

Turf tamers

Why use growth regulators?

Increasingly, the more cogent question is, "Why not?"

By Frank H. Andorka Jr., Associate Editor

Turf control used to be easy. Superintendents mowed fairways and greens to the length they wanted. When the grass grew, they simply mowed it again to the same length.

Lately, however, growth regulators have changed the way turf is managed. Now turf growth is handled chemically, and superintendents can be forgiven if they think they need a degree in organic chemistry to sort out the choices. With so many products on the market, choosing one is difficult. But experts say the best way to find an effective plant growth regulator is to look at the testing data — then figure which one will work best for your course through trial and error.

"It's a long way from a patch of turf at a university to what you'd actually use on a golf course," says John Chassard, superintendent at Lehigh CC in Allentown, Pa. "All those university tests can give you a base from which to work, but you really have to learn how to use them on your own golf course."

Dennis Shepard, director of Primo

growth regulator research for Greensboro, N.C.-based Novartis, agrees. Though the companies that produce the chemicals can provide a superintendent general guidelines for use, only experience tells superintendents exactly the right dose to use.

"No matter what we do in the lab, you're going to find differences in effectiveness depending on your region and how you're using it," Shepard says. "We're still learning, even though we've been manufacturing the products for years."

Growth regulators operate chemically on turf in one of two ways:

- Type I regulators inhibit cell division in the grass.
- Type II regulators stop the turf's production of gibberellic acid, an amino acid that causes grass cells to elongate.

The differences between the regulators don't stop there. In addition to controlling turf growth in different ways, growth regulators are also taken into the plant differently, Shepard says. In general, turf leaves

THE PRODUCTS

Plant growth regulators and the companies that make them:

Product	Company
Proxy	Rhone Poulenc
TGR	Scotts
Primo	Novartis
Cutless	Lesco
Embark	PBI/Gordon

SOURCE: DENNIS SHEPARD, NOVARTIS CORP.; KARL DANNENBERGER, THE OHIO STATE UNIVERSITY

PHOTO: MIKE KLEMM

ulators percolate through the soil and move through the roots. And if things weren't complicated enough, there is at least one exception to these rules: Novartis' Primo. It works like a Type II inhibitor by blocking a specific gibberellic acid, but it is taken in through the leaves.

"We're trying to get the whole classification system changed because the technology is changing so fast," Shepard says.

Novartis proposes changing the classifications to Class A, Class B, Class C and Class D, but those classifications have not become standard yet.

Karl Danneberger, professor in the Department of Horticulture & Crop Science at The Ohio State University, says growth regulators lower costs on two fronts. First, labor costs fall because greens and fairways need fewer mowings. Second, regulators reduce maintenance costs because fewer mowings cause less wear-and-tear on equipment.

When growth regulators first came on the market, knocks on them included reduced root growth, discoloration, thinning of the grass and lack of uniform response by the turf, Danneberger says. Those symptoms, however, have lessened in recent years as new products have come on the market. The advantages of regulators now outweigh the disadvantages, he says.

Andree-Anne Couillard, technical service manager for The Scotts Co., says growth regulators keep grass greener and increase its density, providing a better playing surface for the customer. Marysville, Ohio-based Scotts produces a series of growth regulation products under the TGR banner. TGR regulators move through a plant's roots to inhibit the production of gibberellic acid.

Growth regulators will not work as a panacea for all turf problems, Couillard stresses.

"You have to figure out what your goal is before you apply any of these products," Couillard says. "You also have to pay attention to the labels, and you want to be careful not to overregulate the plants."

Couillard says superintendents need to choose regulators on the basis of season, turf species, maintenance practices and soil type. "Those things will help you decide how much of a product to use, which product to use and when to use it," she adds.

Roy Mackintosh, superintendent at Twin Hills CC in Longmeadow, Mass., says his son introduced him to Primo four years ago and he has used it ever since. Growth regulators, in his experience, allow superintendents to cut grass at lower heights, while maintaining the overall health of the turf.

