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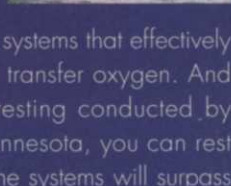
E-Z-GO Textron's Workhorse LX line features the truck-like cowl from the Workhorse ST 350 and provides the same differential scuff guards, tubular front bumpers, bed liners, horns and fuel gauges or charge meters. For more information contact E-Z-GO at 706/798-4311 / circle #271

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Toro's 11-hp Workman 1100 and 16-hp Workman 2100 feature Active In-Frame suspension and flotation tires for high payload capacity. For more information contact Toro at 612/888-8801 or [www.toro.com](http://www.toro.com) / circle #272

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◀ Polaris Industries' utility task vehicle

### Crew-sing

Beginning in 2002, Mitsubishi Fuso Truck of America, Inc. will offer a Crew Cab for its FE-5P

with automatic transmission. The seven-seater truck features a 175-hp engine, 165.4-in. wheelbase and 14,500-lbs. GVWR. For more info contact Mitsubishi Fuso at 877/202-9650 / circle #273

### Like a pro

Polaris Industries' Professional Series Workmobiles include the All-Surface Loader, Utility Task Vehicle, ATV Pro and others. The UTV is available in 2x4, 4x4 and 6x6 models. For more information contact Polaris at 763/542-0500 / circle #274

### Tread carefully

Kawasaki's Mule 3020 utility vehicle features smooth-tread 20-in. tires and can carry 803 lbs. and tow 1,200 lbs. For more information contact Kawasaki at 949/770-0400 / circle #275

### No stopping here

The John Deere ProGator utility vehicle is available in 23.5-hp diesel and 26-hp gas versions. The vehicles have a five-speed, fully synchronized transmission that lets the operator keep going without stopping to change gears. For more information contact John Deere at 800/537-8233 / circle #276

### On track

All Season Vehicles' RC30 is a driveable, all-surface loader that fits in the back of a pickup and features rubber-tracked technology. For more information contact ASV at 800/346-5954 / circle #277

### Use force

Broyhill Company's TerraForce has a 2,400-lb. payload capacity, cab forward design, standard power steering and mid-engine placement for balance and service access. For more info contact Broyhill Company at 800/228-1003 / circle #278

### Out of the box

Aluminum utility boxes from Kent Mfg. of Venice, Inc., offer the chance to have a utility vehicle with the features of a factory direct model but at a fraction of the cost. For more information contact Kent at 800/330-5368 / circle #279

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Circle 121

# Green Space

**Brian Vinchesi**

**President, Irrigation Consulting, Inc., Pepperell, MA, and president of ASIC**

BY JASON STAHL

**What is ASIC (Association of Irrigation Consultants)?**

ASIC was started in 1970 in California. It's a group of independent irrigation consultants, "independent" meaning their product selection is unbiased. They work for the benefit of the client. Most irrigation consultants are looking out for the client's best interests and selecting the best products for the application.

**What exactly does an irrigation consultant do?**

An irrigation designer does design, but irrigation consultants do project coordination. They look at the water supply, the electrical supply, the pump system, and where irrigation interfaces with everything else.

**Do former irrigation contractors make better irrigation consultants?**

It certainly doesn't hurt to have the perspective of an irrigation contractor. We're required to have a certain amount of experience and/or education — you can't just have one or the other. It helps to have some horticultural or landscape or other Green Industry experience. Some members are engineers, others are agronomists. Some have two years of college, others have four, some have none.

**Who are your typical clients?**

We have consultants who handle only golf courses, and some that only handle commercial/residential clients such as landscape architects, developers or cities working

on parks or recreation complexes.

**What is an irrigation consultant's ultimate goal?**

To bring a project in on budget and have it operate the way it was intended.

**How much does water conservation play into your business decisions?**

Water conservation is always an issue. Irrigation consultants provide the most efficient system based on the equipment available. The East is far worse when it comes to conservation issues — authorities there have no respect for irrigation and create laws that are hurtful to

the irrigation industry. The West respects irrigation and acknowledges a need for it.

**Are there a lot of irrigation consultants out there?**

No, but the market for them is growing. In the East, you can get irrigation consulting for free but it won't be independent.

