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## Sizing up trees for possible dangers

**If you say a tree is safe,  
and it falls apart, there's  
hell to pay.**

by James E. Guyette

■ Let's say you and your crew are on a property thinning shrubs and pruning dogwoods. The homeowner comes out to ask about the big maple in the back corner; he's concerned about that overhanging branch. It's probably human nature to take a stab at assessing the risk, but if you're not trained in this type of work, you could bring a major financial problem on yourself and your business.

Landscape managers who give advice to customers on whether a certain tree represents a hazard can face serious legal and liability problems if they are incorrect in their assessment.

Although you may be tempted to help out—or you at least want to avoid sounding ignorant—it's often better to resist the urge. The experts say it's best to back off if you lack formal training in risk assessment.

"If I were in that type of situation, I'd get to the point where I'd have no opinion," says Dr. Kenneth C. Miller, a tree pathologist with Miller and Associates, Ravenna, Ohio.

Legally, someone offering an opinion can be considered an "assumed professional."

"The assumed professional is the semi-qualified tree worker, whether a public employee, a utility forester or a private arborist," says Miller. "It is *assumed* that a



The owner of this house in the Cleveland area wasn't very happy with a tree that succumbed to high winds earlier this year.

person who works with trees every day should know everything about them. Increasingly, these individuals are becoming the target of legal liability in hazard tree cases. They are held to a higher level of responsibility than an ordinary citizen."

Even an entry-level ground person can get snagged if an opinion is offered "because you are 'the expert,'" Miller explains. "If you say the tree is safe, the tree is safe. If it falls apart, there's hell to pay.

"Leave it to the arborist with the liability insurance."

Business owners need to warn their crews, Miller advises. "The employees are going to have to be cautioned by the employers not to make any definitive statement.

"And it's not the easiest thing to do. You either have to come up with a statement or tell them you don't know. Either way, that's not something you really want

to do. I know of no way to get you gracefully out of that situation."

**Make a referral**—For bracing, cabling or work other than a simple takedown, making a referral to a local firm that belongs to the National Arborist Association may be a good place to start, says Paul McFarland of McFarland Landscape Services, Philadelphia, Pa.

"That's a good thing to look for: the NAA (membership) or a company with a certified arborist on staff who would supervise the job."

A call to the NAA, a local arboretum, your county agent or a city arborist should be able to get this information.

"If anyone should get into the business of assessing trees," says Dr. Alex Shigo, noted arbor-author, "they should be top-of-the-line. This is not something that you read in a book. Those who don't under-

*continued on page 26*

### ELSEWHERE

**Green up your  
turf with iron,  
page 26**

**Turf desiccation:  
a lasting 'gift,'  
page 36**

**Winter brings  
turf diseases,  
page 36**

# Six Reasons Why Pendimethalin Is The Market Leader.

## 1. Broad Spectrum Weed Control

Nothing beats pendimethalin when it comes to broad spectrum preemergents. Used properly, pendimethalin controls six annual grassy weeds, including crabgrass and goosegrass, and nine annual broadleaf weeds, including tough-to-control oxalis and spurge.

## 2. Cost-Effective Control

The superior performance and application flexibility of pendimethalin reduces late season weed breakthroughs, so it's very economical to use.

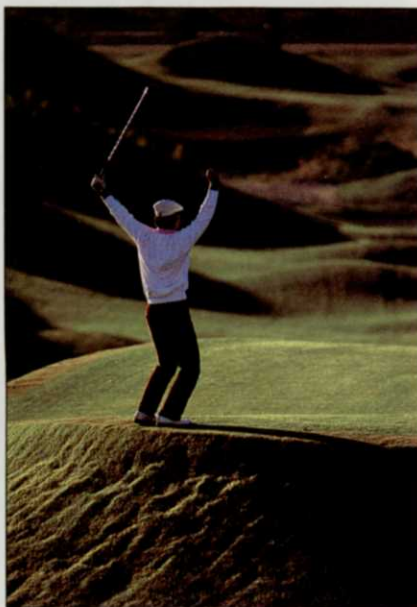
## 3. Season-Long Control

Unlike other preemergents, the pendimethalin label clearly allows for season-long control of troublesome weeds, including goosegrass, with a *single, properly-timed application*. The pendimethalin label also gives

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## 5. Ornamental Tolerance

Good news. Pendimethalin is labeled for numerous ornamentals, making it your best choice for total turfgrass and landscape management.

