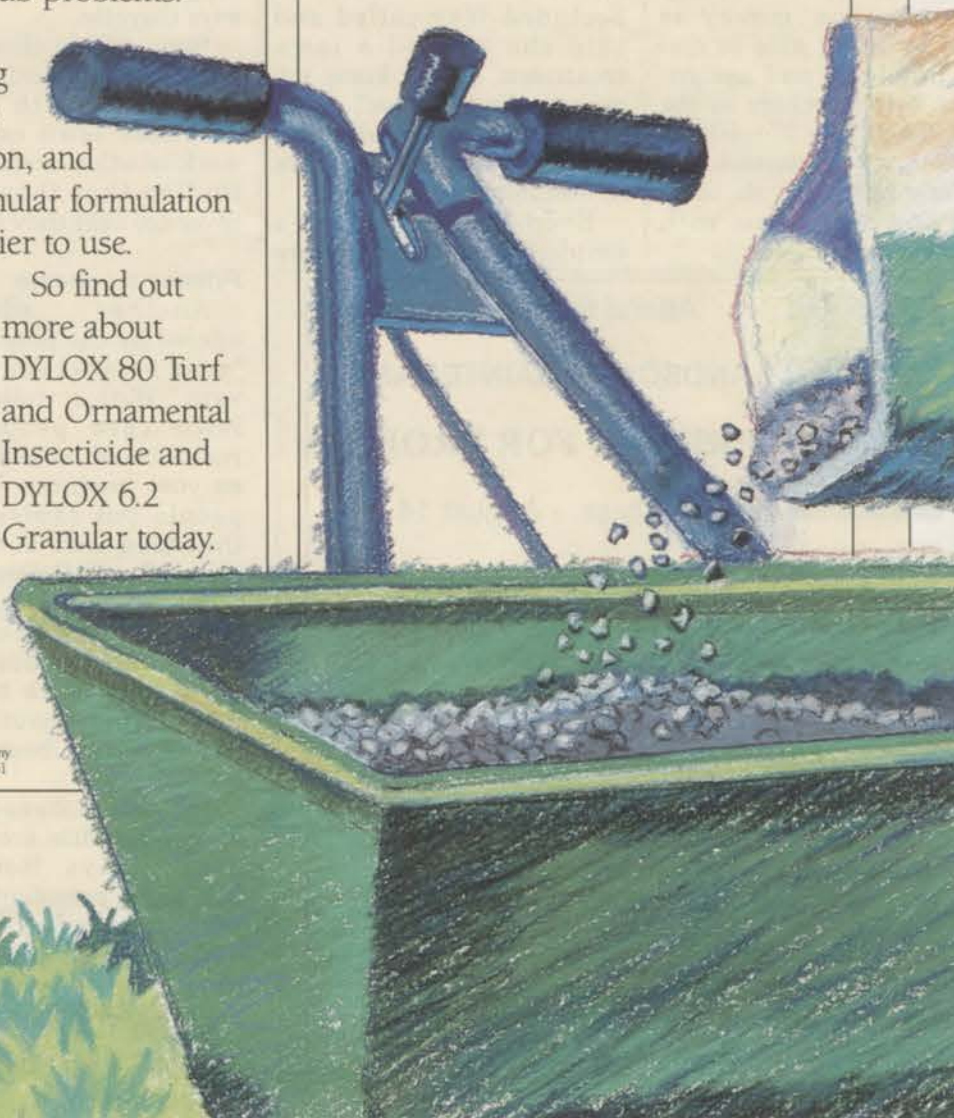
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Reach out, touch someone?

Mobile communication systems allow some LCOs to solve each day's problems; others aren't sure it's worth it

BY JAMES E. GUYETTE

Looking after a lawn care operation is more efficient if the crews in the field can be reached with a telephone or radio.

LCOs are also learning that having mobile communication equipment means better customer relations.

Which is better, two-way radios or cellular telephones?

LCOs contacted by LAWN CARE INDUSTRY said both.

One thing is certain, those using either of the two communication systems are sold on their value. Some use both.

"I have a cellular phone and a 2-way (radio)," says Sean A. Bennett, president of Bennett Enterprises, Lomita, CA.

Bennett has a phone in his own truck, and the other 15 company trucks are equipped with radios.

"If I were starting off now I'd go with cellular," says Bennett. "I made an investment in the equipment" that powers the radio links.

Still, "There's been many a time" when money is saved by being able to discuss problems and assignments with workers in the field. They use hand-held radios to stay in contact.

"They put them on their belts and carry them with them," says Bennett.

Regional problems

In the hilly neighborhoods of Bennett's market area radio signals sometimes get lost. This is reduced with the phone, and you can call virtually anywhere you want.

"Cellular doesn't just go to your base—it goes all over the world," adds Bennett.

Bennett is becoming increasingly annoyed with yearly raises in radio-use rates, and a "forestry fee" gets tacked on when antennas are located in wooded park areas.

At Super Lawns, Gaithersburg, MD, the tight geographic area surrounding Washington D.C. means that radio antenna "repeater fees" aren't required. That makes radios a better buy, says Mike Bailey, president.

He paid \$5,000 to outfit his six trucks. "I know they paid for themselves in one year," he says. "I don't know what I would have done without them."

He recalls one recent event: "Mrs. Garcia on Secluded Way called and said she wanted a lawn treatment, and I knew my man was in the area."

Bailey radioed the employee and he was there in less than five minutes.

Even while Bailey's employees are on lawns

they can be reached via the public address speakers on company vehicles.

"You can equip your trucks with external speakers, but watch the office chatter," he cautions.

