



RIDING

the bio' wave

Changes in treatment choices mean that it's essential to know what your options are and how to make them work for you.

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The times are a changin', from how you buy to how you hire, from how you market to how you bill. Some changes are good, some seem to be more work than they're worth and some seem to make things more difficult. But whether you approve or disapprove, change keeps coming and it makes it hard to know how to react. In the green industry, a major force for

Broccoli Tree and Lawn Care scouts for predatory insects, like these lady beetle larvae. The population levels of both pest and predator are considered when determining treatment.

change is the expected loss of some conventional chemicals and the advent of less toxic alternatives.

Bio-what?

Some of the newer chemical products seem to be called "biologicals," "biorationals" or "biologically based." Some of these new products — and those being fast-tracked by the U.S. Environmental Protection Agency as part of Food Quality Protection Act (FQPA) — are going to have characteristics that may affect how you do business:

- ▶ shorter residuals
- ▶ reduced toxicity
- ▶ more specific to targets
- ▶ sometimes higher cost.

What does this mean? It means your treatment costs are likely to get more expensive and you will have to time treatments even more carefully. You may also have to increase the number of treatments to get control. For example, borer control

on woody plants would require two to three applications with Talstar® or Turcam® to cover the same 30 to 50 days as Dursban® or lindane.

But don't start wringing your hands just yet. As you learn about these new products and what they can do, you may discover that, by incorporating them into your programs, you can serve a wider range of customers as your focus shifts from application delivery to providing service and information.

Ride the wave

The movement towards biological-based materials is nothing new. Some of you have tried different products over the years and have returned to the tried and true. Others have embraced the use of less-toxic materials or lower, carefully timed applications, finding ways to use them satisfactorily. Many of you market your services as "integrated pest management" (IPM).

The IPM approach is as much a philosophy as it is a plan. But if you are committed to it, the change in the types of chemical products available is not likely to affect how you do business. Inspection visits and spot treatments will not be affected — only the names may change.

If you have more of a treatment focus, however, expect shorter residual controls and higher material costs, as well as other adjustments.

Ease into it

Tom Smith, president of Grass Roots Inc., East Lansing, MI, believes that any



business can begin to incorporate IPM principles at a pace and level that is comfortable. It does not have to be an all-or-nothing proposition.

In fact, according to Smith, attempting to implement IPM in one fell swoop can be a daunting task. Smith recommends implementing certain IPM principles for a gradual transition to a comfortable level. For example:

- ▶ target pesticide applications, both in timing and for specific pests
- ▶ offer additional management services
- ▶ take soil samples to test for fertilizer recommendations
- ▶ develop fact sheets explaining cultural practices and pest problems, in a language your customer can understand.

Grass Roots relies heavily on horticultural oils to manage insects, especially soft-bodied insects. The company also uses insecticidal soaps and started using Mach2 last

year. For weed control, Smith has been using corn gluten meal for some accounts (including his own lawn), and seeing success.

What's rational about biorationals?

While most people understand that true "biological" control refers to predator, parasite or pathogen, the other terms can be a bit more confusing. Even among researchers, there seems to be some difference in how the terms are used:

▶ "Biologically based" products refer to toxins or chemicals that are extracted from biologicals (usually pathogens) or are naturally occurring plant products (botanicals). For example, Bt is a biologically based product because it does not cause an infection in the pest but produces a toxic protein that eats away at an insect's gut lining. Since it is protein toxins that the Bt bacterium produces that are used, Bt is not a "biological."

▶ "Biorational" means biologically (environmentally) rational control materials. This means things that have few or no adverse side effects. It can include synthetic materials like halofenozide (Mach2), which is a molting regulator that affects only a limited number of target insects, true biologicals like Naturalis (contains spores of *Beauveria* fungus) or true botanicals like azadirachtin (Neem, Azatin).

Keep in mind that there are biologically based products that are not considered as biorationals. Powerful biologicals related to botulism and anthrax bacteria, with a broad spectrum of activity (including humans), or botanicals like nicotine sulfate could not be considered as rational control materials.

—Dave Shetlar, Ph.D., Associate Professor of Landscape Entomology at OSU, Columbus, OH

Use your resources

Jody Mills, staff horticulturist with Broccolo Tree and Lawn Care, Rochester, NY, says that the company is only beginning to use some of the newer biorational products

such as Conserve[®], but believes that they will mesh well into the IPM program.

Mills says that the Cornell Cooperative Extension-Monroe County provides them with vital information on pests and their stages. The company also tracks degree-days. Combined, these resources allow Broccolo's

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Broccolo Tree and Lawn Care staff are always on the lookout for insects, of all sizes.

Test it yourself

If you want to be sure a product will fit your needs, test it. Wendy Gelernter, Ph.D., of PACE Consulting in San Diego, CA, says, "The only way to gain more confidence that a management system is the best for your site is to start a testing program."

Self-tests can ensure that the products and practices you choose fit your specific circumstances, conditions, site variations, equipment and management style.

- ▶ Plan your test before you begin; map out your plans
- ▶ Identify and record:
 1. Objectives — "What rate will result in good pest control without damaging the foliage?" or, "How does the new product compare to a product that I have been using?"
 2. Materials — products, rates, application equipment, etc.
 3. Methods — dates of application and evaluation, how the evaluations were conducted, etc.
 4. Observations — descriptions of visual characteristics, numerical ratings (e.g. the weight of clippings) or relative ratings (e.g. assigning estimates of performance on a scale).
 5. Summary — of the answers to your questions.

