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continued from page 80

damage could occur to turf areas downhill from the treated areas.

Oxyfluorfen (Goal) is used as a sprayed treatment in conifers and deciduous trees, and is applied in various granular formulations for weed control in woody ornamental beds. It has both foliar and soil activity and can burn herbaceous species. Oxyfluorfen does not cause systemic injury but can cause unacceptable damage if sufficient spray drift occurs.

### Nonselective products

Nonselective postemergence herbicides are usually the only option for controlling emerged broadleaf weeds in ornamental beds. This group includes glyphosate (Roundup Pro), glufosinate (Finale), diquat (Reward) and pelargonic acid (Scythe). Since they are nonselective, they must be kept off the foliage of ornamentals as well as turfgrass.

Directed sprays can be used in upright-growing woody ornamental species. Apply with caution so spray drift to turf does not occur. There are a limited number of places where these compounds can be used in turf, such as dormant applications of glyphosate in bermudagrass.

Diquat and pelargonic acid are contact herbicides. If spray drift did occur, turfgrasses would be expected to quickly outgrow the damage. Since glyphosate and glufosinate are systemic, turf exposed to these two chemicals will show damage for a longer period of time.

These compounds can be used safely and effectively in turf or landscape beds for weed control, but you have to be more careful when applying these compounds due to the potential for damaging nontarget plants. Make sure you've calibrated sprayers and granular applicators correctly and avoid applications on windy days. Use the formulation least likely to move off-site if sensitive species are nearby and check the herbicide label to determine tolerant species and any special use precautions.

— *The author is a professor of Weed Science with Virginia Tech.*

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### Timing issues

It's an industry-wide concern for professional contractors with growing client lists, a limited labor pool and an already narrow treatment window that may shrink even more with wet or cold weather. These companies feel the time crunch every spring.

Bert McCarty, associate professor at Clemson University's horticulture department in Clemson, SC, says the pre-emergence window is often hard to determine. "Preemergence herbicide timing is a crap shoot and the logistics

of treating a large clientele make the problem even more difficult."

McCarty has tested a new postemergence herbicide quinclorac (Drive DF), now available from TopPro Specialties, which offers breathing room for spring herbicide applications. "Drive helps widen the window of opportunity," he says. "It expands the time lawn care operators can apply pre-emergence herbicides."

The new material controls crabgrass, clover, dandelion and other early spring weed and grass problems as a postemergence application and offers residual control. An applicator may delay pre-emergence application several weeks, then use it in a tank mix with the usual preemergence herbicides to clean up target weeds and limit callbacks.

"This may be a solution for LCOs' spring application timing problems," McCarty says.

He also noted the rapid control. "It is quick and effective on crabgrass with almost total elimination in five to seven days. Most products don't work that quickly or that effectively."

### The art of timing

Timing problems are not confined to the South. Bill Pound, turfgrass extension specialist at The Ohio State University, says the short transition between winter and summer in Ohio can cause similar timing problems.

"Lawn care operators may miss the crabgrass window if they don't apply preemergence herbicides until late April or early May," he says.

Nick Christians, Iowa State University, has been impressed with the material's speed of control. "I was surprised that it kills crabgrass within 24 hours. It's also effective on clover."

Drive is labeled for both cool-and warm-season turfgrasses.

For more information, contact TopPro Specialties, a business unit of BASF Corporation and Micro Flo Company at 800-451-8461. The Web site is

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



Eibelheuser applies an early summer herbicide treatment on an upscale account.

VERN STRICKLAND



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BARRICADE <sup>a</sup>	H	M	M	M	MH	M	H	H
DIMENSION <sup>b</sup>	H	M	H	M	H	M	M	M
TEAM <sup>c</sup>	H	M	M	M	M	M	NR	NR
RONSTAR <sup>d</sup>	M	H	NR	M	M	NR	NR	NR
SURFLAN <sup>e</sup>	H	H	H	M	MH	M	H	H
<b>Level of control</b>	<b>Medium</b>		<b>Medium-High</b>		<b>High</b>	<b>Not Registered</b>		

<sup>a</sup>™ Novartis    <sup>b</sup>™ Rohm and Haas Co.    <sup>c</sup>™ Dow AgroSciences    <sup>d</sup>™ Rhine-Poulenc

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## Best way to spray

BY CURT HARLER/  
CONTRIBUTING EDITOR

Whether the job calls for spot treating near delicate flowers or broadcasting over acres of turf, there is a sprayer for the job.

