Field Notes

RYEGRASS + POA RETARDATION = POSSIBILITY OF SUCCESS
A Poa Annua Fairway Conversion Program

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Anyone struggling to maintain annual bluegrass fairways knows the most basic problem — the incompatibilty of water requirements for annual bluegrass and the drier fairway conditions favored by today's better golfers.

At the North Hills Country Club, a suburban Milwaukee club founded in 1929, innovative solutions to problems are a part of its rich heritage. Most credit for much of the progressive thinking goes to Robert Musbach, golf course superintendent for the past twelve years, and a willing greens committee that realizes that the golf course is always in a state of evolution.

Past Poa Management Practices

The uniqueness of many of North Hills attributes precipitated the development of intensive Poa management practices. Located in what could be termed the "bottom of the saucer", steep southern facing slopes greet the hot sun. Limited or no topsoil overlying heavy clay soils provide marginal infiltration of any water. Drainage patterns that flow across adjacent fairways and natural springs that come to the surface a few days after a rainfall required the development of a Poa management program almost entirely on a fairway by fairway basis.

To nurse 70 to 85% Poa annua fairways through the summer stress period meant a management practice of syringing. Syringing fairways up to five times a day during the hottest parts of summer to keep them lush, green and playable is an easy way to lose popularity around the clubhouse.

In an effort to combat Poa and to make our fairway management program more livable, a bentgrass overseeding program was started in the mid-60's continuing into the 70's. This program was doomed to failure as there was nothing to keep the aggressive Poa from smothering the new seedlings. Chemicals to inhibit Poa's competitiveness were implemented into the program in an effort to increase the bentgrass overseeding success. Bensulide compounds, Maleic Hydrazide and Chlorofluorenol compounds and arsenicles were used extensively during that period with no significant reductions in the Poa populations. There was no corresponding increase in overseeding success.

Experts from industry and educators from universities were called in for advice and their impressions as to why the products were ineffective. Conclusions reached after those visits all suggested our clay hills provided unequal water distribution, soils slow to warm up due to our northern slopes, and heavy forest property boundries created a micro-environment ill suited for success. Viable bentgrass seedlings could not compete with the Poa.

North Hills Special Blend

As membership attitudes began to change about wet lies and syringe cycles interfering with play, Superintendent Musbach and the greens committee met in the fall of 1981 to develop a management program that would in the end mean a reduction in water and chemical costs. The best way to accomplish that goal would be the reduction of Poa annua populations in our fairways. The save the Poa mentality was no longer alive.

Solution to this problem seemed simple at first. Use glyphosate herbicides to burn off the fairways and overseed with desired turfgrass species. The only problem to this approach was that it was not acceptable to the membership. Alternative solutions had to be researched and that is how a rye-bluegrass blend played an important part into the development of what we call the North Hills special blend.

Key to the development of this program was a personal decision on the part of Superintendent Musbach of just not wanting to babysit wet turf for the rest of his career. Fostered by the knowledge of being backed by a greens committee that agreed with the turf philosophy of less maintenance and that over-grooming was not always the best, research into the types of turfgrass species that could be adapted to our own golf course was initiated.

A great deal of time and money has been spent in the development of improved turfgrass cultivars. Selection of those used were evaluated for color, drought-heat resistance and crowning depth as it relates to cold and wear tolerance. The texture had to be fine. The plants had to be low thatch producers. They had to be non-aggressive in their vigor and spread to keep any one particular species from dominating the stand. Natural dwarfing was a must for close mowing in a high maintenance environment. Disease and insect resistance was an important consideration.

In the absence of chemical control, quick germination to compete with the Poa would be a great insurance policy toward the survival of the stand.

In pouring over many turfgrass evaluation reports, it was learned that ryegrasses root well in clay and they would compete well with Poa. They were allelopathic in nature. (Roots producing a chemical that makes the plant more competitive for the same space with other plants.) New developments in bluegrass cultivars to withstand a lower height of cut in a drier fairway environment also looked attractive.

A blend of 70% ryegrasses and 30% bluegrass was designed to give us the best results for our golf course.

The ryegrasses chosen were Delray, Fiesta and Palmer. Bluegrasses selections were Banff, Parade and Rugby. These varieties were selected to fill a specific need and should not be considered a recommendation for other cultural situations.

Common fears of using ryegrasses and bluegrasses on country club fairways are disease, specifically Pythium spp. and

height of cut. Pythium can be a big problem on southern overseeded greens. Historically in Wisconsin, the Pythium season has ended by the time fall seeding starts and drier summer fairway conditions should reduce disease threshold levels. The bluegrass banff was discovered on a putting green and should tolerate the close fairway mowing height of one half inch. Ryegrasses have been used on southern greens for years.