## 6. Customer Satisfaction

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Always read and follow label directions carefully.

# Pendimethalin

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stand trees will get themselves in trouble."

**Potential risk**—Shigo suggests changing the term "hazard tree" to determining "degree of potential risk."

Step one in this process involves asking "if this structure tree failed, is it really a hazard?" Are there people or homes around, or is it in a field?

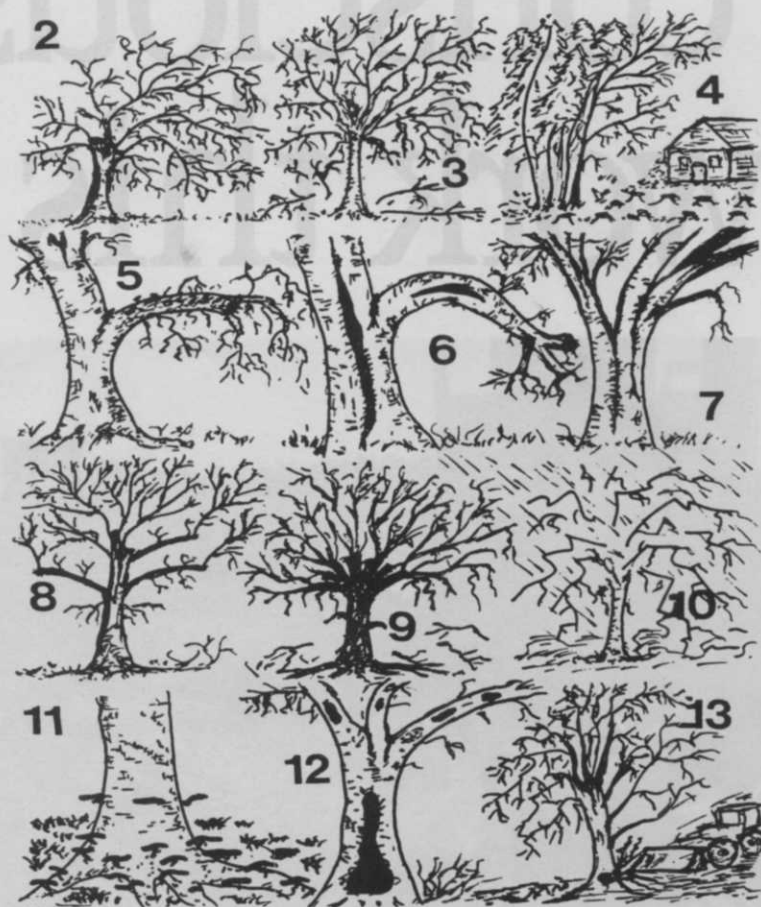
Step two is to use common sense. "The same tree in the same (tree care) manual can be left for a hundred years or be cut tomorrow," Shigo observes. "If we did everything our manuals say, we'd clear-cut our cities."

Branch "loading factors"—the amount of stress placed on a branch that may be prone to failure—are an important consideration.

"Is it a hurricane, a windy day or a sunny day?" asks Shigo. "It's not trees that kill people, it's the (branch) fractures that take place during moderate loads that kill people."

Snow and foliage are other loading factors to note, says Shigo, adding that some loads can actually amount to less of a risk factor when the entire picture is examined. For example, during a hurricane, people usually have enough sense to leave the area.

—The author is a freelance writer specializing in the green industry. He is based in South Euclid, Ohio.



### **Tree hazards: 13 questions that could save a life (see illustrations above)**

1. **TARGET** (page 22): If the tree falls, will it hit cars, houses, power lines or people?
2. **ARCHITECTURE**: Has the tree grown beyond its normal form into a dangerous form?
3. **HISTORY**: Has the tree lost large branches lately?
4. **EDGE TREE**: Were neighboring trees cut away recently, leaving tall trees at the edge?
5. **DEAD BRANCHES**: Are there dead tops or branches? Is the tree dead?
6. **CRACKS**: Are there deep, open cracks in the trunk and branches?
7. **CROTCH CRACKS**: Are there deep, open cracks below joining stems?
8. **LIVING BRANCHES**: Do living branches bend abruptly upward or downward where tips of large branches were cut off—tipping?
9. **TOPPING**: Are large branches growing rapidly from topping cuts on big trees?
10. **STORM INJURY**: Are there broken branches, split trunks or injured roots? Are branches close to power lines?
11. **ROOT ROT**: Are there fungus fruit bodies—mushrooms—on roots? Were roots injured by construction?
12. **ROTS, CANKERS**: Are there hollows or cankers—dead spots—some with fungus fruit bodies? Is the tree leaning?
13. **CONSTRUCTION INJURY**: Have roots, trunk or branches been injured? Is there a new lawn or garden over injured roots?