## Vitals

- Years in business: 13
- Projected growth for 2001: 10-15%
- Number of employees: 12 full-time
- Business mix: 50% commercial, 50% golf

**What's the biggest project you've worked on?**

The "Big Dig" in Boston. There are several different projects on the irrigation side, mostly drip irrigation. It's frustrating because it's one big project divided into all kinds of little projects.

**Why should someone hire an irrigation consultant?**

They're going to give a client the best irrigation system that will conserve water, last long, reduce owner maintenance, and pay for itself more quickly. And it will cost less in the long-term.

# BE AN URBAN TREE TROUBLESHOOTER



There could be several reasons why grass isn't growing under a tree, but knowing what they are and how to address them will please your customer.

**Solve your clients' tree/landscape problems by understanding how they interact**

BY LEONARD PHILLIPS

**B**eing able to identify and diagnose common tree-related problems on clients' properties will help you to retain these customers. It will also provide you with opportunities to offer additional services.

Here are some of the most common questions that customers ask about their trees, and answers to help you diagnose and solve their problems.

**Question** – *Why is the grass dying under the tree?*

**Answer** – The answer isn't always clear. Is the grass always in the tree's shade or just for a couple of hours a day? If it's always in shade, remove the lower branches and/or thin the canopy to allow more sunlight to reach the grass. If shade is present for four hours or less each day, it's probably not the problem. Chances are that the grass is a general-mix turf, and four hours of shade isn't a hindrance to most grass cultivars. If the grass is a sun-loving variety, several hours of shade would be a problem.

Look at the tree's roots. If they are shallow, determine if the tree is a variety that's suited for the site. Examine the quality and structure of the soil.

If the tree isn't suited for the site, recommend replacing it with a more desirable species. If the customer isn't happy with this, cover the roots with a couple inches of sandy loam and re-seed the area with a shade tolerant seed mix.

Conditions caused by poor or compacted soil can be improved by deep-tine aeration followed by a topdressing of sharp sand. After topdressing, add a couple inches of sandy loam and re-seed with a shade tolerant grass mix. Your goal is to loosen the soil and add loose topsoil to improve drainage and oxygen penetration to the tree roots. Bedrock issues require a massive amount of money and professional expertise.

*continued on page 46*

## URBAN TOLERANT TREES

### BOTANICAL NAME

- *Abies concolor*
- *Acer campestre*
- *Acer x freemanii*
- *Acer griseum*
- *Acer nigrum* 'greencolumn'
- *Acer rubrum* 'franksred'
- *Acer saccharum*
- *Acer tataricum*
- *Acer truncatum x platanoides* 'warrenred'
- *Amelanchier x grandiflora* 'autumn brilliance'
- *Betula utilis* var. *jacquemontii*
- *Betula nigra* 'heritage'
- *Carpinus betulus* 'fastigata'
- *Cercidiphyllum japonicum*
- *Cladrastis lutea*
- *Cornus hybrid*
- *Cornus kousa* 'Milky Way'
- *Corylus colurna*
- *Eucommia ulmoides*
- *Ginkgo biloba* 'PNI 2720'
- *Gleditsia triacanthos inermis*
- *Halesia tetraptera*
- *Kalopanax pictus*
- *Koelreuteria paniculata*
- *Lagerstroemia indica*
- *Maackia amurensis*
- *Magnolia hybrid*
- *Magnolia virginiana*
- *Malus species*
- *Metasequoia glyptostroboides*
- *Nyssa sylvatica*
- *Ostrya virginiana*
- *Oxydendrum arboreum*
- *Parrotia persica*
- *Phellodendron amurense* 'macho'
- *Pinus parviflora*
- *Platanus x acerifolia* 'columbia'
- *Prunus subhirtella* 'rosy cloud'
- *Pseudotsuga menziesii*
- *Pyrus calleryana*
- *Pyrus calleryana* var. *fauriei*
- *Quercus bicolor*
- *Quercus rubra*
- *Sophora japonica* 'PNI 5625'
- *Syringa reticulata* 'ivory silk'
- *Taxodium distichum* 'mickelson'
- *Tilia tomentosa*
- *Ulmus americana* 'princeton'
- *Zelkova serrata* 'village green'