Backpack, mower-mounted, truck-mounted and self-propelled models are available. Several manufacturers offer spray shields to contain drift and assure accurate application of materials.

Most units, regardless of size, have a hose and nozzle for spot spraying. Be sure to check the comfort of that trigger mechanism on a spray gun before you buy. A long day with an uncomfortable or stiff trigger grip will cramp a worker's hand long before the back gives out.

**AGRI-FAB**  
217/728-8388

[www.agri-fab.com](http://www.agri-fab.com)

Agri-Fab, Sullivan, IL, offers several 15-gal. sprayers. The spot sprayer runs on a 12-volt pump and generates up to 70 psi, moving 1 gpm. The tractor-mounted unit's output is 1.4 gpm at 70 psi. Its boom gives 80-in. spray width, or use the 12-ft. handgun hose.

Circle #267

**BUSH HOG**  
334-460-2595

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

Sprayers from Bush Hog, Mobile, AL, fit popular vehicles and come in 200 and 300-gal. versions for PTO- or engine-drive. Sprayers have 4-way jet agitation, break-

away booms, antisiphon and no-foam filling and tree protection guards.

Circle #268

**C&S TURF CARE**  
888/673-5395

[www.agrowingconcern-inc.com](http://www.agrowingconcern-inc.com)

The Turf Tracker from C&S Turf Care, Raleigh, NC, runs on a 20-hp Kohler engine and twin hydrostatic drive for an application ground speed of 4 mph. Maneuverable zero-radius turning gets you close to the work. Low-volume, low-pressure pump sprays one to eight quarts per minute. Rear-mounted break-away boom allows nine different spray widths.

Circle #269

**CHAMPION SPRAY SYSTEMS**  
800/825-7622

Aluminum spray rig from Champion, Pittsburg, CA, comes with ei-



Champion

ther a 50-gal. or 100-gal. poly tank, both with 10-in. fill wells. Hannay hose reel holds 300 feet of PVC spray hose linked to a PG-120 Champion spray gun with adjustable tip.

Circle #270



Lesco

### buying tips

- ▶ If it's a backpack unit, what does it weigh? Can everyone on the team carry it for hours at a time?
- ▶ Look at both gallons per minute and pressure – pressure is key to drive material into foliage.
- ▶ Check ability to agitate in the tank.
- ▶ Look at hose length, especially on mounted units.
- ▶ Check for positive seal at the top and spray hose.



**CUSHMAN**  
**888/922-TURF**

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

New SprayTek DS-300 sprayer from Textron Turf Care, Racine, WI, has Turf-Truckster chassis components and is powered by a 34-hp liquid-cooled Suzuki gas engine. Mechanical ground speed governor works with the spray booms for precise coverage. The 300-gal. tank has a 10-gal. deep suction pump, venturi jet agitators and 15- or 20-ft. booms.

Circle #271

**JOHN DEERE**  
**919/850-0123**

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

From the 6-gal. integral mount sprayer to the 25-gal. portable unit, John Deere Commercial



John Deere

Division, Research Triangle Park, NC, has a sprayer for all needs. Smaller unit attaches to riding mower and has plenty of hose for reach. The 25-gal. unit has four rubber feet bolted to the bottom to protect and stabilize it when placed in a cart or other vehicle.

Circle #272

**EARTH & TURF**  
**800/693-2638**

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

Earth & Turf, New Holland, PA, offers a 25-gal. spray system with heavy duty Shurr Flo pump with tractor-mounted on/off control. Stainless steel tips and strainers with 2-lb. ball check valves offer positive on/off performance, eliminating dripping. Boom has 90-in. spray width.

Circle #273

**JACTO**  
**800/522-8610**

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

The CD550 knapsack sprayer from Jacto, Tualatin, OR, is the first with a fully internal piston pump. Rated at 5.5 gal., it has an operating pressure of 15 to 65 psi and an internal me-

chanical agitator for constant mixing. Anatomical shape fits operator's back.