Source: 'Tree Hazards' by Shigo & Trees, Associates

## **Green up your turf with iron**

**Using this micronutrient for rapid color enhancement is making turf and turf managers look good.**

■ The chlorophyll molecule in the turf-grass plant is responsible for plant color. Iron is required for the photosynthesis which produces the chlorophyll—thus, iron can help enhance the green color which clients most desire in good-looking turf.

There is an obvious need for iron supplementation  
*continued on page 36*

## Biological/chemical mix works, thanks to customer education

### Customers must have realistic expectations, says company partner.

■ The Pro-Grass company of Portland, Ore. is now using biological control products in its integrated pest management program. The secret to customer acceptance of biological products, says Pat Nibler, is effective customer education.

"We try to take a realistic view of our customers' environments," says Nibler. "For example, there aren't a lot of insects or disease that will kill a plant outright. So the key is to keep them in check rather than eliminate them out-

right. We want to meet our customers' needs at a price they can afford.

"We'll tell them we won't eliminate all the pests. Our customers need to have realistic expectations, and the only way that can happen is if our people to take the time from the beginning to educate them," says Nibler.

The company tried Javelin, a *Bacillus thuringiensis* product, to control tent caterpillars. They've since been using M-Pede, an insecticide/miticide derived from naturally occurring fatty acids. Nibler says it's an excellent "knockdown" material and synergistic tank mix partner for control of soft-bodied pests.

Product rotation prevents resistance. "We will start off with a pyrethrin in the early spring and then we'll use M-

Pede in tank mixtures with other insecticides on soft-bodied insects such as aphids and mites, then maybe switch to oils later in the summer," says Nibler.

Pro-Grass tank mixes different pesticides together to control a wide range of pests. For example, a mix of M-Pede and Tempo, Orthene, or Dursban will control soft-bodied insects and caterpillars.

Nibler estimates biopesticides add between 30 to 40 percent to his product cost, "but we have found that better trained employees know how to use less of the more expensive materials and still get the job done."

**Employees are assets.** Nibler and partner Paul Bizon say employee education is a major reason the company has been so successful during its 15 year history of lawn care and landscaping in Portland, Seattle and Concord, Calif.

Nibler sees an influx of national landscape maintenance companies along the West Coast, and believes that Pro-Grass's dedication to employees keeps competitors at bay.

"If we can retain our good employees and enable them to build up some real experience," says Nibler, "then we can offer a degree of expertise, knowledge and maybe even accessibility; the nationals may not be able to match where we do business."

"We've constantly tried to create a culture where this is more than just a job to the employee," says Nibler. "We think that's the backbone of our company and our success over the years, and it affects many aspects of how we run our business."

### No 'multiple guess' tests

Employee education at Pro-Grass includes updates on pesticide regulations and compliance, taught by Steve Varga, who has a degree in horticulture from Colorado State University.

● Two or three times each month, Varga issues a training module to all branches. Each branch has its own designated instructor.

● The material is reviewed with employees, who are then tested.

"And we're not talking true-false or multiple choice," notes Nibler. "The employees have to know the answers and we keep track of their scores. We've found this to be an extremely important program for new technicians and a worthwhile refresher course for our veterans."

● Employees also receive weekly pesticide updates. "They all have their commercial applicator's license and we want them to think and work as professionals," says Nibler.

### INSIDE

Preserving organic matter ● Gluten meal for weed control ● Mergers/acquisitions  
Cornell research update ● New products

## Preserve soil's organic matter with a balanced compost mix

The best compost needs air, water and a balance of carbon and nitrogen to accelerate decomposition.

by Paul D. Sachs

■ Organic matter is a valuable asset in soil. However, routine cultural practices can often deplete this important natural resource.

