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**PROFITABLE PRACTICES: A Guide to Grubs (etc.)**

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With the introduction of several new broad-spectrum turf pest control products, it's hard to tell if grub treatment is getting simpler or more complicated. These seven-in-one-blow products combine ingredients or create new chemistries to target a range of similar turf pests in a single application. But do they really work? Can you guarantee their success with confidence? Early trials suggest sustainable control for the future, yet entomologists have some words of caution.

**What's the big idea?**

Under constant scrutiny from state, federal and grassroots pesticide watch groups, developers of major grub control products are thinking outside the box for a sustainable future. "It's increasingly important to find new alternatives or new ways of using existing chemistries to maintain lawn care operators' expectations," says Michael Maravich, head research scientist of Arysta LifeScience. "There's the possibility that uses of grub control products will become even more stringent, which may limit the product's effectiveness and where it's applied, among other restrictions."

DuPont has explored a new branch of chemistry for its latest grub control product. The industry's been very effective at coming up with new active ingredients, says Chuck Silcox, global product development manager for turf & ornamental at DuPont Professional Products. "For the first 50 years of the chemical industry, only three target sites were being exploited," Silcox says. "Just in the last 15 years, there have been five additional sites."

Other manufacturers have reinvented existing chemistry by enhancing or combining triad-and-tue formulations. Doug Houseworth, research director of Arysta LifeScience, believes combination products will become the standard in grub and other turf insect pest control. "We're at the beginning of a new era in grub control," he says. "I expect other companies will start looking for combinations of insecticides."

It may be a new era, but it harkens back to a different time in lawn care. Twenty years ago, organo-phosphates and chlorinated hydro-carbons provided effective, long-term grub control — with a laundry list of environmental repercussions. Once the persistence and mobility problems were identified, there was no denying the need for change, and the products were abandoned.

In the meantime, focus from specialty chemical companies has been on targeting turf pests with a single active ingredient for maximum effectiveness. Many credit the use of neonicotinoid chemistry for breakthroughs and innovation in grub control. The trend during the next five to 10 years or more, it seems, will be to combine active ingredients and chemistries to wipe out a diverse spectrum of turf pests in a single blow. But with so many new products available, how should you choose?

**Wise up**

You might call them grub control's Big Five. Arysta LifeScience, Bayer Environmental Science, Dow AgroScience, DuPont Professional Products and Syngenta Professional Products have all launched new multiple turf pest control products. Each uses a distinct active ingredient and targets a different combination of turf pests, though all primarily target white grubs. Because each product varies slightly, it's tough to pick just one. Comparisons are important, but you might find yourself considering apples and oranges.

Royalty echoes, "From an economics perspective, it's a lot more efficient to make a scheduled application than to have to make an emergency call because he didn't put a proper treatment down."

It's true that multiple turf pest insecticides for grub control are much less labor intensive than traditional products. In theory, these products address both water and labor shortages by allowing a greater water-in window and requiring fewer follow-up visits. Still, there are no guarantees when it comes to homeowner reliability. The more you educate your client, the more likely he or she will be to follow instructions.

The average homeowner lacks the understanding of the variety of pests that attack the turf, but most know what a grub is, says Royalty. "As a result (and based on the severity of the damage) it's easy for a lawn care professional to demonstrate that if you don't take the steps to treat this, this is what's going to happen."

Think of the impact of a grub control product on your customer, Maravich says. "It's important to follow up, either in person or by phone, with customers several days after application," he says. "Too many LCOs aren't paying attention."

This lack of attention can lead to a lack of profits through increased demand for time and labor — or worse, a loss of business because of customer dissatisfaction.

Another common mistake is misapplication, Royalty says. "The most common mistake comes from equipment not calibrated properly. You can under-apply or over-apply. In addition, preventative products are very forgiving, but there are certain practices and conditions that a guy should follow if he wants maximum performance. Heavy thatch can interfere. After an application, products need to be watered in."

The LCO isn't the one watering the lawn, Maravich cautions. "He's driving in, applying the product and leaving."

Take care in your applications to ensure return on investment. It's difficult to predict when grub populations will be heavy, and even more difficult to know when to react before symptoms show up. "The last thing you want is to get a call — 'What are these brown spots in my lawn?' — requiring you to go out there and do a curative treatment," Royalty says. "You can spend all your time chasing hot spots. But preventative grub control applications are effective 99 percent of the time, and it's one less thing for an LCO to worry about."

**Tunnel forward**

It might be impossible to predict complete turf pest activity in a single season on a single lawn, but R&D departments can speculate on the future of grub control — and it's good practice for future development.

"What will happen in the future is more of an emphasis on trying to predict when grubs are going to be a problem," Royalty says. "We're looking at the lawn as not just a white grub place. It's a year-round ecosystem with all these different insect pests. Also, we'll continue to look at the overall impact on grub control on turf health."

