

Regrassing Fairways

Converting to new turfgrasses is an opportunity to improve fairways at your golf facility and enjoy the benefits for years to come.

BY DAVID A. OATIS



Perennial ryegrass has a darker green color and grows more upright and more rapidly than creeping bentgrass and annual bluegrass. Not only does this make it stand out like a sore thumb in fairways and approaches, it contributes to uneven playing surfaces.

Millions of dollars have been invested in developing new and improved turfgrasses for the game of golf, and golf facilities and golfers the world over have benefited tremendously as a result. Homeowners and many other sports enthusiasts have also benefited, as turf varieties developed with USGA funding are found on home lawns and sports fields all over the globe. A wide variety of different criteria are utilized in the selection process, and new turfgrasses have many desirable traits. The truth is that some of these new grasses fea-

ture major improvements over varieties and cultivars that were available just 10 to 20 years ago. What kind of improvements? For starters, reduced water consumption, increased wear tolerance, deeper rooting, finer texture, more upright growth habit, increased tolerance of environmental stress, and greater resistance to key fungal diseases. For golfers, converting to these improved grasses can translate to better turf and playability. For golf facilities and turf managers, better turf is of course of great interest as well, but even more so because new, improved turfgrasses

often require fewer resources and pave the way for considerable long-term savings.

Hopefully the value of using improved turfgrasses already piques your interest, but the story actually gets much better. As already noted, new grasses represent significant improvements over the varieties that were commonly used 10 to 20 years ago, but the difference is even greater when comparing the newest grasses to those that exist on older fairways common to most golf facilities throughout the Northeastern U.S. If your course is



Fairway contours often lose their original alignment over time, sometimes getting farther from the hazards that were designed to guard them. Regrassing is an opportune time to restore original fairway contours and alignment.

more than 20 years old and has not had its fairways regrassed since construction, then you need to pay attention because this message is for you.

For the last 30 years or so, most new fairways in the Northeast have been planted to creeping bentgrass. The fairways on many other older courses, despite not being originally established with creeping bentgrass, have gradually been converted to bentgrass through a variety of practices, including lightweight mowing, interseeding, and use of plant growth regulators (PGRs). However, the vast majority of these older fairways remain contaminated with other undesirable grasses as well. Annual bluegrass (*Poa annua*) is the most common invader, but roughstalk bluegrass (*Poa trivialis*) and perennial ryegrass (*Lolium perenne*) also are commonly found in older fairway turf in the Northeast. Fairway turf quality has improved dramatically over the last 20 to 30 years, largely due to improved mowing and cultivation practices and technology. In fact, the turf on many older fairways produces good playability and is reasonably reliable. However, these older fairway grasses frequently require more inputs

when compared to newer grasses. A major attraction of regrassing is the ability to substantially reduce management costs. Reliability and playability can be improved at the same time.

If your fairways fall into the category of being “pretty good” and “pretty reliable” and you have the resources to maintain them in their current state, then you may not be interested in upgrading right now. However, the benefits of regrassing older fairways are tremendous, and once you realize how much better these surfaces can be and how much less expensive they are to maintain, you may change your mind.

WHAT IS REGRASSING?

Regrassing involves killing the existing vegetation, followed immediately by replanting. It sounds disruptive, and regardless of how good or bad your fairways currently may be, the prospect of killing the turf often makes them seem much better than they really are. It is easy to forget all the shortcomings of the current fairway turf, even if it has a history of poor performance, when the time comes to begin the conversion. By the way, it is a virtual guarantee that your fairways will never look better than

they will the day before you kill them. Just seems to work that way when regrassing projects are undertaken.

The process is not intended to “eradicate” annual bluegrass per se, though some may choose that approach. Regrassing is intended to eradicate most of the other undesirable species, such as perennial ryegrass and *Poa trivialis*, which are more objectionable. There are billions of weed seeds (annual bluegrass among them) in the soil, and glyphosate, the non-selective herbicide most often used when regrassing fairways, only affects live plants. Glyphosate, commonly sold under the trade name RoundUp®, has no impact on the seed bank in the soil; thus, the process eliminates all existing vegetation and paves the way to re-establish the fairways with a new variety of bentgrass, usually along with some annual bluegrass.

Assuming the project is properly timed and implemented and sound cultural practices are employed afterward, bentgrass will remain the dominant species. If you choose to follow up the regrassing project with PGR and/or herbicide treatments, a nearly pure stand of creeping bentgrass can be achieved. Why not just eradicate the annual bluegrass altogether? Many fairways have areas of dense shade and heavy traffic, and these are areas where bentgrass struggles. In fact, annual bluegrass is better adapted to these conditions than bentgrass, so having some annual bluegrass in certain areas can help overall turf coverage and performance.

