Safe, effective crabgrass control.
Here is what lawn care professionals need for controlling crabgrass. Here is Acclaim® 1EC Herbicide—a rescue treatment that is truly effective, yet easy on turf.

Unlike the old arsenates, Acclaim is effective with just one treatment. Acclaim won't harm turf, and it can even be applied to new or reseeded turf.

Be ready for rescues anytime.
The best time to be ready for rescue treatments is early, beginning within 2 weeks of July 4th,—but Acclaim controls emerged crabgrass up to 5 tillers anytime. So you should plan ahead by putting Acclaim on your trucks. That way you can take care of little crabgrass problems along borders and sidewalks before your customers even see them. And you'll keep them happy without complaints or costly callbacks.

Acclaim®
Because your turf is always on display.

Circle No. 124 on Reader Inquiry Card
May; there are three or more generations per year in much of its range. Foliage can be protected by spraying when the adult sawflies are actively mating and feeding on birch leaves. Sevin, malathion, lindane and synthetic pyrethroids are effective when used before eggs are deposited within leaf tissue. After egg laying has begun or mines have formed, a systemic insecticide like Orthene or Cygon should be used.

Holly leafminer is a true fly that overwinters in the larval stage within mined leaves and emerges in May. Spring application of Orthene, diazinon, Dursban, Sevin, or a synthetic pyrethroid is effective before eggs are laid. After oviposition has begun, Orthene should be used to kill newly established larvae.

Boxwood leafminer is a gall midge that also has just one generation per year. A mid- to late-spring application of Cygon will provide adequate control of this pest.

What to use

Spider mites, such as two-spotted spider mite and tumid mite, are common on plants under water stress and during long, hot summers. They complete many generations throughout the spring and summer. Keltane, Mavrik, Talstar, Soap and Pentac are usually effective against spider mites. Whenever a product is used that does not kill mite eggs, you must make two applications at a five day (South) or ten day (North) interval to achieve an acceptable level of control. A hydraulic sprayer must be used to insure thorough coverage, especially for plants with dense foliage like foundation plantings, conifers, and other evergreens.

Root weevils (black vine, strawberry root) can be destructive in both adult and larval stages. Adults chew notches in leaf margins. Larvae consume small roots and debark larger roots, sometimes causing death of foundation plants like rhododendron, azalea, and yew (taxus).

The best approach for controlling root weevils is to spray foliage after adults emerge above ground in spring and summer but before they begin to produce eggs. Hydraulic sprays of Turcam/Dycarb, Mavrik, Talstar or Tempo 2 should begin in mid-June, followed by repeat applications at three to four week intervals until August.

Every effort must be made to achieve thorough coverage, spraying all adult hosts, including conifers, taxus, hostas, euonymus, euonymus roots, ornamental boxwood, azaleas, euonymus, hosta, Japanese holly, etc. Level of control is directly related to degree of coverage and following through with repeat applications at three to four week intervals. Drenching soil beneath host plants during the August adulticide application may help reduce larval populations.

Clearwing moth borers are common in as, dogwood, flowering fruit trees, lilac, oak, and rhododendron. Flatheaded borers (adults are called metallic wood borers) are common in oaks, white barked birches, and other stressed hardwoods. Borer larvae cause damage by feeding beneath bark, disrupting movement of water and sugars, destroying the cambium (the cells that give rise to lateral growth), and reducing structural integrity.

Using borer traps

Clearwing borer presence and flight periods can be monitored with pheromone traps. These cost-effective clearwing borer monitoring traps are available from: Trécé, Incorporated, P.O. Box 5267, Salinas, CA 93915; Great Lakes IPM, 10220 Church Road N.E., Vestaburg, MI 48891; Scentry Monitoring Products, P.O. Box 428, Buckeye, AZ 85326-0090.

A four trap kit costs about $35 and will be efficient to monitor clearwing moths throughout your service area for an entire year.

A single, thorough-coverage bark spray of Dursban or lindane, 10 to 14 days after first male moth capture, will provide season long control of most clearwing moth borers.