Circle #274

**ECHO INC.**  
**800/432-ECHO**

The MS-100 backpack sprayer from Echo, Lake Zurich, IL, has a 4.5-gal. tank for applications of



Echo

large amounts of liquid. Equipped with a durable sealed piston and diaphragm pump, it is treated with UV inhibitors for longer life. Comes with 24-in. brass wand, adjustable brass nozzle, spray pistol and check valve.

Circle #275

**GEARMORE, INC.**  
**909/548-4848**

[gearmore2@earthlink.net](mailto:gearmore2@earthlink.net)

Compact 50-gal. sprayers from Gearmore, Chino, CA, offer a special diaphragm pump for



Gearmore

high volumes at high pressure. Available in trailer, 3-pt. hitch or skid-mounted designs, sprayers are powered by motors or are PTO-driven. The skid unit nestles nicely into the back of smaller pick-up trucks.

Circle #276

**JONATHAN GREEN**  
**800/526-2303**

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

The Yard Tender 20 is a 2-gal., hand-held sprayer available through Jonathan Green, Farmingdale, NJ. It can spray continuously for 10 minutes and is made of heavy-gauge aluminum with a polyethylene tank. Designed for gravity flow, it drains from the bottom.

Circle #277

**KROMER CO.**  
**800/373-0337**

The self-propelled sprayer from Kromer, Mound, MN, has a hydrostatic transmission for forward/reverse with a single foot pedal control and can come with four sizes of spray booms.

Circle #278

**LESCO**  
**800/321-5325**

Check out the poly and fiberglass 50 to 300-gal. sprayers from Lesco, Rocky River, OH. All are powered by Honda engines, with optional 12-volt silent spray pump for the 50-, 10- and 200-gal. poly units. All poly and the 100-gal. fiberglass unit have adjustable brass, triple-jet agitator to keep solutions mixed.

Circle #279

**MACKISSIC, INC.**  
**610-495-7181**

The Mighty Mac sprayers from MacKissic, Parker Ford, PA, come on large, wide-tread wheels that won't mar lawns. Five models range from the 14-gal. tow-behind PS 514T to the 50-gal. PS350T and PS350T-10. Tanks have pistol-grip guns for fine mists or hard streams.

Circle #280

**MARUYAMA**  
**425-885-0811**

Model MS-068 backpack sprayer from Maruyama, Redmond, WA, discharges 1.6 gpm at 362 psi, with a 6.1-gal. tank. The MS-036 weighs 15.6 lbs., and discharges 1.6 gpm at pressure up to 170 psi. Both have a 2-cycle 22.5-cc engine.

Circle #281

**MASTER MANUFACTURING**  
**712/258-0108**

The TC2502 (30 gal.) and TC5502 (55 gal.) Turf Choice sprayers from Master Manufacturing, Sioux City, IA, are built on a steel frame with noncorrosive poly tank and flotation tires. They come with adjustable nozzle trigger gun.

Circle #282

**MTD PRO**  
**330/225-2600**

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

Large-capacity tank sprayers from MTD Products, Inc., Cleveland, OH, are powered by 4-hp. Kawasaki engines. The SY200 has a 200-gal., high-impact polyethylene or fiberglass tank. It delivers 14 gpm at 550 psi.

Circle #283



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Circle 141

## Im reports

### PECO 800/438-5823

The Power Sprayer from PeCo, Inc., Arden, NC, has aluminum and brass parts, oversized wheels and wide-mouth 5-gal. removable tank. See liquid levels in clear tank. **Circle #284**

### PERMA-GREEN SUPREME 800/346-2001

The Ride-On Sprayer/Spreader from Perma-Green, Crown Point, IN, treats an acre in 15 minutes. Unit moves at 4.5 mph and sprays a 9-ft. swath. It fits through a 36-in. gate. **Circle #285**

### PROLAWN 800/292-3628 [www.prolawnsprayshields.com](http://www.prolawnsprayshields.com)

Equip commercial mowers with the Prolawn Spray Shield and assure accurate application. Made in Elm Grove, WI, these shields and curtains contain spray within the spraying chambers. Units are available from 52- and 132-in. wide. **Circle #286**

### ROGERS INNOVATIVE 888/975-8294 [www.rogersinnovative.com](http://www.rogersinnovative.com)

Windfoil electric drift containment sprayer from Rogers Innovative, Saskatoon, SK, Canada controls drift floating in the air. The TE1500 is equipped with electric pump run off a standard 12-volt battery. **Circle #287**