When organic matter levels begin to drop, so do corresponding dependents, including the soil's capacity to hold water and nutrients, and the beneficial activities of microorganisms. Soil structure and fertility are also affected.

Building organic matter is not easy, and raising soil organic matter levels significantly is a monumental task.

Decomposition of organic matter is an integral part of the carbon cycle (see figure 1). If carbon dioxide were not evolved from organic matter and cycled back into the atmosphere, plants would be unable to produce protein, carbohydrates, and other carbon compounds.

### Part I of a two-part feature

Green manure crops such as clover or vetch can contribute significant amounts of organic matter to the soil, but it takes time (a year or more) and may be impractical for a homeowner or a golf course superintendent.

Adding compost will stimulate bene-

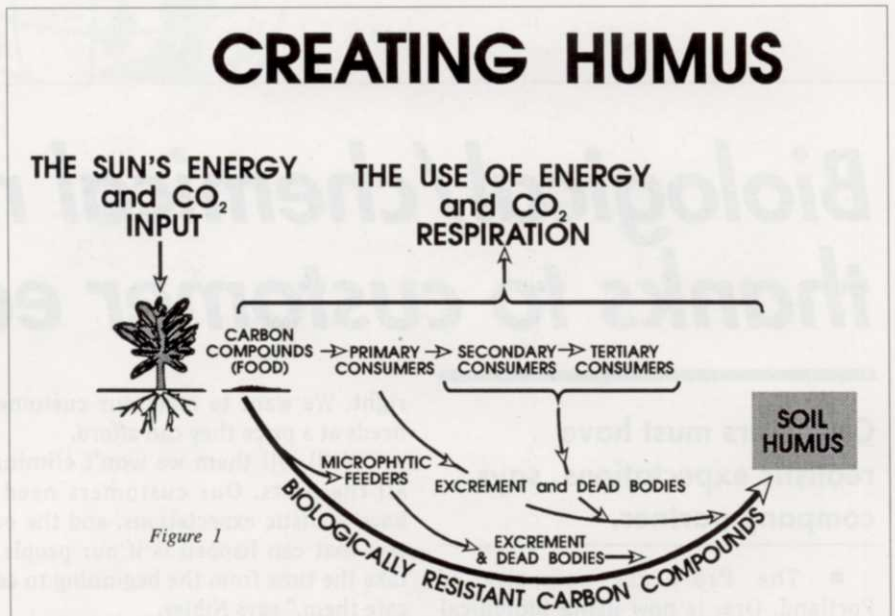


Figure 1

Decomposition of organic matter is an important part of the carbon cycle.

ficial soil functions but compost is not stable humus. Less than one percent of a compost application may actually become stable soil humus (depending on soil conditions, climate, and the way in which the soil is managed). Heavy applications of compost (more than 30 tons per acre) are not recommended because that causes layering, which disrupts the flow of water through the soil. In many situations where organic matter is depleted, adding compost may be an absolute necessity. Repeated applications on an annual basis may be necessary to slowly replenish the soil's organic matter reserve.

However, if cultural practices initially caused the depletion of organic matter, then the problem will eventually reoccur, regardless of how much organic matter is added to the soil. Therefore, know the conditions that cause the depletion of organic matter in the soil and ways to slow down the process.

If you are familiar with making compost and understand what is necessary to speed up the decay process in a compost pile, then it is relatively simple to understand what conditions are needed to slow down that same process in the soil: air, water, a balance of carbon and nitrogen, warm temperatures, and a neutral to alkaline pH to accelerate decomposition.

**Aerate properly.** Bacteria that

decompose organic matter require oxygen to live. Several other beneficial organisms also need oxygen, so depleting the soil of oxygen is not what is being suggested here. However, it is important to examine exactly where and when aeration is needed.

Sandy soils are naturally aerated because of the coarse particle size; core aeration may not be necessary in some places. Heavily compacted areas such as tees and greens may require aeration regardless of soil classification. Topdress with compost after core aeration whenever possible, to balance out some of the organic matter loss from the infusion of oxygen and create better overall soil conditions.

To test compaction, pour a container of water onto a given area and observe how quickly it seeps into the soil. Beware of a super dry surface, which can actually repel water in some cases. This test should be performed on soils that are already slightly moist. Fast absorption usually means plenty of porosity.

