



A littleleaf linden tree in mid-summer completely defoliated by adult Japanese beetles. Notice the typical top-down feeding pattern common to trees defoliated by Japanese beetles.

continued from page 79

Varieties with larger blooms are also more appealing to the beetle. In experiments with red or yellow flowering rose bushes, Japanese beetles will land on the yellow flowering ones, sometimes ignoring even the most fragrant red varieties.

Biorational insecticides

Adult beetles are commonly managed with applications of short-residual insecticides, like carbaryl or synthetic pyrethroids. There has been increased interest in the use of other biorational insecticides, including various formulations of neem-based feeding deterrents. In laboratory tests, these products effectively reduce the amount of feeding. In field tests when beetle infestations are heavy, even repeated applications aren't sufficient to prevent damage.

Regardless of the control product, once a plant becomes damaged it can serve as a beacon to other beetles, attracting them with odors produced by the damaged

leaves. Therefore, preventing feeding damage early and keeping plants undamaged as long as possible reduces the attraction of more beetles to those plants. **LM**

— *The author is with the University of Kentucky Entomology Department, Lexington, KY. Contact him at dwheld@uky.edu.*


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Circle 138

Large 'scale' woes

When a customer called Jeff Hazlett and complained that her family couldn't use the front door due to swarms of bees and flies, he had his suspicions about what was attracting the insects. He inspected the customer's landscape plantings and confirmed that scales had infested three 9-ft. tall star magnolias in her front yard.

"Honeydew produced by the scale insects was dripping on twigs and stems near the front door, and insects were feeding on it," says Hazlett, owner of Ever Green Tree & Lawn Care in Lancaster, PA. "Sooty mold had formed over the honeydew, and whole branches had turned black. It wasn't a pretty sight."

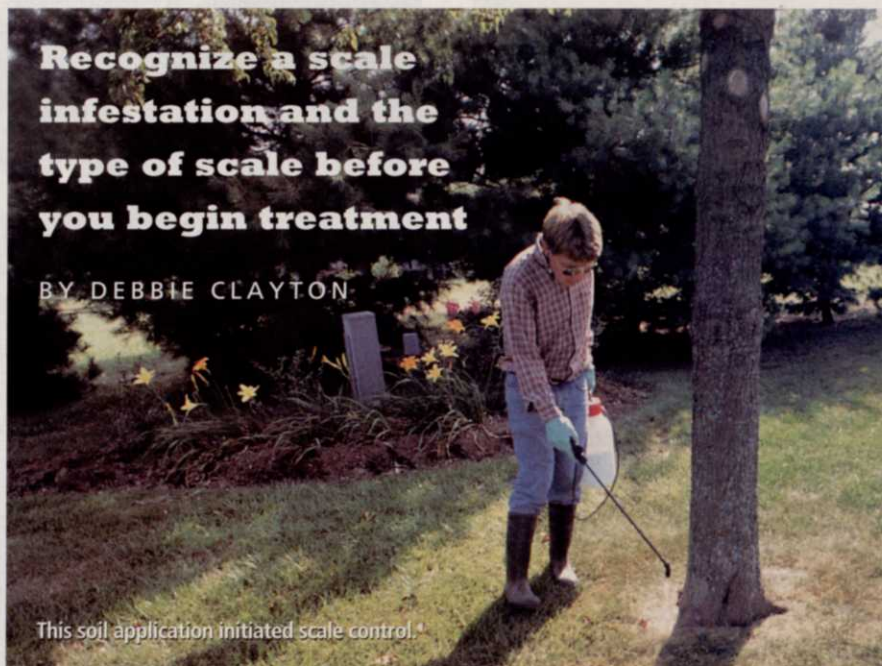
Sure signs of scale

The presence of honeydew is a telltale sign of scale infestation. Honeydew is a sugary, liquid waste product that covers surrounding areas. This sticky, sweet liquid serves as a growth medium for sooty mold, a black fungus that eventually covers honeydew-laden areas. Another indication of scale is a greater-than-usual number of nuisance insects such as ants, bees, flies, hornets and yellow jackets, which are all attracted to honeydew.

In severe cases of scale infestation, foliage and fruit turn black from sooty mold and drop prematurely. In large enough numbers, scales remove enough sap from plants to starve limbs, branches and leaves.

