

TGR has been used as a retardant by some course managers.

"It's put on a fertilizer carrier and taken up into plant roots. It causes a retardation of all plants, but it retards the poa for a longer period of time than Embark. The bent recovers sooner and spreads."

The Sharon Country Club has used TGR experimentally on one fairway. Prior to the experiment, the poa/bent ratio was 50/50. That ratio has improved considerably, to a full 90 percent bent growth.

Dobie is not using TGR on putting greens, but a number of golf course superintendents have, including Ken Aukerman of Weymouth Country Club in Medina, Ohio.

"I applied TGR on four greens last fall at normal rates," says Aukerman, "and it killed the poa too effectively, resulting in brown spots. Then it rained, and there were yellow areas on the greens. But by spring, they greened up beautifully."

Aukerman treated all the Weymouth greens this fall, and, as predicted, they started to green up on the 21st day following treatment. Now, the Weymouth greens consist of a mere 10 percent *Poa annua*, as opposed to 90 percent before the applications.

Niven did much experimental work with Embark a number of years

ago, and says that that product is best prescribed for seedhead control rather than poa control.

Niven recommends using Embark in early spring, just before seedheads

form. It will effectively stop seeds for four or five weeks. If, however, a manager attempts to correct a bad first application by a repeat treatment, there

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A herbicide for poa

For many golf course managers, Prograss, from Nor-Am Chemical, remains the product of choice for controlling *Poa annua*.

"Nothing worked on *Poa annua* until we tried Prograss," says Roy Hourigan of the Harmony Landing Country Club in Goshen, Ky.

"We used it on one ryegrass fairway in the late fall of 1985. We applied two treatments a month apart at a gallon per acre. After the second application, I could tell the poa was starting to die. By the time I slit-seeded and got a stand in the spring, my fairway was about 90 percent ryegrass."

Hourigan has used Prograss on all Harmony's fairways since 1986, and says some areas have converted from nearly 100 percent *Poa annua* to about 80 percent ryegrass.

"We'll use it at the lower rate every fall as a maintenance program."

"We tried Prograss on our fairways and roughs in the fall at a ½-lb. per acre rate," says Niven, who applied it on ¾-inch bent fairways. There was minor discoloration, but the poa looked thin by the end of November. By April, it was overcome completely. We used it at a higher rate on bluegrass roughs, with equally good results."

Prograss was originally labeled for ryegrass, overseeded Bermudagrass and bluegrass, but recently expanded its use to fairway height bentgrass.

"We're very optimistic about Prograss's performance," says Don Maske, district manager for Nor-Am. "A number of superintendents whose courses have bentgrass fairways are trying the product and expanding further into a Prograss program."

—Terry McIver □

POA 'PROBLEM' IN THE EYE OF THE BEHOLDER

by Eliot Roberts, The Lawn Institute

An annual bluegrass, often referred to as *Poa annua*, comes close to being a universal grass. It can be found from east to west and from north to south wherever there is sufficient moisture for seeds to germinate, produce a new plant which can flower and yield a few more seeds.

Only a very short growing season is required to produce seed. Even under close mowing of golf putting greens, annual bluegrass will seed and perpetuate itself nicely.

As long as temperatures are cool and moist, annual bluegrass flourishes. When temperatures increase to produce the slightest stress on the plant, annual bluegrass weakens quickly. Shallow roots and disease

susceptibility are often cited as causes for this growth recession and ultimate demise of annual bluegrass-infested turf.

For as long as turf managers have been in existence, there have been two schools of thought for dealing with annual bluegrass. The first is to live with it. Keep it alive by providing for its needs in times of stress. This often has meant frequent light watering to keep it cool; use of fungicides and applications of fertilizer formulated to help it resist wilt. Low nitrogen and phosphorus with high potassium during the summer months work well. At other times of the year, practices that favor other basic grasses are emphasized to help establish a healthier, more competitive turf that will crowd out the

annual bluegrass. Unfortunately, most of these practices, such as core cultivation, thinning to control thatch and adjusting clipping heights, also favor annual bluegrass.

Killing it

The second school of thought has been to kill it by whatever means will work best under local conditions. Many different types of chemicals have been tested with varying degrees of control. But annual bluegrass is such a heavy seed producer that soils contaminated with seed are hard to clean up. Thus any practice takes a long time to really show progress. Growth regulators are being used to cut back on seed production that in time helps reduce annual bluegrass

populations. With all the chemical control methods recommended, annual bluegrass is still a major contamination in fine turf.

It's interesting that annual bluegrass isn't completely annual. Some plants are biennial and others perennial. Some produce a lot more seed than others. Some are more tolerant of high temperature and drought stress than others, and some winterkill more readily than others. It's this genetic diversity that makes them sometimes friend and sometimes foe. But

there is no question about the poor appearance of lawn or sports turf that has had large patches of annual bluegrass die out in the middle of the summer as a result of environmental stresses.

As a member of the faculty of the Agronomy Department at the University of Massachusetts some time ago, I recorded changes in plant populations over a steam tunnel in front of Stockbridge Hall. Annual bluegrass (shown below) was a major contributor to the changes observed.

Although many faculty and students on campus failed to understand what natural ecology was taking place on that steam line, we can learn something about the persistence of annual bluegrass and how nature has provided for its survival.

Try to live with it, or try to control it: either way, you are confronted with a grass that can be at its best one minute and at its worst the next. Some call it a basic grass; others a weed. It's all a matter of when you look at it and for how long.



1. In August, soil temperatures above the steam line were 80°F or higher through the root zone. No grasses or weeds could survive these conditions and all vegetation died. Note that on either side of the line, Kentucky bluegrass turf looked good.



2. As fall temperatures cooled the soil down to the 50s and 60s, annual bluegrass seed, already in the soil from the previous spring, germinated and produced a dense stand of nearly 100 percent bluegrass. By November, the annual bluegrass looked better than the Kentucky bluegrass on either side. Students and faculty commented on what a fine job we had done to improve the appearance of the turf. They thought we should seed the whole campus with what they perceived to be a new miracle grass.



3. Even in March, as the snow melted above the steam line, the annual bluegrass was green, and looked superior to the dormant Kentucky bluegrass on either side.



4. In early April, with the snow all gone and spring warming of soils under way, on either side of the steam line the Kentucky bluegrass was recovering nicely from its winter dormancy. Note that on the line the annual bluegrass had already turned yellow-green and had started to produce seed.



5. By the last part of May, not only was the annual bluegrass seeding all up and down the steam line, but seed along the edges of the line had germinated and produced plants that were also seeding. The massive quantities of seed produced by this grass at a one-and-a-half-inch lawn height of cut are evident. Annual bluegrass, when flowering like this, results in very poor quality turf.



6. As the end of June approaches, soil and air temperatures increase to a point at which the annual bluegrass wilts and weed seeds start to germinate. Soil moisture content and soil temperatures vary at the onset of wild depending on the management of the lawn or sports turf.



7. In mid-July, the steam line has become populated with nearly 100 percent spotted spurge. Some crabgrass is also evident. With increasing temperatures, even these weeds die out to leave only a cover of dead vegetation.



8. But that's not the end. Because of that heavy crop of seed produced back in April and May, there is plenty of annual bluegrass to reestablish the steam line again.