In extremely sandy conditions, it may be necessary to reduce soil porosity. Some managers have successfully reduced soil porosity by adding colloidal phosphate, which contains a natural clay that can bind sand particles together. However, it should only be used where soil phosphate levels are moderate to low.

Other commercially available clays have been used with mixed results. Composts or other materials rich in



organic matter will also bind sand, but can decay rapidly because of the large amount of oxygen that naturally occurs in sandy soils. However, applications of compost can significantly increase root production which adds even more organic matter to the soil.

In heavy, high clay soil, tillage may be necessary. However, if organic matter is low, tillage will accelerate the decomposition of organic matter to an even lower level.

Areas that need renovation often are already low in organic matter.

Slit overseeding may be a more prudent practice. On smaller areas, many managers have used tarps or black plastic to kill existing vegetation by cutting off light. If cultivation is necessary on soils already low in organic matter, tilling at a shallow depth is advised.

**Monitor water levels.** Too much or too little water can cause problems.

The bacteria that decompose organic matter are just as dependent on moisture as any other living thing, but common sense dictates that the ideal amount of water for plants is also ideal for the accumulation of organic matter. After all, plants are the main source of it.

If water is supplied through irrigation, it is important to monitor moisture levels carefully and practice watering that encourages roots growth. Some soils may require deep and infrequent watering for maximum plant growth, while others may need a low volume, high frequency program.

Remember, drowning roots can be more stressful to the plant than drought.

### In December: Temperature and nitrogen levels

*Paul Sachs is founder and president of North Country Organics, a Vermont-based manufacturer and supplier of natural fertilizers, soil amendments and environmentally compatible pest controls since 1983.*

*His book, Edaphos: Dynamics of a Natural Soil System, examines ways in which Sachs believes human beings are linked to the ecosystem, and how that link determines the future of civilization. To order Edaphos, call (802) 222-4277.*



## Roots buys RGB

**NEW HAVEN, CT.**—Roots, Inc., the leading manufacturer of biostimulants for turf and nursery, has purchased RGB, the leading maker of chelated micronutrients.

Chelation is a process by which nutrients are made more available to plants.

Roots Chairman Bob Weltzien says

the purchase was motivated by the success of the company's ironRoots products, a combination of micronutrients and biostimulants.

"Roots will now be able to offer the best in both micros and bios," says Weltzien.

Roots will retain all assets and employees of RGB, and will manufacture and distribute out of Kansas City.

## Earthgro, Harmony Products sign production/marketing agreement

**BLOOMINGTON, MINN.**—Earthgro, Inc. and Harmony Products, Inc. signed a five-year marketing agreement on August 15, to sell organic products in areas of high "environmental sensitivity."

Earthgro will be the primary distributor of Harmony's high analysis, slow-release, organic base turf and garden fertilizers for retail and professional markets in the Northeast.

Harmony will be the sole manufacturer of Earthgro's natural fertilizer products in the eastern U.S.

Sources say the agreement will take advantage of Earthgro's wide marketing and distribution networks and Harmony's fertilizer and manufacturing expertise.

The agreement is contingent on certain performance requirements placed on both companies.

Earthgro makes and distributes bagged soils, natural fertilizers and bark products from Virginia to Maine.

Harmony's specialty is its patented, slow-release nitrogen technology.

## Predator insect control topic of new manual

■ Learn about the predator concept of biological pest control in a new book by University of Maryland turf and horticulture scientists.

*Biological Control of Insect and Mite Pests of Woody Landscape Plants: Concepts, Agents and Methods*, is co-authored by Dr. Michael J. Raupp, Roy G. Van Driesche and John Davidson.

Raupp, an entomology professor at the University of Maryland/College Park, has been one of the most noticeable university experts to explore the biological approach as an alternative or supplement to chemical pest control.

Van Driesche is with the University of Massachusetts, Davidson from the University of Maryland.

The authors believe biological control, as an alternative to chemicals, will hopefully avoid the problem of pesticide resistance, pest stimulation and pesticide-

induced outbreaks, as well as possible non-target injury.

The objective of biological control, say the authors, is "to

lower pest densities to innocuous levels and keep them there." Biological control may be achieved by the conservation, augmentation or importation of predators and parasites, or the use of formulated pathogens or nematodes.