Vitum predicts an ongoing development trend in favor of preventative treatments. "Based on the chemistry currently available and under development, it appears that most grub applications will be on a preventive basis, and there will be fewer options for 'rescue' treatments," she says.

How should applications be made in the meantime?

"We have not yet seen any evidence of resistance to neonicotinoids in white grub populations," Vitum says. "However, with new chemistry becoming available, turf managers should consider alternating neonicotinoids with other modes of action, to extend the life of the neonicotinoids."

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It's impossible to predict whether such alternating treatments will give way to full product integration, but Houseworth forecasts that multiple turf insect pest control will indeed overrule. "It will probably take five years for the academic and research community to fully embrace the new concept of multiple turf insect pest control and work it into their standard recommendations," Houseworth says. "As always with new innovations, it takes time to accept new ways of thinking and doing things. This is understandable; centers of influence mustn't jump too soon to make recommendations of new concepts until they're sure the concepts are valid. They can't afford to be wrong."

So far, they haven't been, and it's led to the generation of a new practice that seems to bode well for LCOs and landscape professionals.

"When I was in graduate school, I couldn't have dreamed of this," Silcox says. "It's amazing how we're getting the low application rates, the low toxicity file and extremely effective control."

"The first thing to do is ignore price per bag," says Maravich. "The prices are going to be all over the board. Dig in, read the labels and look at rates. One bag might cover two lawns whereas a cheaper bag might have less coverage; one might last 14 days, another might last 40. There are big differences in what you get out of a product and the length of the control."

However, one commonality among all these products is the years of extensive, behind-the-scenes research that plays a major role in getting treatments to the market. "It's important to ensure your product has the approval of university researchers," says Nate Royalty, technical development manager for insecticides at Bayer Environmental Science. "A lot of effort has been put in to evaluating the efficacy of products based on research."

It's important to take into consideration which insects affect your area, says Matt Geise, field technical manager for Syngenta Professional Products. "It would be much simpler for turf managers if turf insect life cycles were all aligned to a specific date each year so only a single application of a turf insecticide would be necessary," he says. "Unfortunately, that doesn't happen. Based on weather patterns, individual insect life cycles might or might not overlap in any given season or year, making it difficult to accurately time an application for more than one insect."

"However, the relative longevity of these products does make it possible to address multiple turf insect pests, should their susceptible life stage coincide with the presence of the insecticide."

**Shoot with a target**

Because you can't treat every grub on every lawn, it would be helpful to predict what will strike and when. You can't, of course, but you can time your applications to target the broadest or most threatening range of turf pests. What's essential for your profitability — and for the ecosystem of the turf — is to apply products with a specific target in mind, and not just to try and zap all pests in a single application.

New chemistries in grub control products provide an attractive care program for lawn care operators and landscape professionals. "The new combination products certainly provide some options that should be effective against a wide range of insects," says Pat Vitum, professor of entomology at the University of Massachusetts. "But I have some philosophical difficulties with the concept. In parts of the country where Japanese beetles or masked chafers are the primary grub species, early applications of neonicotinoids — say, mid-May to mid-June — appear to work fairly well in most cases. My concern is that those early applications may not be as effective against tougher species like the oriental beetle or European chaffer."

A turf manager should determine which insect species is the most problematic and apply the product to maximize its effectiveness against that species, she says. "If billbugs are the primary problem, then by all means make a spring application of the neonicotinoid — and you might get lucky and get two for the price of one."

Still, Vitum says she realizes the neonicotinoids, or even more so the combination products, can be a critical part of the insect control arsenal in lawn care. "Most LCOs do not have the luxury of making multiple applications of insecticides," she says. "They're on a budget and need to make decisions in a different manner than golf course superintendents, for example."

Decision-making is crucial to properly manage grubs, says Eileen Buss, extension specialist of the University of Florida entomology department, because we have a responsibility as an industry to not abuse the products we have. "To preventively treat for grubs, you're supposed to have a history of infestation at that site," she says. "If you have a new account and you're trying to sell grub control as part of your service, then preventive means you never want to get grubs at a site."

"To an entomologist, preventive means something different from practionary. We don't ever advocate using insecticides when there's no evidence of a pest present. You should try to time your application appropriately based on history."

**ROI**

Applied effectively, preventative multi-pest turf grub control products can have additional benefits. "If timed correctly, these types of products can save a lot of time and headaches later on when resources become tight towards the end of the budget year," Geise says. "Not having to repair turf damage from 'grub hungry' critters like skunks and raccoons conserves not only time and labor, but keeps managed turf aesthetically pleasing all year long without significant additional inputs."

Maravich also agrees the lawn care operator benefits from this diminished need for labor. "To the LCO, the best way to profit is to have flexibility to apply the product when you choose to apply it," he says.

And the future? Any miracle products in the pipeline that will hit all major pests with a single application?

"That's a next-generation product," Silcox says. "My daughter just started her master's degree in turf entomology. I'm going to leave that to her."

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