Rubigan

Rubigan was introduced to us in the spring of 1982 as an experimental fungicide being manufactured by the Elanco Products Company. If not for the enthusiasm of a local distributor and the knowledgeable products rep, this fungicide might have largely gone unnoticed. What separated this fungicide from others and interested us the most was a precautionary statement Rubigan carried on its label — that the continued use of the product could cause the gradual reduction of Poa annua. Having that knowledge, coupled with the fact that the use of glyphosate herbicides were unacceptable to our membership play, Rubigan used as a Poa growth regulator might prove to be the difference between a successful or unsuccessful overseeding program. Overseeding with bentgrasses proved to be a disaster when slit seeded. We used chemicals that were popular then, but they failed to depress the vigorous growth of Poa.

Rubigans safety to existing desirable turfgrass was investigated by talking to the University professor who had spent a great deal of time researching the new product. Armed with that information, the decision to use the produce was an easy one to make. Now we had a tool that complimented our overseeding program as well as providing the disease protection we demand.

A total of 104 pounds of Rubigan was used in 1982 on 20 acres of fairway turf. Rubigan was sold to us under an experimental label and only one thousand pounds of chemical was manufactured for research. This represented 10% of the entire production of Rubigan marketed for experimental use was used at North Hills that year.

The product was applied using an FMC Bean mist blower outfitted with a one way volute calibrated to deliver twenty gallons of water to the acre. Disease control was above average. At the cumulative dosage rate of 1.2 oz. of Rubigan, we began to detect the growth regulation effects. Symptoms were first observed on our shorter mowed green front approaches where higher concentrations of chemical per leaf surface area were applied. (Where the droplet size remains the same, the lower the height of cut means a greater concentration of chemical resides within the shorter leaf blade. The larger the grass blade, the more dilute the chemical becomes reducing the growth regulator effect.)

The growth regulator effect on Poa was detected by these symptoms of general chlorosis of leaf tissue and an overall stunting of the plant. Rubigan acts in susceptible turf by reducing the plant's ability to make gibberellic acid. This results in a reduction in normal cellular elongation. Expansion of bentgrass into these weak pockets was observed by detecting stolon growth. Rubigan had no effect on our overseeded rye-bluegrass blend. (A product bulletin states that bentgrass seed could be harmed by Rubigans growth regulator effect for overseeding purposes.)

We reached a total of 2 ounces per one-thousand square feet or five pounds per acre in 1982. In 1983, a cumulative total of 2.4 ounces of Rubigan was applied.

One precaution with the use of Rubigan quickly comes to mind and this is competition from weeds. Where the once vigorous Poa kept week expansion in check, clover and chickweed found a new place to roam. Fairway herbicides should be budgeted for to check any weed resurgence.

Overseeding

About the first of August 1982, only natural rainfall irrigated our fairway turf in an effort to dry out the seedbed and to further stress the Poa. The overseeding started on August 15th. Seeding was accomplished by using a Jacobsen-Rogers slit type seeder calibrated to deliver sixty pounds of seed to the acre. As soon as the fairway was planted, it was irrigated heavily to re-wet the soil profile to a depth of six inches. Screwdriver probes were used to check the depth of moisture penetration. The ryegrasses were seen to germinate within four days of the seeding. Watering was as needed and was cut back upon seeing the majority of seedlings reach the three-leaf stage. To date we have three seedings in the ground and the plan is to continue this overseeding program for another five years.

Summary/Conclusions

As the trend toward drier fairway playing conditions continues to grow into the next decade, Poa annua management will become more of a headache. The use of the newer rye and bluegrass cultivars might provide the type of playing conditions demanded by today's golfers without sacrificing any quality. Rubigans growth regulation side effect on annual bluegrass should leave the door open for the establishment of other desired turfgrass species as well as providing fungicidal control.

What we are attempting to accomplish is to put the right plant where it is best suited within the scope of the fairway environment. The bentgrasses will remain where its stolens can stay cool. Ryegrasses will compete and displace the Poa and bluegrasses will survive along the fairway edge where limited irrigation water reaches due to sprinkler radius. To date we have not had any complaints about the newer turfgrasses going off color or turning dormant after receiving some summer stress. We feel we will see a definite savings in our overall fairway maintenance program through the reduction of fungicides, fertilizers and water use.

This program is an inventive attempt to solve the Poa annua management problem we faced here at North Hills. Similar solutions may not be acceptable to the membership at your club. But, if you find the idea of reducing your fairway maintenance headaches attractive, there might be a place for a similar approach to a Poa annua management reduction program on your golf course.