TIMING

Timing is critical to success, and early August is the ideal time to regrass fairways in the Northeast. This allows for rapid germination and establishment of creeping bentgrass with reduced competition from annual bluegrass. Taking the fairways out of play for a short period of time is critical to the success of a regrassing project.

Annual bluegrass is classified as a winter annual, and its primary germination period starts in September and continues through October. Since annual bluegrass germinates and establishes faster than bentgrass

during these months, bentgrass desperately needs the competitive advantage of an early August seeding date to become well established. In fact, seeding in early versus middle or late August will produce very different results. Early August seeding translates to a higher percentage of bentgrass being established than annual bluegrass. Seeding later in August or in September may result in more annual bluegrass becoming established than bentgrass. Taking the fairways out of play and beginning the process around August 1st often works best. Furthermore, annual bluegrass control programs, if desired, can be implemented earlier in the fall given that the bentgrass will be better established with an early August seeding date.

Assuming typical growing conditions, the new stand of bentgrass will fill in rapidly, and mowing can resume approximately two to three weeks after seeding. With good growing conditions, full turf coverage can be achieved in as little as four to six weeks.

GOLFER INCONVENIENCE

The golf course must be closed for at least three weeks in order to apply the non-selective herbicide to kill the existing vegetation, perform the cultivation and seeding, and to water frequently to promote germination. It is impractical and counterproductive to have golfers present while this phase is underway because the juvenile turf is so vulnerable to damage from foot and cart traffic. Closing the course to play for several weeks during August and September is a tough sell for most golf facilities, and while the material costs for the project are not very high by most standards, the lost revenue can be significant. Regrettably, there currently is no practical way of getting around the need for course closure, and subjecting tender new fairway turf to heavy traffic too quickly can severely reduce the quality of the finished product. Being protective of the new turf will yield much better long-term results. Assuming an ideal planting date, good germination and quick seedling development, the following minimums are recommended:

- The course must be completely closed for a minimum of three weeks after seeding.
 - Foot traffic may be permitted on the fairways beginning three to four weeks after seeding.
 - Play should be restricted from the fairways for four to six weeks after seeding.
 - Keep cart traffic off fairways for at least six to eight weeks after seeding.
- While regrassing all fairways at once has its advantages, there are a number

- receive all of the traffic and divoting, and this can compromise its long-term quality.
- Mow the intermediate rough a little wider, and after the initial three-week mandatory course closure, golfers can play to the fairway, but then lift and place their golf balls in the intermediate rough to play toward the green.
- For many golf facilities, biting the bullet and getting it all done at once is the least offensive approach.



Once the fairways are treated with a non-selective herbicide to kill existing vegetation in preparation for seeding, it is important to not traffic the fairways too soon as it may cause inadvertent and unwanted damage elsewhere on the golf course.

of options for doing so with less golfer inconvenience. Following are a few examples:

- Regrass a few fairways each year until all are completed. The risk here is that once the worst fairways have been regrassed (because it is usually the worst fairways that are regrassed first), the appetite for completing the remaining holes often dwindles.
- Regrass nine holes each year, so that an 18-hole golf course always has nine holes open for play. This allows the project to be completed in two seasons.
- Regrass half of each fairway in two consecutive seasons. The risk is that in year two, the new fairway turf will

Performing all the regrassing at once is also the best way to ensure the most consistent turf conditions going forward because all the turf is the same age and from the same seed source or batch.

To facilitate play during the regrassing process, private facilities often develop reciprocal arrangements with neighboring golf facilities. As long as several nearby courses agree to take on the extra play, the burden can be shared to minimize inconvenience. Reciprocal arrangements generate some additional revenue for the other golf facilities accepting the extra play, and the rounds played at other facilities can be "repaid" in kind the following year.

Unfortunately, there is no escaping the fact that there will be some golfer inconvenience. Good organization can minimize the disruption, and the resulting improvement in fairway turf quality will make it all worthwhile.

HOW IT'S DONE

As the saying goes, "There are many ways to skin a cat." Just the same, there are many ways to regrass fairways. However, the following steps provide a good framework for what is required:

- Carefully outline the exact contours of fairways with paint in early spring before the turf breaks dormancy. Some choose to start this process the previous fall. This should be done with the aid of a golf course architect.
- ◆ It is extremely difficult to get contours exactly right the first time, so a benefit of starting this process a year or more in advance is that it provides more time to fine tune any adjustments.
- ◆ To maximize herbicide coverage and efficacy, apply the glyphosate to healthy turf maintained at a mowing height of 0.5 to 1.25 inches. Coverage may suffer if the turf is significantly lower or higher.