Recognize a scale infestation and the type of scale before you begin treatment

BY DEBBIE CLAYTON



This soil application initiated scale control.

For his customer with scale-infested magnolia trees, Hazlett soil applied Merit Insecticide in early spring, and followed it with a treatment of dormant oil. Later in spring, he made a foliar application of Merit mixed with a contact insecticide, ensuring that coverage was complete. The problem vanished by mid July.

"The customer was really impressed that the combination controlled scale so quickly," Hazlett says. "I attribute the successful treatment to the systemic properties of Merit combined with the dormant oil spray."

Preaching IPM

With three full-time employees, Hazlett provides landscape maintenance for primarily residential customers in Lancaster

County. Though he's been in business for 15 years, he keeps his operation small, offering customized services such as fertilizing, spraying and mulching. He regularly monitors plantings, explaining to his customers the benefits of an integrated pest management (IPM) system.

In spring 2002, after two relatively mild winters in eastern Pennsylvania, an outbreak of cottony camellia scale on yews and hollies erupted in Hazlett's area. "Cottony camellia is a soft scale," he says. "If customers have a lot of evergreens and hollies, I'll make a preventive treatment of Merit for scale."

In addition to applying insecticides and dormant oils, Hazlett often prunes out damaged branches and foliage, and fertil-

izes beds or trees to restore vitality. Because pachysandra is easily affected by scale, he often applies dormant oil in spring to prevent infestations. **LM**

— The author is a freelance writer and frequently writes about the Green Industry from her home in Horsham, PA.



Only a mother could love these magnolia scales with crawlers emerging.

Two scales, two treatments

Not all scale species ingest sap and produce honeydew. Two general types of scales commonly appear on U.S. ornamental trees and shrubs: soft scale and armored scale. Learn to identify the two since control strategies are different for armored (hard) and soft scale.

Soft scale characteristics:

- ▶ Bodies are exposed and immature stages are "soft"; mature adult females have a hardened shell to protect the young
- ▶ Females are oval-shaped and usually conspicuous — about 1/10-in. long
- ▶ One generation per year
- ▶ Produce honeydew, attracting nuisance insects
- ▶ Overwinter as immature females
- ▶ Relatively prolific, producing more than 600 eggs at a time

Soft scales damage plants and make

them unsightly by sapping juices, making sooty mold grow on honeydew. This substance is difficult to remove from parked cars, houses, porches and sidewalks.

Armored scale characteristics:

- ▶ Produce detached wax shell or "armor" over their bodies
- ▶ Females are usually elongated or circular and about 1/10-in. long
- ▶ Don't produce honeydew
- ▶ Two or more generations per year
- ▶ Overwinter as eggs, immatures or adults
- ▶ Produce fewer than 50 eggs at a time

Armored scales also damage plants by inserting long, straw-like mouthparts into plant tissue. Damage may appear as chlorotic areas of the leaves or yellowing of entire leaves or needles, resulting in leaf drop or dieback.

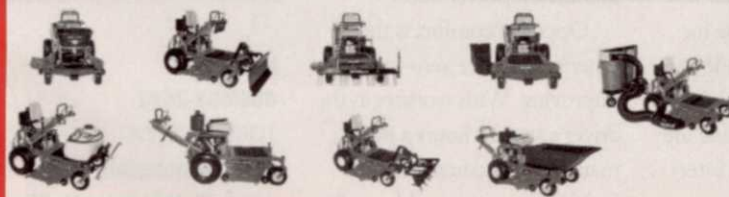


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Zero-turn tech zipping along

BY CURT HARLER

The zero-turn industry is growing and evolving the same way minivans have changed since their introduction years ago by Chrysler.

While many manufacturers changed both the look and role of minivans, look for zero-turns to change in the areas of maintenance and operator comfort.

"While the base platform of zeros continues to evolve, most of the changes will boil down to serviceability and maintenance," says John Cloutier, Product Manager for Exmark of Beatrice, NB (www.exmark.com). He notes that landscape professionals, like car owners, prefer to turn a key and go rather than deal with upkeep. "Commercial mid-mounts are the same," he remarks.