Three applications of bark/foliage sprays with Turcam/Dycarb, Dursban, or lindane are required to control flatheaded borers. The first application should be made just prior to first adult emergence (some time in May). Bark and foliage should be sprayed because adults feed on leaves for several days before they begin egg production.
MEET THE PRO

EXPEDITE

by Monsanto
**PROfessional system of solutions**

Expedite provides a complete pesticide delivery system, consisting of specially formulated, premixed pesticides and an application lance. Designed to solve a variety of application problems with ease and convenience, Expedite offers professional results through an advanced spray application technology. Additional chemistry is being developed to expand the Expedite product portfolio.

**PROgrammable control and accuracy**

Easy-access controls on the Expedite lance let you adjust swath width, droplet size and flow rate for precise, accurate spraying. Two application discs let you match spray patterns to varying situations. Plus, the built-in pacer control allows for consistent walking speed and accurate calibration. It all adds up to efficient, low-volume spraying you can program for superior performance.

**PROmotes effective weed control**

Both the Expedite grass and weed herbicide and broadleaf herbicide are specially formulated to provide effective control of labeled weeds. And the visible spray pattern lets you see exactly where you’re spraying for improved accuracy. As a result, you can count on Expedite for general trimming and edging, spot treatments and broadcast applications.
**PROfitability improves**
Cost-effective Expedite lowers your expenses by making spraying a fast, efficient, one-man operation. Downtime is substantially reduced and so are additional equipment and application costs. The premixed chemicals are designed to eliminate mixing errors and waste for even more savings.

**PROductivity increases**
Expedite puts an end to time-consuming stop-and-start spraying. There's no mixing, measuring, water hauling or pumping. In fact, one 5-liter pack of Expedite pesticide covers up to one acre—the same as refilling a 3-gallon backpack sprayer 28 times! Just hook up, prime and spray—faster and farther than ever before.

**PROtects your workers**
Expedite provides a closed system, and is designed to reduce worker exposure to pesticides. Ready-to-apply formulations come in specially designed 5-liter cartons that fit right into the backpack, so there's no exposure from mixing. Cleanup is simple and easy. And the lightweight Expedite lance and backpack minimize worker fatigue.
THE PROFESSIONAL SYSTEM FOR PROFESSIONAL RESULTS*

The PROfessional system
Expedite provides a pesticide application system with everything you need for professional spraying.
- Rechargeable Battery-Powered Lance
- 2 Application Discs
  - Serrated — for broadcast spraying and banding (12"-36" swath)
  - Square — for trimming, edging and spot treatments (6"-24" swath)
- Disc Ejector Tool
- Calibration Cup
- Backpack
- Battery Recharger Pack
- Pesticide and Cleaner Formulations

*We PROMISE
Our 90-DAY GUARANTEE* assures a full refund if you're not satisfied with Expedite equipment or pesticides. In addition, our ONE-YEAR WARRANTY* covers all Expedite lance parts and repair costs for one year from the date of purchase.

Meet the PRO today!
Solve your pesticide application problems like a pro, with the new system of solutions: EXPEDITE.

For more information about Expedite call toll-free 1-800-225-2883 now.

*For complete details refer to the warranty provided with the Expedite lance.

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Drought conditions have had a great impact on pest populations. Early detection is the key to successful control at this time.

by J. R. Baker, Ph.D., and D. G. Nielsen, Ph.D.

Plants infested with armored scales should be sprayed after all crawlers have hatched. The only way to determine when this has occurred is to check for crawler hatch and to overturn female coverings to make sure eggs are no longer present.

Insecticide application by mist-blower, though cost effective, may result in unacceptable drift of sprays to neighboring properties. In addition, they should not be used when it's windy.

Beetles prevalent
Japanese beetle adults feed on many kinds of trees, shrubs and roses in July and August. They are most easily controlled with weekly sprays of Sevin, Turcam/Dycarb, or one of the synthetic pyrethroids.

Area-wide grub control is the most effective way to reduce the number of Japanese beetle adults locally, thereby minimizing defoliation of nearby woody plants.

Second generation elm leaf beetles can cause significant defoliation if heavily infested trees are not sprayed or bark-banded with Sevin or a synthetic pyrethroid when first generation larvae begin to descend tree trunks.

Birch leafminer can be controlled during summer if trees are sprayed when second or third generation adults are mating and ovipositing. Remember, after egg laying has occurred and mines have begun to develop, only a systemic material like Orthene or Cygon will control leafminers.