### VARIETY

- 
- 'Evelyn'
- Autumn blaze/celebration
- 
- Greencolumn
- Red sunset
- Fairview, legacy, green mountain
- 
- Pacific sunset
- Autumn brilliance
- Whitebarked Himalayan
- Heritage
- Pyramidal
- 
- 
- Aurora, celestial, stellar
- Pink constellation, Ruth Ellen, star dust
- Milky Way
- 
- 
- Princeton sentry
- Moraine, shademaster, skyline
- 
- 
- 
- Apalachee, biloxi, Byers white, centennial spirit
- 
- 
- 
- Adams, centurion, golden raindrops, prairifire, sugar tyme
- 
- 
- 
- 
- 
- Macho
- 
- Columbia
- Rosy cloud
- 
- Capital, Cleveland select, Edgewood, redspire
- 
- 
- 
- Regent
- Ivory silk
- Shawnee brave
- Green mountain, sterling
- Princeton
- Village green

### COMMON NAME

- White fir
- Queen Elizabeth hedge maple
- Freeman maple
- Paperbark maple
- Black maple
- Red maple
- Sugar maple
- Tatarian maple
- Shantung maple
- Serviceberry
- Birch
- River birch
- European hornbeam
- Katsura tree
- Yellowwood
- Stellar series
- Kousa dogwood
- Turkish hazelnut
- Hardy rubber tree
- Ginkgo
- Honeylocust
- Carolina silverbell
- Castor-aralia
- Goldenrain tree
- Crape myrtle
- Amur maackia
- Galaxy magnolia
- Sweetbay magnolia
- Crabapple
- Dawn redwood
- Black tupelo
- American hop hornbeam
- Sourwood
- Persian parrotia
- Amur corktree
- Japanese white pine
- London planetree
- Cherry
- Douglas fir
- Callery pear
- Pea pear
- Swamp white oak
- Northern red oak
- Scholar tree
- Tree lilac
- Bald cypress
- Silver linden
- American elm
- Zelkova



continued from page 44

The best solution to the shallow root problem may be to replace the struggling grass with mulch. If your customer doesn't like this approach, recommend a ground cover. Select the best plant for the site and make no guarantee of survival. It will take several years for a ground cover such as vinca minor or pachysandra to establish itself

while competing with vigorous tree roots.

Consider buying ground covers in nursery pots and planting them pot and all in between the tree roots to delay tree root competition with the ground cover and speed up the ground cover establishment period.

**Question** – *What causes some sidewalks, streets or driveways to crack and lift up?*

**Moving a walk further away from a tree's root flare is one way to reduce cracking and lifting.**

**Answer** – Shallow roots are again the problem because they try to penetrate the soil beneath the pavement. The impervious surface prevents groundwater from evaporating, so it accumulates under the pavement. The tree roots seek the water and grow in the narrow band of moisture just under the pavement.

■ Remove and replace the trees with deep-rooted trees, or plant the trees further from the pavement.

■ Replace the sidewalk, street or driveway with a higher surface.

■ Relocate the pavement further away from the tree's root flare.

■ Add a bituminous ramp over the raised pavement to eliminate any tripping hazard.

■ Improve soil conditions to encourage roots to grow deeper.

■ Use physical root barriers or herbicide-treated fabric after careful root pruning to prevent the roots from growing under the pavement. Make sure that removing any root over two inches in diameter will not affect tree stability and increase your personal liability. This approach is best done with a new planting so the barrier does not harm the tree's structure.

**Question** – *The tree is dropping branches.*

*How can it be stopped?*

**Answer** – Assess the tree's condition. If it's in good health, check for animals in the tree. If you see stubs, broken branches and deadwood, consider pruning.

Check the tree's vigor for the past five years by measuring the distances between the terminal bud scars on a branch. If there is a steady decrease in the distance, the tree is in decline. Check the soil for insects or disease problems, and obvious problems around the trunk or on the leaves.

Has there been construction around the tree in recent years? Is there evidence of root damage? If the tree is old, recommend that a

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Circle 123

new tree be planted nearby so that when the old tree dies, the new one is established and the loss will be less severe.

Don't rule out environmental damage such as air pollution, road salt damage or drought stress, even from several years ago.

Ron Despres, municipal arborist for Wellesley, MA, is often called to a residence where a sugar maple is showing signs of decline. He tells the resident that the sugar maples were planted 40 to 80 years ago when the air was cleaner, and since the trees can't



Adding a bituminous ramp over pavement raised by roots will reduce tripping.

get up and move to New Hampshire or Vermont where the air is still clean, they're dying.

#### Too many crowns?

Despres recommends replacing the trees with urban tolerant ones, such as the Green Mountain sugar maple. This variety's waxy leaves allow rain to wash pollution away and prevent the tree from being poisoned.

