Article and photos by David Wolff

PGRs: the superintendent's multitool

At Sun City Carolina Lakes, superintendent Aaron Nolan says he has improved turf consistency 20 percent through plant growth regulator use.

New uses for growth regulators seem to emerge daily

Rick Tegtmeier has declared war on *Poa annua*. One of his weapons – the plant growth regulator Trimmit. The director of grounds at the 36-hole Des Moines Golf & Country Club in Iowa uses the chemical on his A-4 bentgrass greens.

"Trimmit helps the bentgrass by holding the *Poa annua* in check and even taking it out," he says. "We have a dense, compact, upright surface that's still smooth in the evening after a day's growth."

Tegtmeier also uses growth regulators in the fairways. For the first two applications in the spring, he uses a combination of Primo and Proxy to control *Poa annua* seedheads. Beginning in mid-June, he switches to Trimmit to slow the growth of *Poa annua* while the bentgrass is actively growing.

"On greens, we apply Trimmit from spring until the first frost," he says. "It's a light application every two weeks. There's another application just after aerification to help control any *Poa annua* that might have germinated."

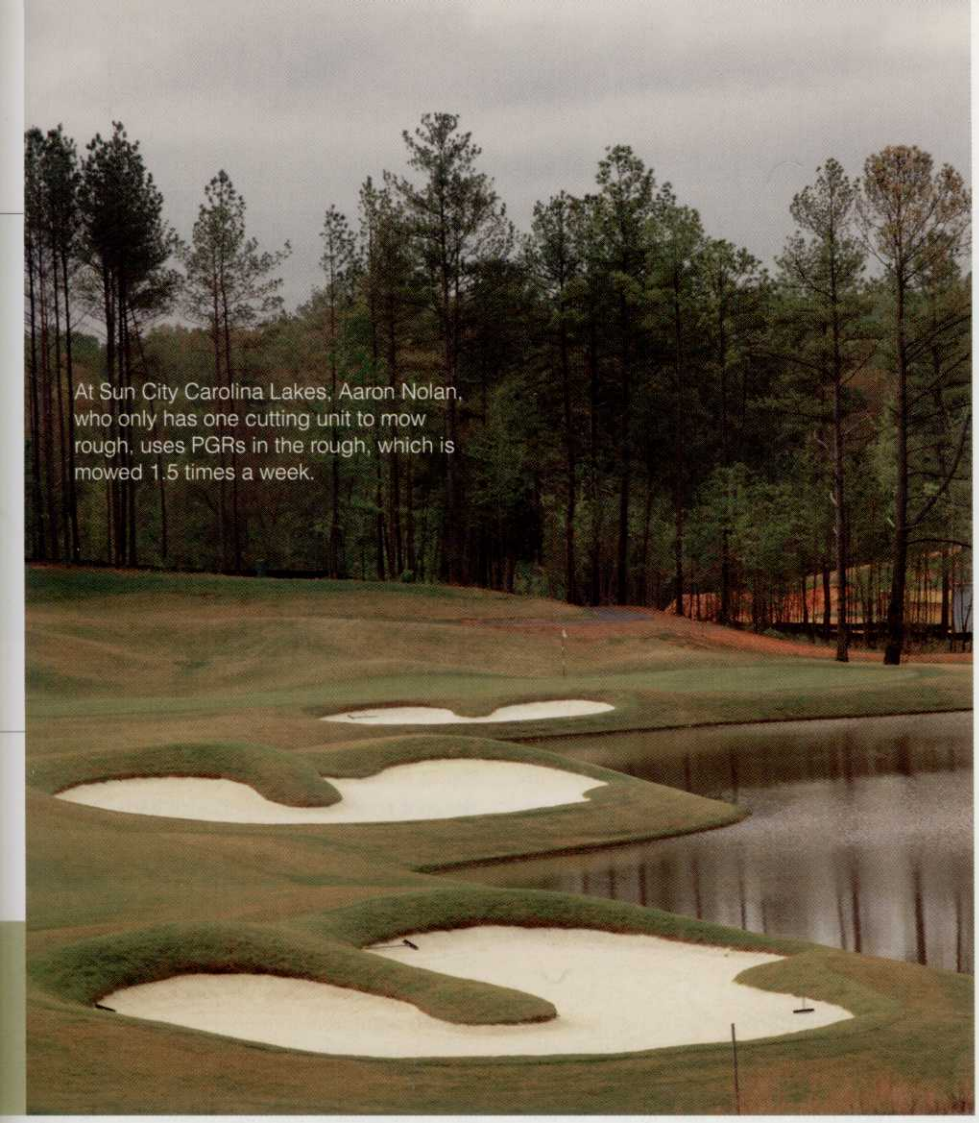
Plant growth regulators have been a veritable multitool for golf course superintendents for many years. Growth-inhibiting PGRs generally are used to control growth of warm- and cool-season grasses and for seed head suppression, primarily with *Poa annua*.