Bailey has a phone in his truck but views it as a luxury item. "Air time here isn't cheap," he says.

For LCOs considering radios, "you don't have to jump in all the way right away," says Bailey. "You can get used radios."

A mobile unit hooked up to a linear amplifier—known as a "foot warmer" to citizens band radio buffs—can fill the need of a standard base station, says Bailey.

The buyer's market for radios has been fueled by the popularity of phones, especially among LCOs, says James L. Guyette, president of Cellular Service Industries, Kingston, PA. (Not related to the author of this story.)

They check into the 2-way and then they're finding that the coverage isn't as good as the cellular," says Guyette.

Some of his clients have customers spread out over wide areas. With a phone, "If these lawn care guys work in other states they're finding that they get the coverage that they need."

Privacy a concern

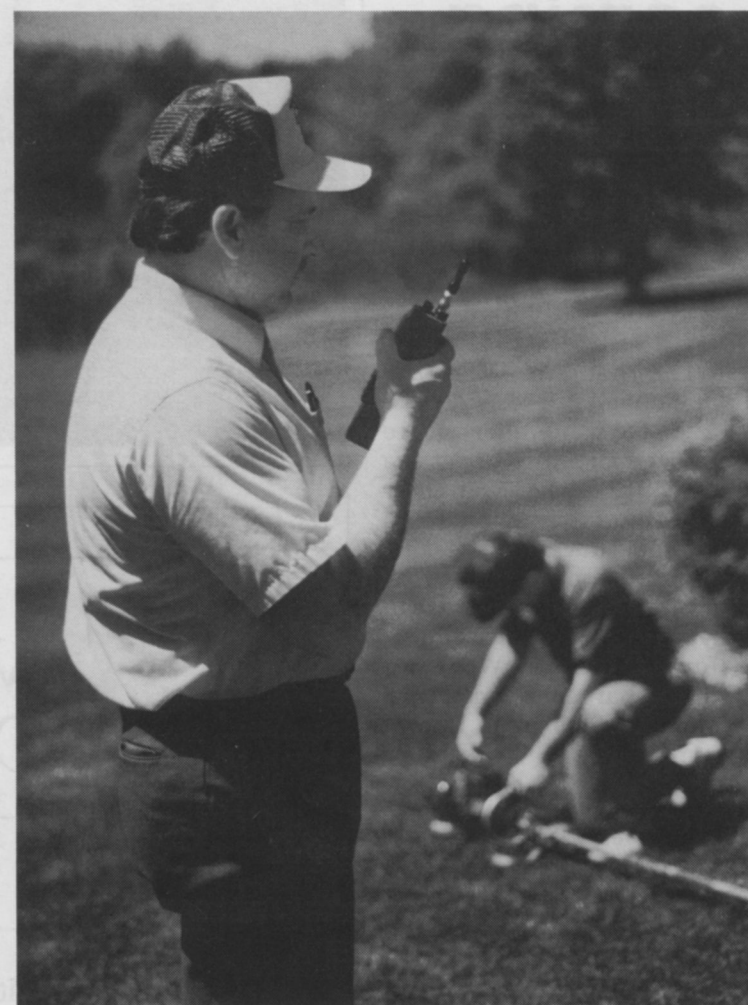
Another advantage offered by the phone is that "your conversation is private." With a radio, "other lawn care people with radios could be listening in" on your business. "I've had people put radios in and then take them out for that reason," says Guyette.

To reach crew members on the job site, most LCOs have their phones hooked up to their truck horns, he adds. "Just about anyone who is in that business has horn alerts."

In Kalamazoo, MI, Motorola radios are the way to go, says Robert E. Bushouse, president of G&L Distributing Inc. "They're definitely cheaper than phones. In one year they paid for the whole system," he says.

It reduces errors

The company's Green King lawn care division has



Help!! Field personnel say radios are useful when problems arise

reaped savings by everyone being in constant contact.

With a lawn treatment in progress, "they might run out on a big place and then we can send another truck to finish the job," says Bushouse. "It's better than going back there another day."

Keeping in communication avoids having to chase people down, and it reduces the chances of making expensive errors, says Mike Rider, Rider Enterprises of Racine Inc. The Wisconsin firm offers both lawn care and tree care.

"Rather than guessing and doing it wrong we can just ask," says Rider. Everyone carries pagers. "I've got beepers now, and my new truck will have a cellular phone. In the long run all the workers will have cellular phones."

Rider has explored 2-way radios, but found them too expensive for his needs. He's thought about CB radios, but feels they're too difficult to monitor in a work setting.

More affordable now?

Phones are looking like a good deal as prices continue to come down, says Gary Cooper, president of Cooper's Lawn Aeration Service in the Tidewater region of Virginia. "You can buy them for as low as \$90."

Cooper considered radios but figures it would cost about \$5,000 to get started.

By using the phone only for important business Cooper estimates it costs about \$2 a day.

The phone comes in handy if a crew can't make it to a scheduled treatment. It reduces inconvenience to clients.

"There's just a lot more flexibility with it," says Cooper.

The people at Happy Lawns Inc., Milwaukee, WI, also avoid using their phones except when absolutely necessary. The manager and assistant manager have telephones. If other workers need to reach them they use pay phones.

"When one of our men has a problem with the trucks we're able to reach the manager," reports Carolyn Knaub, vice president.

The phones get more traffic in the winter. "Now we're not using them that much—they worked better during snowplowing season," says Knaub. "In lawn care it can always wait 24 hours."

A similar strategy is in place at Lawn Master Inc., Missoula, MT. President John Bass says his crews are given assigned routes.