While at your customer's yard, look at the tree's crown. Does the tree have two tops? Homeowners rarely notice this and hardly ever perceive it as a problem. Removing one of the co-dominant leaders will allow the tree to do better, and the customer will be relieved that the tree was saved and a potential hazard eliminated.

If you can see a problem and can't figure out the solution, bring in a professional, certified arborist. Once you notice the problem and bring it to your customer's attention,

you must be sure the tree is safe and you're not liable if anything happens to it. **LMI**

— Leonard Phillips is a landscape architect

who served as Park & Tree Superintendent in Wellesley, MA, for 20 years. He can be reached at lenphillips@yahoo.com.

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Circle 124

## Creating a friendlier pond

BY CURT HARLER / CONTRIBUTING EDITOR

Landscape architects and designers are trained to deal with hard-scapes like bridges and decks; they're good with livescapes like trees and bedding plants. But few have extensive backgrounds in waterscapes, one of the hottest trends in today's landscape market.

Properly designed water features are living biosystems. Landscapers' goal should be to create a bio-friendly pond, and the latest products aim to make that easy.

Perhaps the biggest mistake designers make is not making a pond big enough. Gary Wittstock, president of Pond Supplies of America, Yorkville, IL, says a pond should be at least 8 ft. by 10 ft., and deep enough to support fish and plants.

"We tell people to design a big pond, to use a skimmer and to establish a natural ecosystem with plants and fish," he says. Koi, a Japanese carp, fits well in such designs.

Proper pumping is another key. "Give clients an efficient pump," Wittstock says. "It's vital that they run the pump both day and night, since nighttime is when the plants are growing." He advises putting the pump in a skimmer that will biologically filter and clean the water before it goes through the pump. "This protects the pump, too," he says.

One final tip is to avoid tinkering with the filter. "Taking the biological filter apart too often is like transplanting a tree every week. It destroys its efficiency," Wittstock says.



▲ Otterbine Barebo's Phoenix aerating fountain

### AEROMIX SYSTEMS

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Aeromix's AquaTornado II surface aspirating aerator features a larger-diameter stationary draft tube with unrestricted air intake and a propeller that's nearly four times larger than the competition. Units come in 2-hp single-phase as well as 2- and 3-hp 3-phase.

Circle #258

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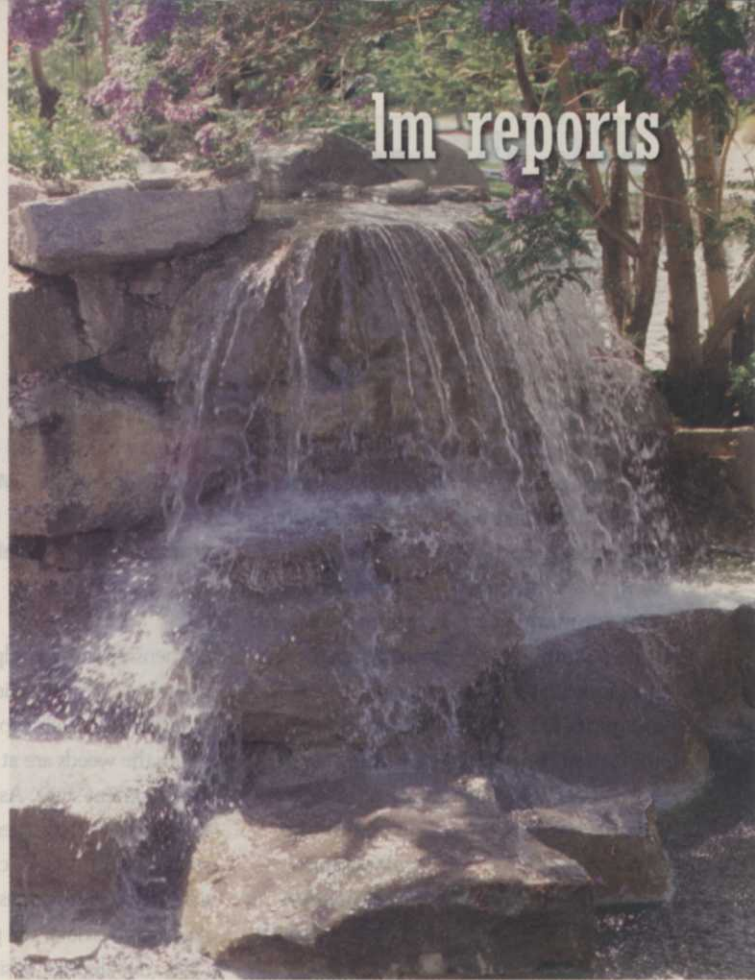
Floating surface aerators from Aquamaster Fountains, Kiel, WI, are capable of creating a random boil or bubble effect on the water's surface. This low profile aerator is easily installed and works efficiently with any depth. Units are available from 1 to 5 hp.