"It's all driven by golfer demand," says Mackintosh,

TIPS FOR GROWTH REGULATOR USE ON GREENS

1. Consider combining regulators with iron products.
2. Light, frequent rates often work best.
3. Don't lump all growth regulators together — know your specific product.
4. Test tank mixes on small areas first.
5. Keep the greens regulated on a consistent schedule.
6. Treat turf before summer stress sets in.
7. Consider tank mixing with a chelated manganese product as well.
8. Don't skip any applications.
9. Be cautious with fall applications because they will mask the work of fertilizers also applied during that time.
10. Never use a PGR with the sole intent of improving green speed.
11. Be aware that non-foliar PGRs produce a build-up in the soil that needs to be monitored.
12. Granular PGRs can be more forgiving.
13. Keep the mower heights consistent.

who became a superintendent in 1964. "The growth regulators allow you to give golfers the green speeds they demand. They also provide a better root system, better color and more dense turf."

Mackintosh says regulators also condition grass to withstand the stress it undergoes during the season.

"We had a period this year where we had 30 days of 90 degree or better temperatures," Mackintosh says. "Our grass held up well, and I have no doubt that it had a lot to do with the growth regulators."

Chassard has been using Scotts' TGR on his bentgrass fairways to limit the growth of poa annua. He said his turf held water better, and the TGR decreased the poa annua seedhead production at his course.

Danneberger says seedhead reduction was originally an unintended side effect of the growth regulators, but it's now a mainstay in all regulator products.

"It suppresses poa annua and allows for a purer turf to emerge," Danneberger says. "With all of the other advantages regulators offer, this helps make the case for regulators more complete."

Danneberger says research suggests that Embark by PBI Gordon produces the best seedhead suppression, but as with all research, it is not the final word on effectiveness. Trial and error will help superintendents hone their programs, he says.

Like Mackintosh, Chassard says regulators also help him maintain more consistent green speeds and produce smoother putting surfaces.

"There's nothing worse than having someone complain

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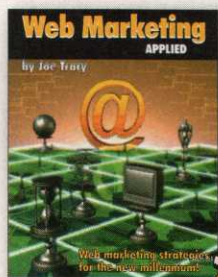
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that the greens were inconsistent," Chassard says. "The complaints dropped off once we started with the TGR."

It also cut his clippings intake in half, which allowed Chassard to cut back on labor costs and kept his machinery sound.

But Chassard does not use TGR exclusively and is looking at using Primo full-time next spring. For now, Chassard mixes low doses of TGR and Primo to work in tandem. While TGR has worked well, changing chemistries has convinced Chassard to alter his approach.

"The Primo allows me to control the application a little better because you don't have to water it in," Chassard says. "There are fewer factors that can mess up an application of Primo and having that control is worth it to me."

It is possible to overdo an application of growth regula-

IN CASE OF OVERDOSE . . .

Tips on how to deal with an accidental overapplication of plant growth regulators:

- Low-cut your grass and collect the clippings to head off foliar absorption of the regulator.
- Use a vacuum to pick up excess granular products.
- Aerate to head off the effects of a watered-in regulator.
- Overwater the grass to leach out products.
- Apply a product containing gibberellic acid as a last resort.

tors, however. Couillard says label instructions should always be adjusted to fit varying circumstances, but be prudent in regulators' use. In case of an accidental overdose, Couillard says superintendents can counteract effects.

"There's a lot of flexibility within the products on how they can be used," Couillard says. "Do your homework. These products can help you out."

Novartis' Shepard says growth regulators have come a long way from the early days of hit-or-miss success.

"We've gone from a situation where no one was sure whether they would even work or not to a situation where people are using them to improve their turf," Shepard says. "When superintendents look at them in the long run, the products pay for themselves."

As more products enter the market, Danneberger says superintendents can only benefit.

"As with any other product, increased specialization will give superintendents more choices to help them produce the best golf courses possible for their customers," Danneberger says. "Once superintendents customize their goals, they will be able to customize a program that will help serve those needs best. In the end, that's what will help make their jobs easier." ■

SOURCE: ANDREE-ANNE COUILLARD, THE SCOTT'S CO.