Serviceability is a given. After all, landscape pros make money running their mowers, not working on them in a shop. "People don't want so many service points. They want fewer places



Kubota's ZD Pro Series mowers feature 54-, 60- and 72-in. decks.

to grease," Cloutier says. As a result, manufacturers are designing-out high maintenance components. Examples include sealed bearings and spindle assemblies that don't require periodic greasing.

Room for improvement

Blade maintenance and air filtering are other areas ripe for improvement. Many blade manufacturers are looking at technology to extend blade life and to increase the time interval between sharpenings, Cloutier says, but most of them have yet to show the investment-to-value return that many professionals desire.

Air filters are another story. The industry is moving to a canister air filter fitted vertically above the engine. What used to be an option is now standard for many zero-turns. "They're more expensive," Cloutier says, "but they lengthen change intervals and even provide a slight horsepower boost."

Operator comfort is the other area where zero-turns are improving. With workers in the driver's seat 10 hours a day, many mower companies are looking for ways to add comfort with such items as seats or operator controls. Landscape pros are also interested in convenience items such as deck lifts.

4 key areas of performance

There are four key areas of mower performance, according to Harold Redman, vice president of product management for Simplicity (www.simplicitymfg.com, Port Washington, WI):

- ▶ cutting ability
- ▶ ease of use
- ▶ traction
- ▶ reliability

While some landscapers buy zero-turns on the basis of horsepower, it should not be the bottom line of a purchase decision. "Purchase a product based on its ability to provide lasting performance, not just on its horsepower or price," Redman says.

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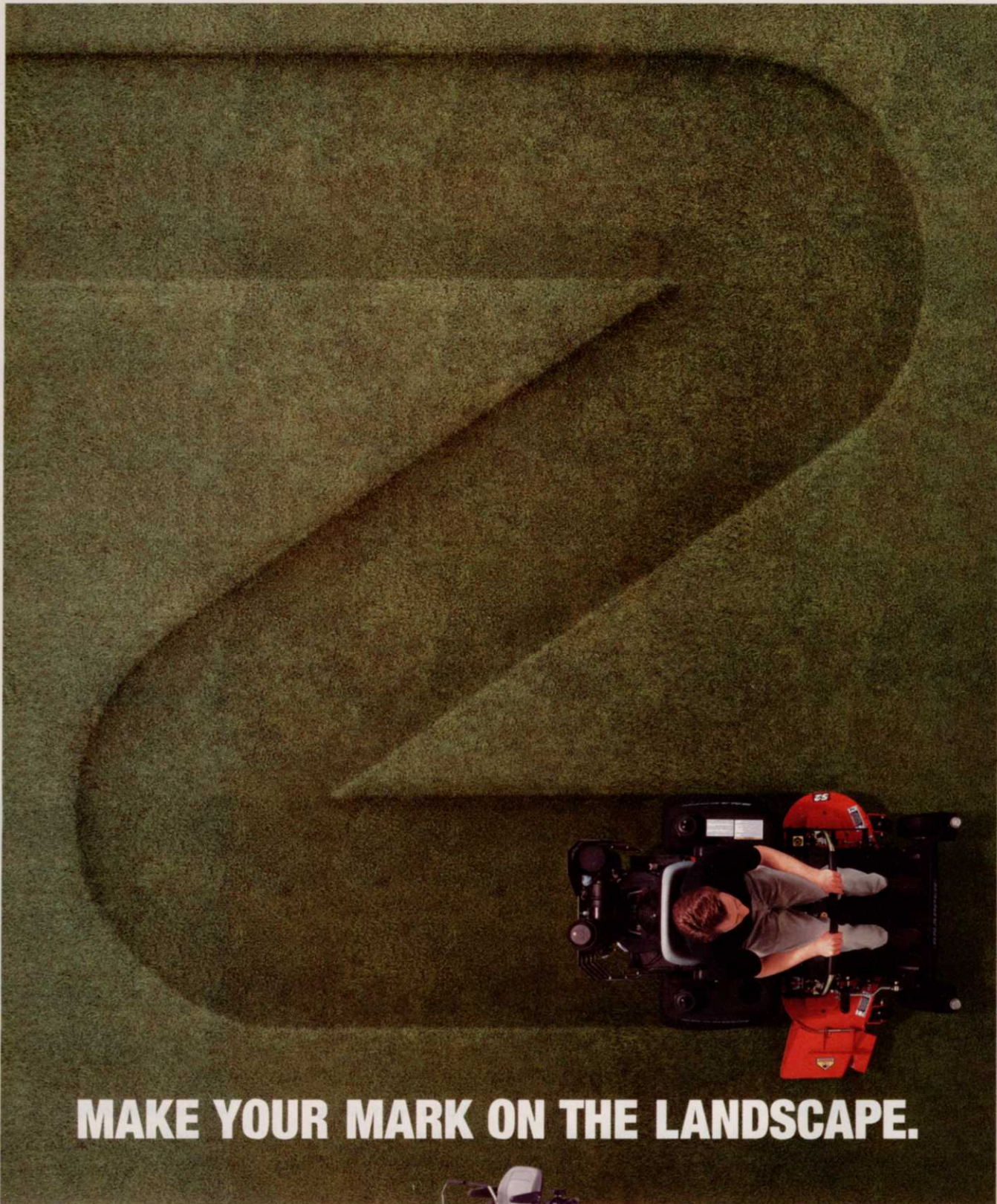
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continued on page 86