But, more recently, this type of PGR has been used to manage turf stress, especially under drought and shade conditions. Superintendents also use these products to enhance overall turf quality, promote a smooth and uniform playing surface and improve stress tolerance in intensely maintained areas.

CREATIVE USES

While growth reduction generally is the goal of plant growth regulators, a number of other creative uses have been developed, says Nick Christians, Ph.D., a professor in the horticulture department at Iowa State University.

"*Poa annua* control remains a serious problem for golf course superintendents around the world," he says. "One of the creative uses of PGRs has been to use them as part of a carefully structured integrated program to reduce *Poa annua* in golf turf. Giberallic acid-inhibiting (Type II) material doesn't kill the *Poa*, but slows its growth more than bentgrass. Over time, this results in an advantage to the bentgrass. Success depends on the skill of superintendents in adapting the program to their particular situation."



At Sun City Carolina Lakes, Aaron Nolan, who only has one cutting unit to mow rough, uses PGRs in the rough, which is mowed 1.5 times a week.

Color enhancement is another benefit of PGRs, especially with giberallic acid-inhibitor materials.

"This is particularly true with trinexapac-ethyl (Primo), which often results in a darker green color of treated turf," Christians says. "As is usually the case, this response can be highly variable."

PGRs have been used as a tool to improve the overseeding of cool-season grasses into warm-season turf. The goal is to slow the growth of the warm-season grass without inhibiting the establishment of cool-season grass seedlings. With this practice, timing is critical.

"Primo tends to be one of the best PGRs for this purpose because of its foliar absorption and its reduced likelihood of inhibiting the cool-season germination," Christians says.

A critical factor when using this product is that it must be allowed to dry on the Bermudagrass tissue before overseeding takes place.

In northern regions, freeze damage can be a serious problem.

"PGRs slow growth, thicken cell sap and might provide an antifreeze-like effect," Christians says. "A study a few years ago observed enhanced freeze tolerance of annual bluegrass treated with low rates of trinexapac-ethyl. Northern superintendents who often experience *Poa annua* loss during winter might want to experiment with this idea."

One of the factors that limits fungicide efficacy is plant growth, or when the plant contacts are mowed off soon after application. PGRs tank-mixed with fungicides show promise in extending efficacy and reducing fungicide rates needed for disease control. Some PGRs might even directly suppress dollar spot on treated turf.

"Research has shown PGRs can improve shade tolerance of certain species, particularly zoysiagrass," Christians says. "Trinexapac-ethyl has been shown to reduce clippings, prevent scalping, and might improve establishment of new sod and stimulate tillering of Kentucky bluegrass being grown for sod."

SAVE TIME

Labor savings is another reason why David Smith, superintendent of golf and grounds at Abbey Springs in Fontana, Wis., uses plant growth regulators. The 18-hole resort course has a maintenance staff of nine during the peak season.

"WITH THE SIZE OF MY STAFF, I'LL LOOK AT ANYTHING I CAN TO SAVE LABOR."

David Smith, superintendent of golf and grounds at Abbey Springs (pictured)

"We have used Primo very effectively for many years and have reduced our tee mowing by 33 percent," Smith says. "I haven't calculated a dollar figure because we use the time saved to enhance other aspects of the course. And, Primo is effective for five to six weeks after application. On greens, we use it as a stress conditioner."

Smith also uses Proxy to reduce the time spent weed-eating banks and other areas that are difficult to mow. He applies the product to the bluegrass, and it's effective for five to six weeks.