### SHINDAIWA 800/521-7733

Shindaiwa's Model SP415 is made of high density, UV-protected polyethylene to resist most chemicals. It comes with four spray nozzles and padded shoulder straps. **Circle #288**

### SMITHCO 610/688-4009 [www.smithco.com](http://www.smithco.com)

Spray Star 1000 turf sprayer from Smithco, Wayne, PA, controls ground speed and application rates via hydraulic tight-turn

power steering. All have stability and three spray control options. **Circle #289**

### SMUCKER 800-333-4503 [www.smucker.net](http://www.smucker.net)

The Top Gun line of ATV-mounted sprayers from Smucker Manufacturing, Harrisburg, OR, is available with 5-ft. boom with 4 tips or 12-ft. boom with 8 tips. Units have diaphragm pumps with Viton seals. **Circle #290**

### SOLO, INC. 757/245-4228 [www.solo-germany.com](http://www.solo-germany.com)

The Accu-Sprayer line from Solo, Sindelfingen, Germany, consists of quality manual high-pressure sprayers and backpack sprayers. The Solo 457 is a 7.5-liter unit weighing about 5.75 lbs. dry, which comes with a spray wand. **Circle #291**

### TRI-CON INC. 800/448-2486

Check out the products from Tri-Con, Cleveland, OH. Some attachments are the S-125 adjustable nozzle water spray gun which can be used with the 824 extension wand. **Circle #292**

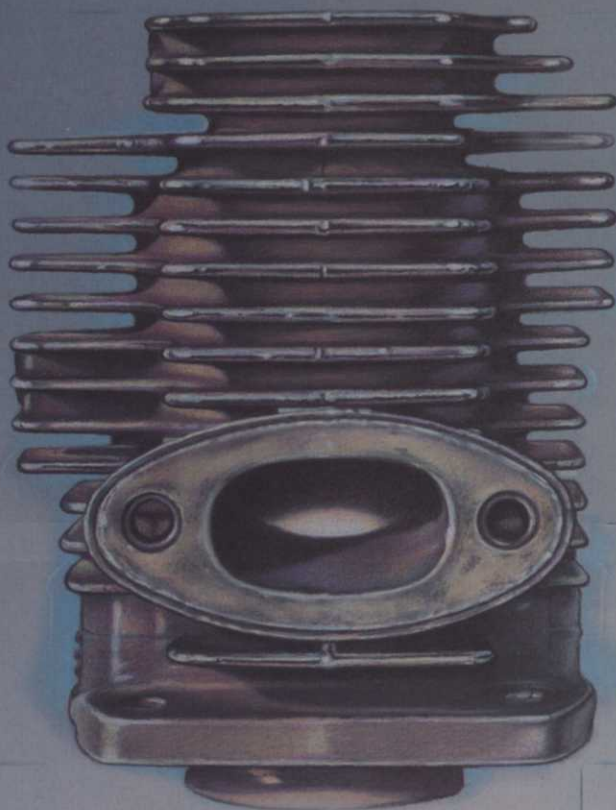
### WESTHEFFER CO., INC. 800/362-3110 [www.westheffer.com](http://www.westheffer.com)

Westheffer, Lawrence, KS, has enclosed bodies for sprayers. Choose an 8-ft. body for standard 1-ton pickup chassis or the 12-ft. body for a 1-ton chassis. Both have rugged construction, fold-down spray doors and roll-up rear cargo doors. **Circle #293**

### WHEEL SPRAY CORP. 262/646-8640 [www.wheelspray.home.att.net](http://www.wheelspray.home.att.net)

The WS-485 Grounds Wheelie from Wheel Spray, Delafield, WI, has motorless application; twin wheel pumps; easy-to-push rubber tires, steel frame, 6-gal. tank. **Circle #294**