Crawlers of several soft scales (Fletcher, cottony maple, cottony maple leaf, pine tortoise, wax and tulip tree) hatch in late June or early July.
Crawlers and settled nymphs are susceptible to many scalicides, including Sevin, Orthene, diazinon, Dursban, Turcam/Dycarb, and synthetic pyrethroids in early July. A single, thorough-coverage, hydraulic spray should provide excellent control.

**Scale vulnerability**

Settled first nymphs and other nymphal stages of soft scales are vulnerable to contact insecticides because they are not protected by cast skins and wax. Sprays to control soft scales should always be applied after all eggs have hatched to minimize the impact of pesticides on lady beetles and other predatory insects, to minimize insecticide usage and to maximize control.

Second generation pine needle scale, euonymus scale, and white peach scale crawlers hatch during early July through the first of August. Two sprays at a 10 to 14 day interval may be required to control pine needle scale and white peach scale because crawlers hatch over a two to three week period.

Summer generation of euonymus scale crawlers hatch over an even longer period, so three applications at 10-day intervals are required for adequate control.

**Aphid infestations should be controlled before they are abundant enough to produce copious amounts of honeydew or do irreversible damage to leaves. If aphids are allowed to build up in high numbers, plant growth may be distorted and leaves may fall prematurely.**

Once honeydew and sooty mold are present they may persist long after aphids have been controlled by pesticides or natural enemies. Also, honeydew attracts yellowjackets and other stinging wasps, creating an additional nuisance.

Most kinds of aphids are vulnerable to contact sprays whenever they are active.

**Spider mites** can be controlled whenever they are active by spraying twice at a 5-day (South) or 10-day (North) interval. If trees are receiving repeated applications of Sevin to control other insects, be especially watchful for mite buildup.

**Control of mites**

Sevin selectively kills natural enemies of mites, thereby contributing to increases in spider mite population density.

Woody plants like some euonymus varieties and roses are frequently infested by two-spotted spider mites and timid mites. These pests are dispersed on air currents and may appear suddenly in large numbers during hot, dry weather. When detected in potentially damaging numbers, they should be controlled as previously mentioned.

The second and third applications to control black vine weevil adults should be made in July and August. In the South, Japanese weevil and Fuller rose beetle can be controlled with Orthene as a spray and drench in July. A single spring application will not control black vine weevil or other weevils that attack landscape plants.

**The injection option**

White barked birches infested with bronze birch borer can be controlled during the summer by injecting trees with Inject-A-Cide B (Bidrin) using microinjection technology developed by the J.J. Mauget Co. Installation must be done by an experienced professional.

This is an extremely effective stop-gap measure that can be used to save infested birches that are diagnosed as infested after it is too late to begin bark/foliage sprays in spring. Infested birches should be watered thoroughly and weekly during summer and fall droughts and fertilized in the fall after the first hard frost. The following year, bark/foliage sprays should be used as indicated earlier.

Injection should not be used annually on a preventive basis.
There isn't a golf course on earth our Mule can't master.

If you've got a tough course to care for, we've got a Pro to help you do it. The Kawasaki Mule.

The Mule's got 4-wheel independent suspension, automatic transmission, and a reliable 18 horsepower, liquid-cooled engine for plenty of putt. And a Dual-Mode Differential for maximum drive. It's small and maneuverable and easy on your turf. But plenty big enough to haul two guys and pack an additional 500 pounds in the tiltable, diamond-plate steel cargo bed. Total payload is a full half ton, like most of the bulky pickups you're probably using now. And with the optional trailer hitch, you can tow up to 1,000 more.

Plus you can add options like a hydraulic lift kit, turf tires, sideboards and more.

The bottom line? A Mule is high on performance and reliability and low on maintenance and operating costs. Which is par for the course, since it's a Kawasaki.

For your nearest dealer, call 1-800-543-MULE.

Kawasaki
Let the good times roll.
The peachtree borer (a clearwing moth) can be controlled with a single application of Dursban or lindane in late June (in the North) or late August (in the South). The second application of Dursban or lindane for control of lesser peachtree borer (also a clearwing moth) can also be made at this time to protect infested ornamental flowering fruit trees.