"When I was a lawn care operator in the field I didn't want Mrs. Jones calling the office and having me come back that day. It can wait until tomorrow."

Instead someone in the company office will call cus-



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tomers several days ahead of a scheduled treatment.

"If there's a problem it gives us another chance to solve it before they cancel," says Bass.

VA TURF SHOW

BLACKSBURG, VA—The Virginia Tech Turf and Landscape Field Days is Sept 17-19 at the Virginia Tech Campus here.

Contact J.R. Hall III, 703/231-5797.

The 32nd Virginia Turf & Landscape Conference and Trade Show will be January 13-16, 1992, at the Richmond Centre and Richmond Marriott, Richmond, VA. Contact Randeem Tharp 804/340-3473. LCI

TREE SHOW SET

COLUMBUS, OHIO—The second annual trade show of TREE CARE INDUSTRY magazine will be at the Ohio Center here Dec. 5-7.

The seminar program for TCI Expo 91 focuses on management and field personnel too. There will be recertification seminars for certified commercial applicators.

Contact Tom Clancy 800-733-2622. LCI

Grant for trees

HARRISBURG, PA—A \$466,700 grant for new tree plantings will give Pennsylvania its first full-time urban forestry extension instructor.

Receiving the money is Pennsylvania's Urban and Community Forestry Council.

Besides the forestry extension instructor, the money will fund four regional urban forestry coordinators. They will help communities develop tree planting projects and local shade tree ordinances.

The remaining money will be distributed to three grant programs. LCI

ASPA INTERNS

ROLLING MEADOWS, IL—The American Sod Producers Association (ASPA) started a student internship program.

Employers are provided with a pool of interested and educated men and women.

Students get hands-on experience.

Students can get applications and information from ASPA, Attention Thomas Ford, 1855-A Hicks Road, Rolling Meadows, IL 60008. 708/705-9898. LCI

Calling ahead also helps guarantee that the lawn will be watered as needed before or after a treatment. Beyond that, Bass feels his customers like the extra attention.

Phones in the trucks of Grasshopper Lawns Inc., Edwardsville, PA, keeps key people in the office from being tied up, says Michael Kravitsky III, company president.

His two sons run the business for him and they each have mobile phones.

"They make the calls on the way in. They don't have to sit here in the office," says Kravitsky. LCI



Cellular phones and 2-way radios allow the office to stay in touch with technicians

Motorola photo

"Where else could you find a truck that saves enough to make its own payments?"

On top of that, Scott Nolen of Truly Nolen says "In total operating costs, my economical Isuzu trucks save an additional three and a half percent. They deliver fuel and maintenance savings that are unbelievable."

"We're the nation's largest family-owned lawn care and pest control company. Four years ago we began switching over our fleet of lawn care trucks. It's now 97% Isuzu Truck."

"The Isuzu low-cab-forward trucks have outstanding visibility and turning radius. Driving the other trucks was very tiring. Now it's not as much a physical job as it once was. So any of our drivers can handle it."



"We're not the only lawn care business using Isuzu NPRs. In this competitive market, about seven out of ten trucks are Isuzus."

"And now we're beginning to use Isuzu trucks for fumigation, too. Our new 13,250 lb. GVW fume truck with its all-aluminum bed is the best match of truck and body I've ever seen in the pest control industry."

To find out where you can get a truck that saves you money and performs like this, call (800) 255-2550 for the location of your local Isuzu Truck dealer.

Works for Scott.



Fall brings seasonal sales opportunities

By Ed Wandtke

Spring sales are long over and most LCOs report more customers.

The recession that began last fall and worsened through the winter hasn't harmed the lawn care industry as much as other industries. Or, as much as we'd feared.

Now's the time to take advantage of the gains we've made and plan for the second most effective selling period of the year—late summer and early fall.

This is a proven time of the year to sell services. There are several points, however, we must address to do an effective second marketing effort for our companies.

Who should get our advertising message?

What's our message?

When should we advertise?

How much should we spend?

Targeted customers

Fall is the time to focus on prospective customers who have a greater need of professional lawn care. These are:

1. Customers who held off buying in the spring.

2. Customers who canceled your service in the spring may now be ready to repurchase if they're not being serviced by another company.

3. Customers not satisfied with the service they're receiving will be ready to switch to another company.

4. Turf stress will make some properties look like they need more care thus opening up this segment of the market to renewed advertising.

5. The economic conditions of the United States should improve so customers will be willing to spend more money.

Advertising message

The message in our fall advertising should focus on the need for the prospective client to act this fall to assure an attractive property next spring.

This reminder may cause some customers not satisfied with the appearance of their property to act. Remind them of the value of their property and how a well-maintained lawn increases their investment value.

When to advertise

Timing of fall advertising is even more critical than the spring. Your message should reach customers at the time of peak property stress, as an extended period of drought is in process, or after a lawn has experienced a serious bout with insects or disease.

Point to future benefits to a client's property as a result of your company's service.

Beware, however, of over advertising

An error many companies make is spending too much for advertising in the fall. This can bring in too many inquiries which never get run.

Beware of allowing service on your current customers to slip because you're focusing so heavily on newer prospects generated by your advertising.

Limit the amount of money you're spending on fall advertising and target your message to specific neighborhoods or types of customers.

A practical suggestion is to spend about 25-30 percent of the amount you spent on your spring advertising on your fall campaign.

Summary

The second major market time of the year for most lawn care firms is the late summer or fall.

Developing a plan, targeting the potential customers better, keeping your advertising message simpler, and limiting the number and amount of advertising you do will build your customer base.

Don't overlook the continued opportunity to market additional services to your customers this fall.

They may have said no to your advertising in the spring, but economic conditions may have changed.