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continued from page 84

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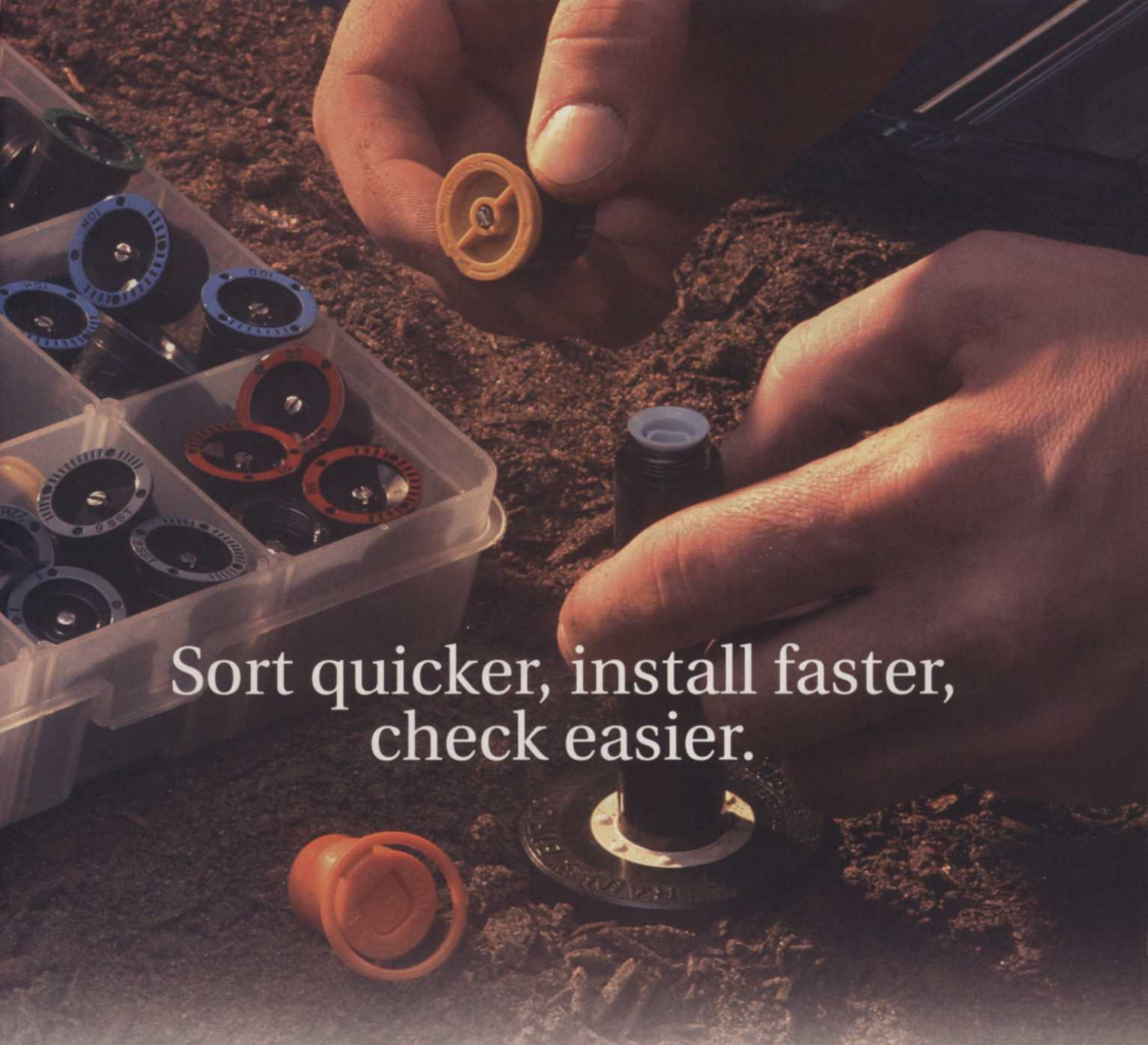
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continued from page 86