The manual reviews biological control procedures, and identifies predators, parasites and pathogens useful in the natural control of harmful pests. The book contains 56 color photos.

The manual was written with support from the Maryland and Massachusetts Agricultural Experiment Stations, the U.S. Department of Agriculture Cooperative Extension Service and Forest Service, and the Mass. Dept. of Environmental Management.

Large orders will receive a discount. To order, contact Steve Rothman, at Agriculture Duplicating, 6200 Sheridan St., Riverdale, MD 20727; (301) 403-4263.

# Bio Grounds Keeper, Sustane join forces

**BLOOMINGTON, MINN.**—Bio Grounds Keeper, Inc. and Sustane Corporation have signed a definitive letter of intent to merge the two companies.

The new company, Sustane Corporation, will be one of the largest producers of organic and biological products for the lawn, garden, turf and agricultural industries. Corporate headquarters will be in Bloomington.

David Henderson, managing general partner of Founding Partners II, a Minneapolis venture capital fund participating in the financing arrangements, will become president and chief executive officer of the merged company.

Craig Holden, president, founder of Sustane in 1987, will serve as executive vice president and chief operations officer.

The new company will be one of the largest makers of organic and biological products for lawn, garden, turf and agricultural use.

Thomas Duffey, president of Bio Grounds Keeper, will serve as executive vice president of sales, marketing and administration.

Bio Grounds Keeper develops and markets organic, biologically-based products for the lawn and turf industries. Its liquid

and dry thatch-reducing products are marketed and distributed internationally and in the U.S. under the Bio Grounds Keeper label.

Sustane Corporation manufactures and markets organic fertilizers made from composted turkey litter for the agricultural and turf industries.

"Organic lawn and turf products have shown steady growth during the past five years," says Duffey, "and we expect that growth to continue due to the proven performance of organic and biological products and increased environmental awareness. This merger will allow us to combine and strengthen our new product research and development programs, as well as our sales, marketing and distribution of natural products."

## Crop Genetics to market Spod-X in U.S., Europe

**Naturally-occurring insect virus controls beet armyworm, a highly-destructive greenhouse pest.**

**COLUMBIA, Md.**—Crop Genetics International (CGI) of Columbia, Md., recently entered into an agreement with Brinkman B.V., in The Netherlands, for exclusive marketing rights to Spod-X, CGI's first environmentally-compatible pesticide.

CGI will market the product in The Netherlands, Germany and Belgium.

CGI and Brinkman also announced the companies had purchased the rights to a Spod-X registration application with the Dutch environmental regulatory agency.

Spod-X is the first of a series of insect virus products to be produced by CGI's InStar division, says Dr. James Davis, head of research and development at CGI.

Spod-X is a naturally-occurring insect

Spod-X is expected to control armyworms now immune to conventional chemical control.

virus which controls the beet armyworm, a highly destructive pest of greenhouse ornamentals, such as chrysanthemums and roses. According to CGI, the pest has become immune to currently available synthetic pesticides.

In early June, CGI received permission from the Environmental Protection Agency to sell Spod-X in the U.S. It had been working with the DuPont Company to develop and market insecticidal virus products, including Spod-X. Under the DuPont/CGI alliance, CGI will market the bioinsecticides through local distributors for certain markets such as greenhouses in The Netherlands. Joe Kelly, president of CGI, says he is looking forward to more marketing arrangements in the U.S. and Europe.

DuPont currently provides Crop Genetics with funding to develop production and purification methods that permit large scale manufacture of insecticidal products at competitive prices. The company has already pledged \$3.75 million for the development of InStar products.

Crop Genetics has leased a newly-renovated production facility that will also serve as company headquarters. Test marketing plans are being prepared, and the first sales of Spod-X are anticipated to be early next year.



**The beet armyworm, after a run-in with Spod-X.**

*Photo courtesy CGI*

Spod-X has shown good control of beet armyworms in field trials, according to Dr. Faith Zwick, project manager for insecticidal virus products at DuPont.

"We believe Spod-X will be a valuable tool for Integrated Pest Management programs, particularly in those areas where beet armyworms have developed some resistance to crop protection chemicals," says Zwick.

The EPA's registration is conditional, and requires CGI to complete one additional study during the next three years. According to Davis, that study will be completed soon.