Go back tactfully and repromote additional services to these current customers. They're customers who already know your services and will require less selling.

LCI

Are any of your technicians discouraged, tired, fed up?

By Ed Wandtke

A warm spring and early summer put the heat on professional lawn care technicians in 1991.

When summer arrived, it arrived in a hurry in much of the Midwest and Mideast. And it increased the pressure to get the work done faster.

Because of this—and for

other reasons—most of us can probably identify an employee or two who's thinking about hanging up his spray hose or parking his spreader.

As the owner/manager of a lawn care business, you can probably survive this. But, what if it becomes contagious and several employees leave?

Are you focusing on the

dollar amount of production of each individual? Are you trying to increase the daily amount? Now is the time to start monitoring the number of hours a lawn care technician is working.

How many calls?

How many service calls have the employees been running each day? How many leads? How is the

route layout of production? It's often revealing to see how long it takes an employee to service an average property. The number of service calls or sales leads a technician performs daily affects the time an individual spends working.

Many lawn care companies have a 24 to 48-hour response time on service calls or sales leads but you need to watch how many hours per day employees work. Often one route becomes so hot with sales leads that the serviceman gets disorganized in servicing his regular route.

Who's doing the work?

Who has been running the most new sales leads? What are their work hours compared to other lawn care technicians in your firm?

At the start of round three and round four determine your total production days with a 10 percent reserve. After you know the number of total production days for the round make sure your lawn care technicians schedule their production to be completed at the calculated daily rate. Then implement a plan to send employees home early if they return to the office with their daily production completed.

Go home

Send them home as soon as their office work, truck cleanup, and next day preparation are complete.

It's amazing how many employees suddenly find their daily production speed increasing when they learn

you're serious about sending them home sooner. This employee morale booster will help reduce employee turnover and increase customer satisfaction due to quicker service.

Be careful: make sure your servicemen deliver the same quality service.

Stop the bleeding

So you were too late in relieving the stress on your employees and one or two have already quit?

Stopping the bleeding and replacing the departed employees is critical.

• Don't spread the current customer work load over the remaining employees. You will burn them out too and they will quit.

• Hire one more employee than you need now and train that employee.

• Add a second person to a route temporarily to make up for the lost production due to the lost employee(s).

• Hire an employee who fits into the company, not the next breathing body that walks in.

Timing in the hiring of replacements is critical, but hiring the wrong employee can be deadly.

Hire the quality and personality which will help your company both now, and later.

Employee turnover is uncontrollable, but morale is. Simple guidelines that focus on reducing hours and maintaining quality service will help your company keep customers and quality employees too.

Train now so your employees won't strain later! LCI

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SUPPLIER SPOTLIGHT

Monsanto's new herbicide gets EPA registration: BASF product in tests

Monsanto, St. Louis, MO, and BASF, Research Triangle, NC, say they've developed new chemistry for the next generation of herbicides.

Monsanto says its turf herbicide Dimension® has received full registration from the U.S. Environmental Protection Agency (EPA).

The active ingredient in Dimension is dithiopyr which Monsanto describes as a new class of chemistry.

"Dimension is unique because it offers both pre-emergence and early post emergence control of crabgrass," says Jim Budzynski, product manager.

"This gives the lawn care operator the widest possible application window available today for controlling this significant pest."

Typically, says Monsanto, LCOs have a seven-week window within which to apply a pre-emer-

gent crabgrass herbicide. Dimension, says the company, can stretch the window to 13 weeks.

Monsanto claims its new herbicide provides season-long control of crabgrass with only one application, and also controls a broad spectrum of annual grasses and broadleaf weeds, including tough species like goosegrass, foxtail, spurge and oxalis.

The product will be available in one-gallon containers.

BAS 514, an experimental product that controls annual grasses and broadleaf weeds with one application, has received federal Experimental Use Permit (EUP) for more than 4,000 acres in 1991, says Terry Hanson of BASF Corporation.

A limited amount of prod-

uct will be sold to cooperating researchers and commercial turf specialists for trials in selected states, says the BASF Specialty Products manager.

The experimental herbicide is based on a new active ingredient, proposed common name quinclorac. An application for full registration has been submitted to the U.S. Environmental Protection Agency.

Tank-mix studies indicate BAS 514 combined with a grass herbicide will provide a complete weed control program.

During the seven years

the product has been studied it's displayed excellent postemergence control of crabgrass, dandelions, clover and other broadleaf weeds.

"Our studies indicate applicators will be able to use a rate lower than many other turf herbicides as well," says Hanson. "This may provide an answer to some homeowners' environmental concerns."

Cool-season grasses as well as Bermudagrass and zoysiagrass have been determined to be tolerant to BAS 514 application, says Hanson.

OFTANOL USERS KNOW THE BEST WAY TO OUTSMART GRUBS IS WITH A LITTLE EXTRA HOMEWORK.

Getting rid of grubs that attack your customers' lawns can be pretty tricky sometimes. Unfortunately, simply treating against these destructive pests doesn't always guarantee success.

But many lawn care operators have learned that all it takes to outsmart grubs is a little preparation—finding the right product and the right time of year for application. The product is OFTANOL® Insecticide. Studies show that time after time, OFTANOL provides consistent grub control. And delivers superior control over widely used products such as Sevin® and Diazinon Insecticides.