**FALL**

(September-October)
The defoliators Mimosa and fall webworms reach their highest population density and cause most defoliation during late summer and early fall. They should be controlled as soon as first generation larval webs are detected in early summer. However, both pests are still susceptible to larvicides in late August and early September. If Bt is to be used, it must be applied when the caterpillars are small to achieve desired results.

Magnolia and tulip tree scale crawlers are produced in late August and early September. Infested trees should be sprayed when goldenrod is in full bloom (early September). A single, thorough-coverage, hydraulic spray with one of the aforementioned scalicides will provide excellent control. Both magnolias and tulip trees can be severely stunted or even killed by heavy infestations of these pests.

Galls on spruce turn brown and open in August and September. After galls open, adelgids are vulnerable to contact insecticides. Adelgids on spruce, Douglas fir, and pine remain

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**Using pesticides judiciously is top priority**

We all share the responsibility to manage pesticide use more wisely. We can do that by following these steps:

- **Use insecticidal sprays** only after determining that a pest species is present at a density that will cause plant damage if the infestation is ignored and the pest is in a stage vulnerable to pesticide treatment.

- **Treat only infested plants** in the landscape rather than spraying all woody plants on the property. This is a biologically and financially rational approach, because most kinds of plants are resistant to most insect or mite pests.

- **Make the effort to continually inspect** your properties for pest problems. By doing so it’s more likely that only a small part of a plant or a single plant will be infested when the pest’s presence is first detected.

As more tree care specialists begin to adopt this process of landscape management and pest control, use of pesticides for managing our precious urban and community tree populations will be reduced, pest control will become more effective, the acquisition of resistance to insecticides by pests will be lowered and beneficial insects and mites can assume a larger role in maintaining pest species below damaging levels.

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Duosan® broad-spectrum fungicide combines both contact and systemic ingredients to kill and prevent a wide range of diseases on turf, trees, shrubs, and flowers.

Duosan goes to work immediately, and keeps on working, giving you immediate curative disease control plus preventive activity for up to two weeks. And the synergistic action provides a higher level of disease control than would be achieved by using

**DUOSAN CONTROLS MAJOR TURF DISEASES**

<table>
<thead>
<tr>
<th>Disease</th>
<th>Control</th>
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<tbody>
<tr>
<td>Dollar Spot</td>
<td>Fusarium Patch</td>
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<tr>
<td>Anthracnose</td>
<td>Leaf Spots</td>
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<tr>
<td>Brown Patch</td>
<td>Red Thread</td>
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<tr>
<td>Copper Spot</td>
<td>Rust</td>
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© 1989 Sierra Crop Protection Company. Duosan is a registered trademark of Sierra Crop Protection Company.
The peachtree borer (a clearwing moth) can be controlled with a single application of Dursban or lindane in late June (in the North) or late August (in the South).

Attempts to control root weevil larvae should be made in early September or October. A single drench with Turcam/Dycarb should be effective against larvae established in soil surrounding roots of field plants. Turcam/Dycarb, Orthene, or Furadan 4F can be used to control larvae established in containers, using one pint of solution per gallon of container volume.

**Maintenance important**
The best way to minimize insect damage is to maintain healthy trees and shrubs. Trees should be planted at sites where they can be expected to survive and thrive, and they should be watered during the first year after planting and subsequently whenever soil moisture becomes low. Proper pruning, fertilization, mulching, and aerification will promote plant vitality, helping trees and shrubs to help themselves against opportunistic pests.

When a pest is detected on a valuable landscape plant, it must be properly identified, its vulnerable stage(s) determined, control practices learned and a determination if direct control measures are warranted. If intervention is justified, the pest should be controlled with minimal impact on non-target organisms.

Remember, coverage and timing are often more important than the pesticide chosen for an insect or mite control program. In all cases, read the label on the pesticide container and follow all instructions to make sure you comply with the law.

Rational pesticide use does not constitute a threat to the quality of our urban environment. Informed landscape managers can use a combination of horticultural practices and pesticidal treatments to enhance the vitality and quality of our urban and community forests.