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BY BALAKRISHNA RAO

Oak infestation

A number of oak trees in the San Francisco Bay area are infested with an insect. The caterpillars feed and cause extensive damage. When they're small, they feed on one surface of the leaf. As the larvae become larger, they feed through the leaves and can remove the leaves. We see the adults around May and again around October. What are they, and how do we get rid of them?

— CA

From your description, the problem is most likely related to the California oak-worm (or oak moth), *phryganidia californica*. It's considered to be one of the major insects affecting oaks in your state.

These insects are cyclic, which means in some years they may be very active and in other years their population may not be high. Extensive outbreaks and feeding can cause defoliation, affecting the tree's shade and aesthetic benefits.

In your area, you may get two generations of the insect. It may overwinter as an egg or young larvae. As the temperatures increase in spring, the larvae mature and start feeding as you described. First, they tend to feed on one side. Then, as the larvae mature, they feed through the leaves.

They pupate on leaves, branches or trunks of oaks and/or other trees or objects nearby. Adult moths emerge from May through July and fly at dusk time. Then, they repeat the cycle and produce second generations of adults, which emerge in October or November. These adults produce eggs on leaves, branches and trunks. Deciduous oaks may get less infestations than evergreen oaks in the spring because eggs produced on leaves in late summer or early

fall will be shed along with the leaves, which can be raked or blown away.

To manage the California oak moth, consider treating with insecticides such as bacillus thuringensis (Bt), Sevin, or Orthene. Bt is a biological control bacterial agent. This treatment works better on younger stages of the insect larvae. Also, it may help to rake and dispose of infested leaves.

Hit-and-run

A customer of ours has a young Chinese red maple tree that was run over by a station wagon and stripped of bark from the base of the trunk to the top of the tree. What can be done to save this little five-foot tree?

— CT

Depending upon how much bark has been stripped and damaged, the tree may survive the winter and produce normal growth next spring. Injury resulting from mechanical damage often doesn't become obvious until moisture and heat stress occurs in the summer and the tree shows scorching symptoms and starts to decline.

In the meantime, consider removing all the loose bark by using the bark tracing technique — without harming the uninjured, intact areas. Go around the injured bark with a sharp knife, trying to take only the loose bark. Also, provide proper watering, mulching and fertilizing as needed. Because of the injury, the tree is now stressed and susceptible to pest problems such as borer insects and canker diseases, so provide management as needed.

Dursban alternatives

We're in the process of reviewing our insect control program for landscape pest management. In the past, we've used Dursban for a number of pests on trees and shrubs. Now, because Dursban won't be available and/or we can't use it anymore, we need to find alternative products. What can we use in its place?

— IL

As far as Dursban use, it's my understanding that you can still use it until your supply is depleted if you have the product and label in your inventory. To confirm this, check with your Dow AgroSciences representative or account manager. However, if your clients are aware of Dursban's removal, they may object to using it on their property.

As an alternative, consider using an insecticide such as Merit (imidacloprid), a systemic insecticide from Bayer. You can apply this in fall to get the benefit of systemic action and managing pests the following spring. It should be good for beetles, borers, leafminers and sawflies, Japanese beetles, etc.

Another group of new chemicals is called pyrethroids (Astro, Talstar, Deltagard, Scimitar and Tempo). Read and follow label guidelines for specific rates and specific insect control. Also become familiar with their safety issues. Some of them may have concerns regarding throat, skin or eye irritation. These pyrethroid products are slowly replacing the traditional insecticides of the past for landscape pest management.

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 e-mail: rhall@advanstar.com. Please allow two to three months for an answer to appear.