"With the size of my staff, I'll look at anything I can to save labor," he says. "I started using PGRs more than 20 years ago with the original formulation of Embark. Throughout the years, these products have helped me a lot and have been a big time-saver."

CONSISTENT GREEN SPEEDS

At Park Hills Golf Course in Freeport, Ill., the target green speed is 9.5 feet. Superintendent David Fisher uses a combination of PGRs on the 36-hole public facility's Penncross creeping bentgrass greens. The first two applications in spring are a mixture of Primo and Proxy to control varying percentages of *Poa annua* in greens that are 52 and 25 years old. In late spring, Fisher switches to using strictly Primo. In the summer, it's a mixture of Primo and Cutless. Then it's back to straight Primo during the fall. Applications are at two-week intervals.

"This program allows us to have a little higher height-of-cut and still maintain the green speed we want," Fisher says. "We use triplex mowers and generally cut at 0.11 inch. The PGRs control growth and let us maintain our desired green speed a little longer throughout the day."

Fisher has a program for fairways, but it's only implemented in the spring. Between April 15 and May 15, Fisher applies a combination of Primo and Proxy. Fairways – a mixture of Kentucky bluegrass, ryegrass and *Poa annua* – are cut at three-quarter inch.

"We do this strictly for seedhead control," he says. "In the spring, there's a surge of growth, and it can be messy in the fairways after we cut them. PGRs regulate the growth and make clippings more manageable."

CONSISTENT CONDITIONS

Aaron Nolan, superintendent of Sun City Carolina Lakes in Lancaster, S.C., applies plant growth regulators wall-to-wall at the 18-hole public course. Primo is used extensively in July and August during the heaviest growing period for 419 Bermudagrass.

"At this property, growth regulators relieve mowing stress and give us a consistent height-of-cut," he says. "But our biggest goal is consistent playing conditions. We don't mow fairways every day, and without PGRs, the grass tends to get a little shaggy during the nonmowing days."

The story is a bit different for the roughs. Because Nolan only has one cutting unit for the rough, it's mowed 1.5 times a week as opposed to the two or three times he would prefer.

"This is a large property, and we want to provide a consistent height-of-cut," he says. "I refer to growth regulators as 'liquid labor.' We don't have a large staff, but we're expected to deliver top conditions. These products help us achieve that."

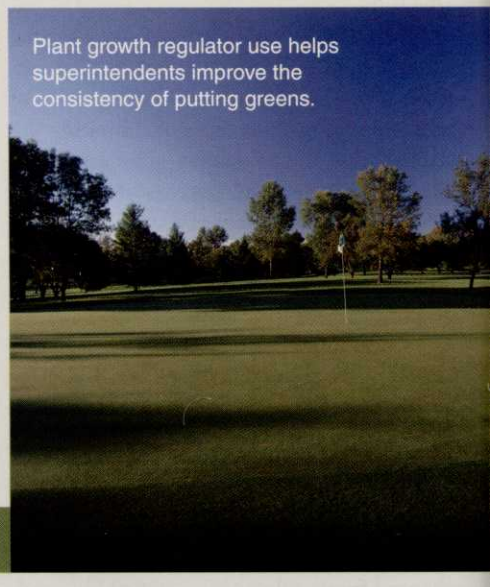
Again, the rationale for PGRs on greens is different. The primarily G-2 bentgrass surface is mowed daily, and it's necessary to maintain consistent green speeds of 9.5 to 10 feet throughout the day.

"On greens, we use a combination of Primo and Cutless," Nolan says. "The Primo absorbs on top as a foliar product, while Cutless works in the root zone. In my experience with bentgrass greens, if there's a 30-percent population of *Poa annua*, this combination works best to suppress *Poa* seedheads. When we aerify in spring and fall, I use Trimmit, which again is effective for *Poa annua* suppression or removal."

So how does Nolan sell the extensive use of growth regulators to management?

"Taking a big-picture view, how important is this relatively modest expenditure when the goal is consistent playing conditions?" he says. "Through the use of PGRs, we've increased our consistency by 20 percent, and that speaks for itself." **GCI**

David Wolff is a freelance writer based in Watertown, Wis. He can be reached at dgwolff@charter.net.



Plant growth regulator use helps superintendents improve the consistency of putting greens.

Turn to pages 76 and 78 to read about how two superintendents purchase and use plant growth regulators.