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**Fungicide Could Do So Much.”**

either ingredient separately. So you save all the time, labor and material costs of applying separate products. And you achieve real control over a wider range of turf and ornamental disease problems with just a single product—Duosan. Contact your Sierra distributor today and order Duosan. Or call us toll-free at 1-800-492-8255.

**DUOSAN CONTROLS MAJOR ORNAMENTAL DISEASES**

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<thead>
<tr>
<th>Disease</th>
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<tbody>
<tr>
<td>Anthracnose</td>
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<tr>
<td>Blackspot</td>
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<tr>
<td>Flower Spot &amp; Blight</td>
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<tr>
<td>Leaf Spot &amp; Blight</td>
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<tr>
<td>Scab and Rust</td>
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<tr>
<td>Stem &amp; Twig Blight</td>
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<tr>
<td>Downy Mildew</td>
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<td>Powdery Mildew</td>
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Circle No. 152 on Reader Inquiry Card
Introducing Typar® Biobarrier™ root control system.

Give unsightly roots a new direction in life. Down. With new Biobarrier, the advanced root control system that sends your maintenance costs in the same direction.

Biobarrier combines two of the most effective, longest-lasting elements in root control. One is Treflan®, one of the most proven herbicides in the country, featuring new controlled-release pellet technology. The other is Typar® fabric, made with rugged polypropylene geotextile that's porous enough to let air and water through but holds the Treflan pellets in place.

Together, they reroute roots without harming your trees and plants. And preserve the beauty of your landscaped areas — golf greens, cart paths, sidewalks, curbs, walkways, parking lots, swimming pools, gardens and others — for years to come.

For 15 years or more.

Underground, Biobarrier sets up a solid rootproof zone that spans one to two inches on each side of the fabric. That's the Treflan controlled-release vapor zone. A zone so powerful, it repels roots at a controlled rate for 15 years or longer.

For half the cost or less.

By rerouting roots downward, Biobarrier protects your golf greens, cart paths, tennis courts, swimming pools and other recreational areas from unsightly roots. And helps keep your reputation in good standing among your customers.
The cost savings are just as dramatic. Over 50%, in fact, during Biobarrier’s lifespan.

Without Biobarrier, you’re spending plenty to trench, trim roots and replace damaged landscaping. And it has to be redone often to protect greens, cart paths and other landscaping.

But with Biobarrier, you’ll only do the job once every 15 years — trim roots, replace damaged cart paths and install Biobarrier.

**Easy to install.**

The Typar fabric in Biobarrier is flexible to make installation simple. Just install vertically along your golf, recreational or landscaped areas where tree roots threaten to bring out the ugly side of your landscape.

**Call toll-free.**

For the complete story on Biobarrier, see your Elanco representative. Or send for a free technical brochure from Elanco Products Company, Lilly Corporate Center, Dept. EM-455, Indianapolis, IN 46285, U.S.A. Or call toll-free: 1-800-352-6776.

**Easy on plants and landscaping.**

Unlike other root control methods, Biobarrier won’t harm trees or nearby landscaping. It doesn’t kill roots, it just reroutes them away from your golf, recreational or landscaped areas.

Treflan’s active ingredient is biodegradable. It can’t be taken up by plant systems. And it stays put without leaching to keep rerouting roots for 15 years or longer.
Dodgertown Golf Club, the first public course in Florida's Indian River County, opened in 1965.

THE DODGERS' OTHER MANAGER

If there are calamondins in center field, we must be in Dodgertown.

by Will Perry, managing editor

With a sharp crack of the wood, a baseball is sent tearing through soft Bermudagrass in search of safety in center field. Instead, it will be swallowed in the webbing of Los Angeles Dodgers' shortstop Alfredo Griffin's glove. Moving quickly to his left, Griffin backhands the ball as it hops off the red clay infield and releases a waist-high strike to the first baseman, nicking a few points off the pre-season batting average of a disappointed Oriole.

Twelve thousand sun-tanned hands clap their appreciation of Griffin's defense while Dodger manager Tommy Lasorda looks on without registering emotion. Six rows behind him, Carol Thomas does the same. Neither has reason to get their dander stirred, for everything had gone according to plan.

"When I'm at these games I'm especially attuned to hits like that. I watch closely to make sure it takes a good, natural bounce—no surprises," says Thomas.

For the past three seasons Thomas has been sports complex superinten-