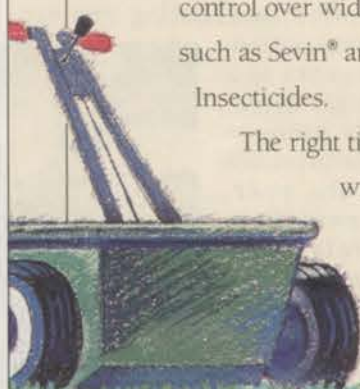
The right time to apply it? That will vary from region to region. But a good rule of thumb is

to treat with OFTANOL when grubs are at the surface. An easy way to check is by just pulling back a bit of sod and looking for infestation. Or call your local Extension office to determine peak periods of grub feeding in your area.

These are, of course, just the basics of effective grub control. If you'd like to learn more about OFTANOL and its proper usage, contact your local Mobay representative. Or just give us a call at (800) 842-8020. One of our trained professionals will be standing

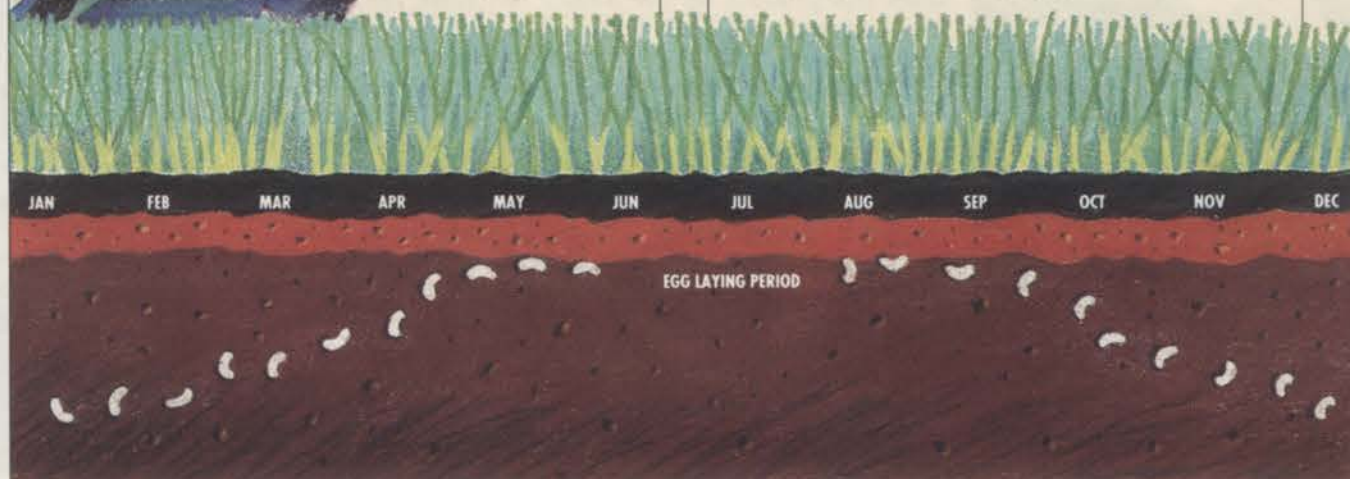
by to answer your questions. Mobay Corporation, Specialty Products Group, Box 4913, Kansas City, MO 64120.

So why let grubs continue to test your patience when the easy answer is OFTANOL.



OFTANOL is a Reg. TM of Bayer AG, Germany
Sevin is a Reg. TM of Rhone-Poulenc Ag Company

912690



Lesco chalked up big sales in second quarter

CLEVELAND, OHIO—Lesco, Inc., reported record sales of \$41,645,000 in the second quarter ended May 31, 1991, up nearly 20 percent from the year-ago sales, reported James I FitzGibbon, chairman and chief executive officer.

Earnings for the quarter were \$1,715,000, or 42 cents a share, down from the 46 cents a share for the same quarter last year.

FitzGibbon said earnings reflected lower profit margins resulting from competitive pressures to reduce prices for some products.

He said the company remains on target to open 20 to 25 new stores this fiscal year. LCI

MAGIC Feb 3-5 in Kansas City

KANSAS CITY, MO—The 1992 Mid-America Green Industry Convention (MAGIC) is set for the Hilton Plaza Inn here February 3-5.

MAGIC is sponsored by the Professional Lawn Care Association of Mid-America (PLCAMA).

For more information contact Olivia Golden, executive director, PLCAMA, P.O. Box 35184, Kansas City, MO 65134

LCI

Circle No. 107 on Reader Inquiry Card



Bill, left, and Steve Cooper's company Lawn Connection, Palmyra, NJ, stresses aeration.,

Aeration, fertility testing help 'little guys' deliver custom lawn message

BY DEBORAH S. CLAYTON

During the four years he worked for a national lawn care company Jeff Cooper saw a business niche.

Five years ago he started Lawn Connection in Palmyra, NJ. The company, he and his brother, Bill, operates specializes in aeration and seeding.

Though it's labor-intensive for a small operation, aeration maximizes all other lawn treatments, says Cooper. Fewer applications may be necessary.

"Lawn care companies cannot just ignore these environmental issues," notes Cooper. "People are happier getting fewer chemical applications. If we work to minimize treatments, lawn care companies can show their concern about the environment."

Cooper is finding listeners in his market area. His business grows

about 25 percent a year.

Lawn Connection now offers both basic and deluxe programs to a customer base covering three southern New Jersey counties.

Bill and a part-time employee deliver LC's basic program, which includes seven visits per season. The customers on the deluxe program receive Jeff's complete attention for the year.

Free service calls

"We scale our programs to our customers' needs and provide all the service necessary," explains Jeff Cooper. "We clean all our sidewalks and leave handwritten notes explaining all procedures. We also have a free service-call policy if a customer has a question or problem."