Circle #259

### Pond design tips

- ▶ **Make pond big enough**
- ▶ **Establish natural ecosystem with plants and fish**
- ▶ **Use an efficient pump**
- ▶ **Avoid tinkering with filter**





**AQUASCAPE DESIGNS**

**800/306-6227**

[www.aquascapedesigns.com](http://www.aquascapedesigns.com)

One item number gets you everything you need to build a pond — except for the rocks and water.

The 11x11 mini pond kit from Aquascape Designs, Batavia, IL, is a complete kit for building an 11x11-ft. pond two ft. deep. It includes the Aquascape pump and a 15x15-ft. liner. Kit sizes range from the 4x6-ft. package through the 11x16-ft. size with 15x20-ft. liner.

**Circle #260**

**HORIZON GOLF**

**800/545-9210**

[www.horizongolf.net](http://www.horizongolf.net)

Whether it's heavy duty pond liners or rock walls for water features, Horizon Golf, Evansville, IN, has many offerings. Company provides PVC liners that come in thicknesses ranging from 20 to 30 mils. Their rockwork is based on pumped concrete features which form outcroppings, shorelines or waterfalls.

**Circle #261**

**CLEAR WATER**

**800/756-7946**

[clrwater1@aol.com](mailto:clrwater1@aol.com)

New From ClearWater Enviro Technologies is the ScaleBlaster,



which eliminates formation of limescale deposits in sprinkler systems, irrigation lines and other pipes without need of water softening equipment, salts, chemicals or maintenance.

**Circle #262**

**LANDSCAPE DESIGNS, INC.**

**800/306-6227**

[www.aquascapedesigns.com](http://www.aquascapedesigns.com)

For the wholesale market only, the catalog from Aquascape Designs, Batavia, IL, features a complete line of kits designed for contractors who build larger ponds. Also available are several models of skimmers, which eliminate routine maintenance by removing debris before it fouls pumps or sinks to the pool's bottom.

**Circle #263**

**NDS PRO**

**800/726-1994**

[www.ndspro.net](http://www.ndspro.net)

A complete line of Catch Basins from NDS Pro, Lindsay, CA, is available through most major wholesale landscape, plumbing and building material outlets. They come in sizes from a six-in. round basin which fits three- and 4-in. corrugated and sewer and drain pipe. In addition, there are 9, 12, 18 and 24-in. versions.

**Circle #264**

**OASE**

**805/383-1888**

[www.oasepumps.com](http://www.oasepumps.com)

Strata-vator aerating pumps from OASE, Camarillo, CA, feature up to nine easily interchangeable display patterns. Motor sizes range from 0.5- to 2-hp models in the Midi line and 5- to 15-hp in the Maxi line.

**Circle #265**

**OTTERBINE BAREBO, INC.**

**800/237-8837**

[www.otterbine.com](http://www.otterbine.com)

A full line of aerating fountains from Otterbine Barebo, Emmaus, PA, includes the Sunburst, with spray heights from 4 to 11 ft. 1 to 5 hp. The Gemini provides 5- to 15-ft. sprays at the same horsepower, moving 555 to 1,125 gal. per minute. For geyser fountain effect, check out the Rocket, spraying 11 to 25 ft. powered by 1- to 5-hp motors. The Nova thrusts water 95 ft. into the air. Catalog available from vendor.

**Circle #266**

**POND SUPPLIES OF AMERICA**

**888/742-5772**

Complete catalog of liners, water, fish and plant care items is available from Pond Supplies of America, Yorkville, IL. Aimed at dealers and installers, it includes sales and building tips and most of the materials needed to build a waterscape.

**Circle #267**

**POND SWEEP MFG.**

**630/553-3088**

[www.pondsweep.com](http://www.pondsweep.com)

Three fiberglass skimmers and a Purifalls biofilter are the latest additions to the pond care line from PondSweep Manufacturing, Yorkville, IL. New skimmers are for ponds of 500 to 40,000 gal.