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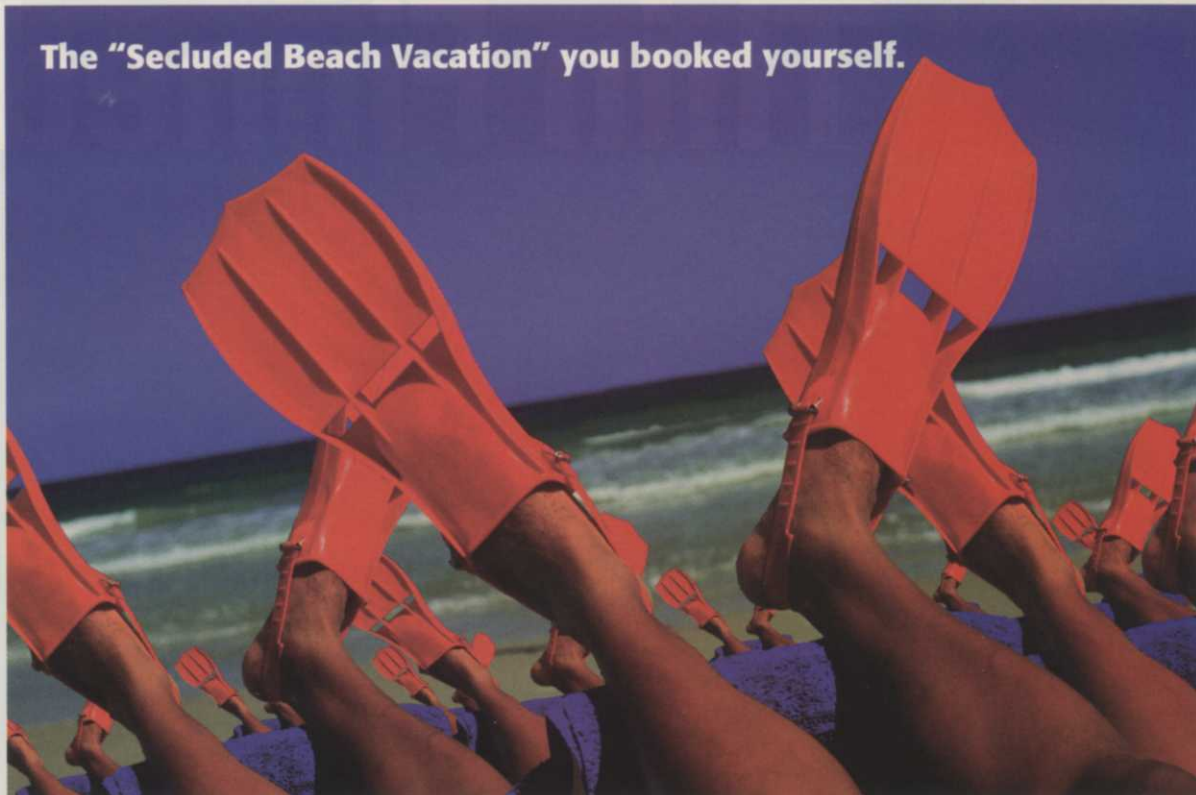
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# ask the expert

BY BALAKRISHNA RAO

## Chipco 26019 disappearing?

**We heard from someone at a conference that Chipco 26019 will not be available in the future. Is this true?**

— PENNSYLVANIA

What you heard is partially true. I learned from an Aventis Environmental Science representative that Chipco 26019 can still be used, except on home lawns. That means it is available in the year 2000 and can be used on golf courses, athletic fields and commercial sites. Only residential lawns are restricted. However, before purchasing and/or using Chipco 26019, make sure that the fungicide is labeled for use on your specific site to avoid any future legal problems.

## Alternative chemical choices

**At a recent conference, a speaker indicated that both Dursban and Diazinon might be discontinued or phased out for our lawn pest management. If it is true, what are the alternatives?**

— OHIO

I believe what the speaker might have mentioned is that in the near future we may lose organophosphate products such as Dursban and Diazinon during the evaluation and re-registration process.

In the meantime, become familiar with newer products and different groups of chemistry. For example, some of the pyrethroids such as Talstar, Astro, Scinitar, and Deltagard should help manage surface insects like chinch bugs, billbugs and sod webworms.

Products such as Mach 2, Merit and Flagship would be good to manage white

grubs and a number of other chewing pests. For managing caterpillars, black cutworms, sod webworms and armyworms you can choose among a number of products such as Conserve, Talstar, Astro, etc.

Contact the manufacturer or dealer for pesticide labels and become familiar with the destructive pests and new products in the market. Then, make a timing chart of the pest activity period in your area. Afterward, choose a product that would provide broad spectrum management of pests at a given period with the recommended rates and frequency of application.