Do not omit any of these components or it will be difficult to determine what happened during the test or why it happened.

▶ For each test, maintain an area that receives no treatment. Make sure the untreated (control) area is the same size and managed in the same way. Try to have the untreated area and testing plot next to each other, so the sites have similar conditions. And, the two areas should look the same at the start of the test, so you can easily compare the effect of the treatment.

▶ Size it properly. The smallest test plot recommended by Gelernter is 4 x 4 ft. For most small plot work, however, a 5-ft. by 10-ft. plot is convenient for a sprayer that applies a 5-foot-swath width. Or simply divide an area in half, leaving one half untreated and the other half treated.

Finally, once your tests are completed, don't take off your research hat. Follow an unwritten rule of grassroots product and practice testing — share your results with others. □



The test and control sites should have similar conditions. The foreground of this photo shows weed control along a driveway, in Oct. 1998, following two applications of corn gluten meal by Tom Smith in June 1997 and May 1998. The untreated comparison is directly behind.

Corn gluten meal: new weed and feed?

Corn gluten meal (CGM) is the dried protein residue from corn after removing the larger part of the starch and germ and separating the bran. This by-product contains 10% nitrogen by weight. Tom Smith of Grass Roots says two applications a year provides about 4 lbs. N/1,000 ft and unless a property needs phosphorus or potassium, he doesn't need to make additional applications.

It takes a lot of CGM for 1,000 sq.ft. and there is increased material costs. Smith estimates 20 lbs./1,000 sq. ft. costs about \$12 from North Country Organics in Vermont (www.norganics.com). Treatment for a 10,000-sq.ft. lawn would cost a client about \$200. This is a big increase over traditional programs, but Smith says that treating twice a year, as opposed to five or more times, reduces the difference in yearly costs.

While not as fast-acting as traditional preemergents, Smith sees CGM as a viable alternative for some properties. "Clients that are interested in reducing or eliminating pesticide use, clients that are very concerned environmentally and clients that traditionally would not sign up for any type of lawn care," he says. Another client is the City of East Lansing, where Grass Roots has a pilot project for a very visible median, about three acres in size. While the city cannot afford more than a single treatment in the spring (which slows the impact of the CGM), he can still see results, says Smith, who is a CGM distributor. □

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technicians to time inspections and treatments before outbreaks get out of hand.

Educated workers are another resource that the company uses and is committed to fostering. Mills believes that it is essential because they are the people who "make the decisions when on the property, what they're going to treat or how much they're going to fertilize, if at all."

The company emphasizes communication to keep employees informed about pest and disease problems. Mills says, "Employees get a lot of hands-on experience and constant training as to what to be looking for, when to be looking for it."

Keeping employees informed, says Mills, "makes the difference, because we have to count on catching these things at the earliest time."

You're the expert

Probably the biggest stumbling block for most businesses is selling expertise, rather than a service. This is an idea that may take some getting used to, but both

COMMON TURFGRASS INSECTICIDES CURRENTLY UNDER FQPA REVIEW:

Common Name	Examples of trade name	Class	Pests commonly treated
carbaryl	Sevin	carbamate	caterpillars, white grubs, chinch bugs
bendiocarb	Turcam	carbamate	white grubs, chinch bugs
chlorpyrifos	Dursban	OP	mole crickets, caterpillars, fire ants, chinch bugs, billbugs
acephate	Orthene	OP	mole crickets, caterpillars, fire ants
trichlorfon	Dylox	OP	white grubs
isofenphos	Oftanol	OP	white grubs, mole crickets, billbugs, chinch bugs
ethoprop	Mocap	OP	mole crickets

RICK BRANDENBURG, PH.D., TURFGRASS ENTOMOLOGIST, NCSU

Smith and Mills confirm the need to sell expertise, not treatment visits.

Smith says, "Since IPM is information based, rather than product based, it is important to feel comfortable selling service, which is what most professionals sell." Smith compares himself to plumbers, mechanics and other professionals who charge for their expertise.

This is where Mills agrees: "We have to market ourselves more as consultants."

Keep ahead of the wave

Change, including the possibility of the loss of some familiar chemical products arising from implementation of FQPA, is inevitable. Familiarize yourself with the "kinder, gentler products," on your own property if necessary. Don't get blind-sided by new products and new regulations. Know what your product options are and how they can work for you. **LM**

SOME BIORATIONAL CONTROL CHOICES

Brand	Problem
Avid	leafminers, mites
Azatin	broad spectrum IGR
BioNeem	broad spectrum IGR
Conserve	caterpillars, larvae of leaf-feeding beetles and sawflies
DiTera	nematicide
Matth	caterpillars
Meritl	grubs, leaf miners, aphids, etc.
Neemazad	broad spectrum IGR
Mach2	IGR
Hexygon	miticide
insecticidal soaps	
horticultural oils	
Heritage	fungicide
BioTrek	biological fungicide
Spot Less	biological fungicide



Routine monitoring that focuses on trouble spots allows diagnosis and spot treatment before problems become severe. Hot spots near walks and driveways are prime areas for Grass Roots staff to scout for chinch bugs and other pest problems.