**Circle #268**

**TURF DRAINAGE OF AMERICA**

**800/999-2794**

The Turf Drain Siphon System from Turf Drainage of America, Marrero, LA, moves water a long distance with little elevation change. No special connectors are needed. PermaBasin collects seepage water as well as surface water.

**Circle #269**



# ask the expert

BY BALAKRISHNA RAO

## Oversight?

In your July 2001 column you overlooked two applications of microinjection technology for insect management. Gypsy moth infestations have been controlled using microinjection of systemic insecticides for many years in the northeastern United States. Microinjected insecticides can be particularly effective in controlling gypsy moth infestations on tall shade trees and in dense plantings. In these cases, effective spray coverage is difficult to obtain in urban conditions. The systemic insecticide imidacloprid (Merit) is available in a microinjection formulation known as Imicide. Research trials in California have shown that Imicide can remain effective in the control of red gum leprosy for 15 months. In their research trials, USDA scientists found similar long-term activity of microinjected Imicide formulations on the Asian longhorned beetle.

— MA

Thanks for reminding me about microinjection technology. When I suggest some treatments, I normally mention the use of products "such as" and don't endorse any particular product. In my opinion, microinjection technology is a useful way to manage specific plant disorders. It offers an alternative to conventional spraying where spraying is not desirable, permitted or feasible for various regulatory or operational reasons. Reports from arborists indicate that because of the need for wounding during injection, some prefer to use the system only when they have no other means of managing plant disorders or when specific bids call for injection treatments.

## Getting rid of goosegrass

How can we get rid of goosegrass in our customers' lawns? Will Dimension herbicide do a good job? Our goal is to control crabgrass as well as goosegrass.

— IL

Dimension should help manage crabgrass and goosegrass when applied prior to germination. In addition, it will help manage crabgrass when the weeds are at the 2-3 leaf development stage. As they begin to produce tillers, mix with post-emergent herbicides such as MSMA or Acclaim, or use post-emergent herbicides such as Drive or Acclaim. Some of the post-emergent herbicides may discolor desirable turfgrass, so make sure the soil has sufficient moisture while treating to minimize phytotoxicity. Don't worry if discoloration occurs — it's usually temporary and, with the onset of good moisture and turfgrass growth, will disappear.

## Grub attack

White grubs such as Japanese beetles, northern masked chafers and possibly May/June beetles are causing problems on our clients' properties. In the past, we've used insecticides such as Oftenol and Dylox to control grubs. Now, we're thinking of using Mach 2. When can we use Mach 2 to get the best control? How critical is watering after treating? Also, can you offer advice on how to prevent animals from feeding on lawns?

— MI

White grubs such as Japanese beetles (*Popillia japonica*), northern masked chafers (*Cyclocephala borealis*) and May/June beetles

(*Phyllophaga spp.*) are all included under the Mach 2 label.

According to the label, Mach 2 may be used either as a preventive treatment or as an early curative treatment. It suggests using only one application at 2.2 fl. oz./1,000 sq. ft. An application of Mach 2 should be made prior to egg hatch or when larvae (grubs) are small. In your area, that time period should be mid-July through early August. Monitor pest activity to discover your area's best treatment time. Also, it's important to identify grubs and their life cycle — one year or two to three years. To do this, examine their raster pattern (i.e. the arrangement of small hairs in the last body segments) by turning them over and examining the last body segment.

Mach 2 doesn't depend on water to be activated. If you want to improve efficacy, however, you should water to move the product through the thatch layer. If drought conditions exist, consider watering to obtain good results. Avoid mowing until the product is washed off leaf blades, or irrigate enough to wash the material on to the target pests. Grubs feed at the soil and root interface beneath the thatch layer, so that's where the product needs to reach.

Preventing grubs would help prevent lawn damage from animals to some extent. However, some of these animals feed on other food sources such as earthworms. The best way to manage large animals like raccoons or skunks is to trap and remove them from the property. Consult your local cooperative extension service or animal control department for proper removal of trapped animals.

Manager of Research and Technical Development for the Davey Tree Expert Co., Kent, Ohio

SEND YOUR QUESTIONS TO: "Ask the Expert" Landscape Management; 7500 Old Oak Blvd.; Cleveland, OH 44130, or email: [sgibson@advanstar.com](mailto:sgibson@advanstar.com). Please allow two to three months for an answer to appear.