In my opinion, the objective should be to spot and treat with multiple target principles. The pest management program should be designed to obtain multiple pest control. If targeted properly, there will be superior control with a minimum exposure to a given pesticide and possible delay or elimination of resistance build-up to a given product.

## Dutch elm disease

**In the October 1999 issue of Landscape Management, you advised applying two inches of water per week to mature trees to avoid drought stress.**

**This raises the question: What area is the two inches to be applied over? What if under the tree, the area is covered by grass that gets daily watering?**

— CALIFORNIA

I should have emphasized that the two inches of water needs to be applied once a week in a single application.

Soil is moistened from the surface downward as water is applied. In a typical landscape soil, each 0.2 inch of water ap-

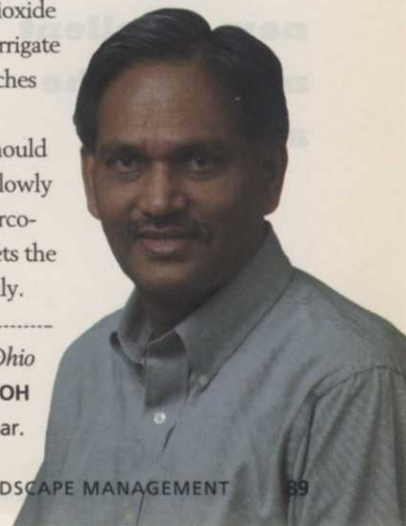
plied over the soil surface will moisten soil to a depth of about one inch. Applying two inches, then, would moisten soil to a depth of 10 inches. Most of the absorbing roots of trees are located within this soil profile.

The actual amount of water required to saturate soils to a depth of 10 inches will vary depending upon texture, density, infiltration and percolation rate, vegetation, temperature and prevailing winds. Because of the variety of contributing factors, it is difficult to generalize the amount and/or frequency of irrigation needed during drought. However, in a survey that we conducted in 1988, most extension and university researchers felt that two inches of water a week was sufficient. You can determine the specific amount of water needed in your situation by monitoring soil moisture content using moisture meters such as a Tensiometer.

Generally, tree roots are watered by irrigating the soil within the dripline area or one to two feet beyond. Because some tree species are sensitive to trunk decay, be sure to keep water away from the trunk.

If the area under the tree is covered with grass, periodically allow the turfgrass in this area to dry out to the point of slight wilting (you should be able to detect "foot printing"). This will improve gaseous exchange in the soil (oxygen in, carbon dioxide out). Then irrigate with two inches of water.

Water should be applied slowly so that it percolates and wets the soil uniformly.



*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.**





# Going after those ghastly geese

**Once geese find a home, it's hard to discourage them. Persistence and a new repellent might be the answer**

full-time employees, specializes in the commercial market, servicing schools, industrial parks, condo complexes and businesses. Most of its programs are based on integrated pest management (IPM) methods, according to Jim Leszuk, president.

### The challenge

Heritage faced the challenge of herding the feathered pests away from Quinnipiac's commons areas and athletic fields, keeping the site free of bacteria-laden droppings, mess and costly turf repairs. "Geese can take a lawn and thin it to dirt," says Lynch. "And unless you replace or renovate the lawn, you

Quinnipiac College sits adjacent to Sleeping Giant Mountain near Hamden, CT. This attractive, landscaped campus is home to nearly 6,000 students interested in business, health sciences and liberal arts.

The beautiful setting is also home to about 100 geese who strip lawns and leave mounds of unsightly droppings, according to Timothy Lynch, manager of Heritage Lawns Inc. in Plainville, CT.

### Not an unusual problem

What Heritage and other lawn care companies around the country are dealing with is the burgeoning numbers of Canada geese. They feed on school athletic fields, corporate commons, golf course greens and fairways, parks and recreational areas — any attractive food source with ponds and waterways.

Solving the problem was particularly important to school officials, since the geese selected "high profile" areas of the college for their meals and roosting: a field area near the main entrance of the school, a half-acre pond surrounding a heavy traffic quad area and the athletic fields.

Heritage Lawns, founded 12 years ago, provides lawn, tree and shrub care in Connecticut and, more recently, in western Massachusetts. The company, with eight