For a package price, deluxe customers receive whatever it takes to maintain a nice lawn throughout the growing season. As part of that package, Cooper's deluxe customers have received springtime applications of Nutralene® 40-0-0 fertilizer for the past two years. A controlled-release granular nitrogen product, it releases nitrogen both by hydrolysis and through microbial activity. Cooper first tried the product on the advice of his distributor, Fisher & Son Co., Inc., Malvern, PA.

The dual release of the controlled-release product gives a twofold advantage, says Frank Fisher, president of Fisher & Son. "Some of the nitrogen is quickly released, giving lawns a boost at the beginning of the season, while the rest is gradually released over a period of eight to 12 weeks," he says. This source of nitrogen also isn't as likely to leach, it doesn't burn when used properly, and it's non-phytotoxic to grass and plants."

Cooper uses one blend for spring applications because it doesn't

interfere with seeding. Controlled-release fertilizer fits in well with his environmental approach because he can keep lawns greener without feeding them as often. Also, Cooper can keep his customers' lawns healthier so he can minimize insect and disease treatments.,

Fewer treatments, better results

"I felt if I could get better quality materials for my customers, I'd have better results with fewer applications. That way, everyone is happier," he says. "We still use some fast-release nitrogen, but we're moving away from it."

Another small lawn care company serviced by Fisher & Son, Waybrant's Landscaping and Lawn Care, Gettysburg, PA, also relies on controlled-release as a basis for

fertility treatments. General Manager Steve Waybrant uses the product in each part of his five-step program for residential lawn service.

Waybrant takes a custom approach to his fertility programs. He takes some 30 random soil tests and readjusts his program year to year.

Also, he usually aerates every three years and limes every other year for the 900,000 square feet of residential lawns his company services. Conditions unique to the Gettysburg area include high acidity and low phosphorus.

"We've designed our program to bring up phosphorus levels and keep nitrogen levels down in spring applications," says Waybrant, who started the business as an offshoot of his family's fuel/heating and air conditioning company seven years ago. "Since high nitrogen levels promote disease occurrence early in the year, we stay away from high levels until our fall feeding."

Accordingly, Waybrant uses only four lbs. nitrogen per 1000 square feet for his five-step program. He went to all granular products this year for several reasons: ease of application, ability to treat during less-than-optimum weather conditions, and because the public perceives granular products to be more environmentally safe.

Waybrant follows an initial crab-

grass control/fertility treatment in March with a weed 'n feed application in April. Weed control is "impregnated" onto fertilizer granules and spread as a single treatment of 25-5-10 plus triamine. A midsummer application is straight 40-0-0, while a fall treatment is 25-5-10 plus triamine. A late-fall feeding is a 25-15-15 (60 percent Nutralene product) specially formulated for southern Pennsylvania.

Waybrant thinks his program gives customers lawns a longer green-up.,

A gradual green-up, however, can present some difficulties the first year when neighbors start comparing lawns, says Jeff Cooper. "If you don't sell it right, you could have some minor problems. You have to build up a reserve of Nutralene first, so the first year the lawns may not be as dark green as their neighbors using a quick-release nitrogen. But by the second year...lawns stay greener longer and look fantastic."

Like Jeff Cooper, Waybrant's provides personalized service for its customers, leaving handwritten notes explaining problems and procedures. If Waybrant or his lawn care consultant, Dorian Burnstad, cannot solve a problem, they seek help from Penn State University specialists or from Larry Herchberger, their representative for Fisher & Son.

"This is the way of the future for lawn care companies," says Waybrant. "Customers are demanding more personal attention. The national companies may use the same program for the whole northeast. But what's good for Virginia or Ohio may not be good for Adams County, Pennsylvania."

Cooper feels the national companies have served a positive function by bringing the lawn care industry to where it is today.

"But they can't do everything. There comes a point where you have to start fine-tuning operations," he says.

By offering core aeration as a speciality business, Cooper hopes to work side-by-side with national lawn care companies. LCI



Steve Waybrant, left, and Dorian Burnstad of Waybrant's Landscaping and Lawn Care, Gettysburg, PA, test soil fertility often



The public perceives aeration to be environmentally correct, says Jeff Cooper. Proper aeration lessens pesticide use.



Terracare unveils summertime tines

Terracare introduces a spiking tine for summertime use. These tines can be adapted to any Terra aerator. The tine is 4" long and has a spacing of 1 3/4" X 4", and will feature a rubber turf hold down. The turf hold down will allow the operator to get exceptionally smooth results, particularly on a putting green.

Circle No. 151 on service card



Dispense fertilizer with FertilLawn attachment

FertilLawn Landscape Products offers a liquid fertilizer dispenser for underground sprinkler and drip irrigation systems.

Just fill the fully controllable FertilLawn® dispenser with liquid or water-soluble fertilizer. The plant food dispenser is easily installed. The product, made of PVC, waters and fertilizes the lawn at the same time. FertilLawn says one dispenser should be installed at each sprinkler valve.

Circle No. 152 on service card



Riverdale: this herbicide dissolves

Riverdale Chemical Company says its Dissolve is the first truly water solu-

ble phenoxy herbicide combination. Dissolve is a highly concentrated, dry formulation of 2,4-D, mecoprop, and dichloprop packaged in convenient pre-measured water soluble packages.

Disolve offers economical weed control at low use rates with minimal risk of exposure to the concentrate during handling and mixing, says Riverdale.

Circle No. 153 on service card

Acclaim offered in bigger container

Acclaim® 1EC Herbicide is now available in 2 1/2 -

gallon containers as well as the gallon and quart sizes.



The manufacturer, Hoechst-Roussel Agri-Vet Company,

says this will give turf care professionals an even more convenient packaging option. Acclaim is a post-emergence grass herbicide for the control of grassy weeds such as crabgrass and goosegrass in turf.

Circle No. 154 on service card

True Temper gives rebate for spreader

True Temper is offering a \$50 rebate to each commercial professional who buys a Cyclone CB 5000® broadcast spreader. The promotion, details of which are in every CB 5000 shipping

container, runs until Dec. 31, 1991.

The CB 5000 has a 3,000 cu. in. capacity hopper that can hold up to 100 lbs. of seeds, granular pesticides or fertilizer. The operator pushes it on two pneumatic tires linked to a heavy gauge epoxy painted tubular steel frame.

Circle No. 155 on service card

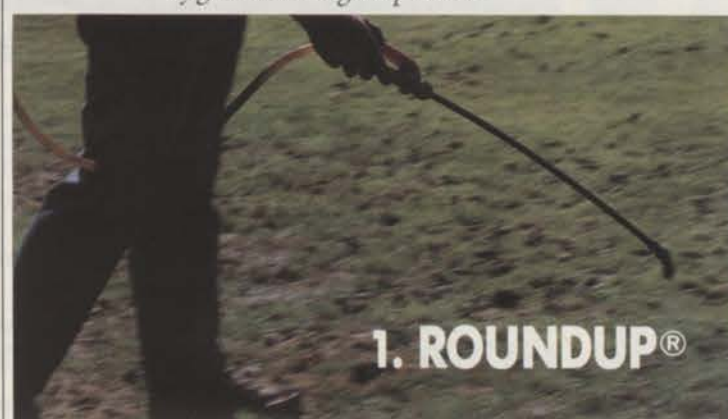
Handbook is ready

Pepco's Water Conservation Handbook tells how to install landscape irrigation systems.

Circle No. 156 on service card



Home lawn two months after overseeding with Turf-Seed ryegrass and bluegrass products.



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2. Aerify



3. Slit Seed

Quality Turf Products Green-Up Your Bottom Line

Lawn renovation can be a profitable addition to an LCO's services, but like other programs, satisfied customers are the key to continued success. Along with professional technicians, proper equipment and timely service, the grass seed used make the long lasting impression that creates referrals. And Turf-Seed, Inc. has the premium quality seed for *your* program ... in *your* region. Ask for these products by variety name ... because it's really *your* name that's on the line.

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Perennial Ryegrasses
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Use ROUNDUP® herbicide to kill undesired turf. ROUNDUP® is a registered trademark of Monsanto Company.

Circle No. 110 on Reader Inquiry Card

Incredible Huizenga success story continues as Major League selects Miami, FL

Professional baseball's decision to locate one of two new franchises in Miami (Denver gets the other) is another home run in the incredible business saga of **H. Wayne Huizenga**.

Huizenga, 53, owns 50 percent of Joe Robbie Stadium and 15 percent of the Miami Dolphins. He actively sought Major League baseball for the stadium which he considers under used.

Some of the baseball writing fraternity, however, scoffs at playing pro ball in Miami in the summer. The rain, the humidity, etc. What are these guys, knuckleheads or something? You can bet they'll be begging to cover Miami openers each April.

Huizenga put together his first billion-dollar company when he bought dozens of garbage haulers to create Waste Management. Then he got into the portable-toilet rental business (Port-O-Let), followed by lawn care (Tru Green), and now he's building Blockbuster Entertainment.

Richard Sandomir in an article in *The Business World* about Huizenga: "He has been attracted to companies that are part of a fragmented industry filled with small, undercapitalized operators. What he adds is a determination to cobble together a company with a national presence—plus the capital and managerial muscle to make that happen."

F. Leon (Le) Herron, Jr., retired chairman and president of O.M. Scott & Sons, Inc., was elected to the board of directors of Lesco, Inc., Rocky River, Ohio. The board is now at its authorized number of nine members.

Herron joined O.M. Scott & Sons, now The Scott Companies, in 1965. He was elected president in 1966 and chairman in 1971. He retired as president and chairman in 1983.

Dr. Melodee Kemp will head the new Pure Seed Testing research center and breeding station near Raleigh, NC. She's a recent graduate of Rutgers University and will study winter overseeding ryegrasses into Bermudagrass. Also, turfgrass test trials at the center will present tall fescue comparisons.

Dr. Kemp joins **Dr. William A. Meyer** and **Crystal Rose Fricker** in the



Dr. Melodee Kemp



Miroslav Jiranek

turfgrass improvement and monitoring efforts of Pure Seed Testing, Inc., Hubbard, OR.

Turf Seed also says that **Miroslav (Miro) Jiranek** will be its marketing rep in the Upper Midwest and Northeastern United States, and internationally to Europe and Asia.

Jiranek, who lives in Willoughby, Ohio, speaks seven languages, including Russian.

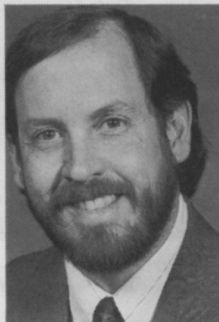
The Davey Tree Expert Company, Kent, Ohio, awarded the third annual Davey Company Arboricultural Grant to **David Fathauer**, Seville, Ohio, a first-year student enrolled at The Ohio State University Agricultural Technical Institute, Wooster, Ohio. The grant totals \$800.

William G. Thornton Jr., president of Thornton Environmental Industries, Maineville, Ohio, was named to the board of directors of the National Federation of Independent Business. Founded in 1946 by Thornton's father, Thornton Environmental Industries employs more than 150 people during the peak landscaping season.

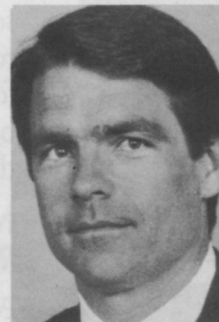
James J. Spindler and **Rick Creamer** joined the Enviro-Gro Technologies, Lancaster, PA. The two agronomists join the company's product marketing division. Spindler becomes manager of marketing for retail and specialty products and Creamer manager of bulk and ag products.

Richard L. Corby joined The Brickman Group Ltd., Long Grove, IL, as an arborist and sales representative. Corby is a graduate of Ohio's Marietta College and experienced in forest management including tree surveys, tagging and analysis. Previously he was the owner of his own landscape design/renovation company, Tador Enterprises, he founded in 1984.

Steven C. Smith is the newest sales rep for Southern Turf Nurseries, Norcross, GA. Formerly he was a commercial sales rep for Pennington Seed of Virginia. He's a graduate of the University of



James Spindler



Richard Corby



Steven Smith

Iowa. He will work out of Fredericksburg, VA.

Nor-Am Chemical Company, Wilmington, DE, announced the following additions to its staff:

•**Donald F. Myers** as project manager for the field development of products for field crops and turf and ornamentals. Formerly he was manager, wood protection research, with Maag Agrochemicals, Vero Beach, FL.

•**Brian N. Meyer** as senior chemist to help in plant metabolism research. Most recently he was a research chemist with FMC Corporation, Princeton, NJ.

•**Kent Rupprecht** as a metabolism chemist. He is a registered pharmacist in Indiana.

•**Mark T. Christ** as an aquatic biologist. He's worked for Monsanto Co., St. Louis, and most recently was a water analyst in Charleston, IL.

•**Lee E. Williams** as a group leader. Formerly with Ciba Geigy, Williams was most recently a pro-

ject analytical chemist with Kerr-McGee Corp., Oklahoma City.

•**Christopher R. Leake** was named group leader environmental sciences for Nor-Am. He's a native of Bristol, England, and comes from Schering Agrochemicals Ltd., Essex, England.

ISK Biotech Corporation, Mentor, Ohio, named **Doug V. Hoy** as "Salesman of the Year." Hoy is senior sales supervisor in the Western area. **Frank Wang**, chemist at the Greens Bayou Plant, earned an "Excellence Recognition Award." He developed a modified analytical method that improved accuracy at the plant.

Also at ISK, **M. Howard Thomas** was named North America commercial development manager. Previously he was southern area manager, commercial development.

Brett Ellis is the Midwest regional sales manager for Pennington products. He's a Michigan State grad. LCI



Turfgrass foundation helps CSU

The Rocky Mountain Turfgrass Research Foundation awarded \$23,000 to Colorado State University for turfgrass research from fund raising efforts by the Rocky Mountain Regional Turfgrass Association and the Rocky Mountain Golf Course Superintendents Association. From Colorado State University: left to right, Dr. Harrison Hughes, Dean Merle Niehaus, Dr. Tony Koski, Steve Hyland, Larry Mills, Dr. Ken Brink, Dr. Whitney Cranshaw, and Dan Voltz. LCI

GCSAA appeals \$1.46 million award

TOPEKA, KS—The Golf Course Superintendents Association of America says it will "vigorously pursue" an appeal of a recent federal court jury award.

On May 9 a jury here awarded \$1.46 million to James McLoughlin, who served as executive director of the Golf Course Superintendents Association of America from 1980-1983.

The award arose from a breach of contract and libel suit McLoughlin filed against GCSAA. LCI

Mid-Am Hort Show adds more exhibit space

CHICAGO—The Mid-America Horticultural Trade Show Jan. 16-18, 1992, here added 1,500 square feet of additional exhibit space.

Over 400 booths will now be located on 66,743 square feet of space.

Mid-Am is an exposition for horticultural plant material, products, equipment and service. It's sponsored by the Illinois Nurserymen's Association, the Illinois Landscape

Contractors Association, Wisconsin Landscape Federation. LCI

ALCA SETS KEYNOTE SPEAKER

FALLS CHURCH, VA—The Associated Landscape Contractors of America (ALCA) announced Jay Conrad Levinson as the keynote speaker of the Landscape and Grounds Management Conference Nov. 17-21 in Tampa, FL.

Levinson wrote the books *Guerrilla Marketing* and *Guerrilla Marketing Attack*. LCI

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8/91

LAWN CARE MANAGER: Exciting career opportunity managing a growing mid-sized lawn and tree care operation. Branch Manager or Assistant Branch Manager experience required. Send resume in confidence to: LCI Box 233.

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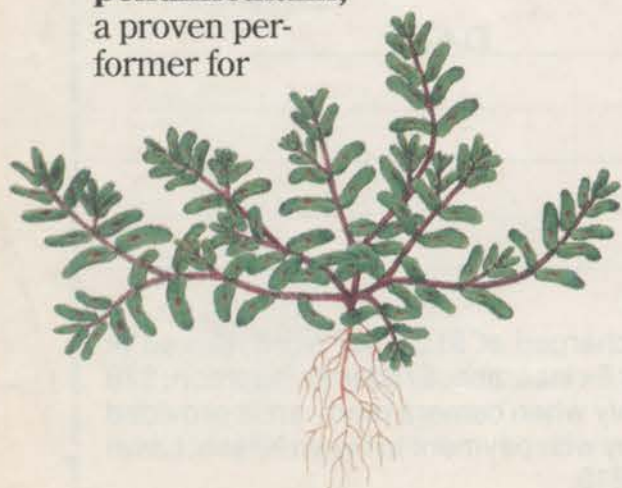


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