Scalping the turf down right before the herbicide application is not recommended and may result in reduced herbicide efficacy.

- ◆ Expanded areas can be maintained as intermediate rough or fairway turf until August, when the regrassing program is implemented.
- Do not apply a preemergence herbicide in the spring, as this could compromise seed germination in August. Postemergence products are a better choice for controlling weedy grasses.
- Fertilize the existing turf a week or two prior to the glyphosate application with approximately 0.25 to 0.50 pounds of actual nitrogen per 1,000 square feet. The objective is to get the turf healthy and growing rapidly to maximize herbicide uptake and efficacy.
- Experiment with some type of baffle or shield over the outside nozzle of the spray boom to obtain a clean glyphosate spray line. Overlaps in the treated areas will not cause problems, but misses and overspray into the rough will.
- Apply glyphosate to the fairways.
- Cultivation work can commence 24 hours after glyphosate has dried on the turf. The mode of action is slow,

but glyphosate is absorbed by the plant very quickly. Thus, waiting 24 hours after the herbicide has dried on the turf is sufficient.

- Prohibit golf cart and maintenance traffic on the treated fairways. Driving through the treated areas could track the herbicide into non-treated areas and cause unwanted damage elsewhere on the golf course.
- One of the most common pitfalls in regrassing is the failure to adequately cultivate the soil. The result is poor seed-to-soil contact. There are several critical steps in the cultivation portion of the program, and they are as follows:
 - ◆ Aerate with or 5/8-inch-diameter hollow tines on close spacing (ideally 2.5 inches by 2.5 inches). If a significantly wider spacing is utilized, such as 3 inches by 4 inches or more, it may be necessary to aerate in two to three directions.
 - ◆ Verticut deeply in two directions after the fairways have been aerated. Independent verticutters or older style slit-seeders work very well for this. Note that the seeder boxes need not be attached since it is only the verticutting that is desired. The seed will not be applied in this step.
- Drag the fairways to break up remaining cores and to smooth the surface once cultivation is complete. The debris can then be blown into windrows and removed.
- It is important to have clean topsoil handy in the event that pieces of dead thatch/turf become dislodged following the cultivation process.
- Drop creeping bentgrass seed at a rate of approximately 1 to 1.5 pounds per 1,000 square feet.
 - ◆ Choose the bentgrass variety carefully. This is not the time to bargain shop because it will be your fairway turf for many years to come.
 - ◆ Purchase weed-free seed. The importance of this cannot be emphasized enough. *Poa trivialis* is a common weed contaminant in seed lots, and it is difficult to control once established. Thus, take great care to purchase seed that is



Do not cut corners on aggressive cultivation, because it is essential to create a good seedbed for a successful bentgrass grow-in.



Newly planted seed must be watered lightly and frequently throughout the day. Assuming optimal timing and growing conditions, germination will occur in three to seven days. It is imperative to close the golf course to play for at least three weeks during the regrassing process.

free of *Poa trivialis*. Independent and rigorous seed purity testing should be performed to ensure this.

- ◆ Save seed samples from each seed lot as an insurance policy. Contamination problems rarely become obvious in the first couple of years, and having a sample would be helpful if problems arise later.
- Seeding chewings fescue along with the bentgrass provides some insurance in the event take-all patch (caused by the fungus *Gaeumannomyces graminis*) is experienced the following year. Because this disease is caused by a root-infecting fungal pathogen, it is much more common with new construction sites or soils that have been recently fumigated rather than regrassing into established fairways, but it is still a possibility.
- Depending on soil tests, apply a traditional starter fertilizer, usually at a rate of 0.5 pound actual nitrogen per 1,000 square feet, after the final seedbed preparation work is completed.

- Lightly brush or roll the fairways to ensure good seed-to-soil contact.
- Irrigate lightly and frequently throughout the daylight hours. Unless the weather is extremely dry and windy, it is best to hold off on watering at night. This can reduce chances of experiencing damping-off, a fungal disease caused primarily by *Pythium* and *Rhizoctonia* spp. that targets turfgrass seedlings.
- Depending on the weather, granular *Pythium* spp. control products may be a wise investment.
- Assuming reasonable weather, you should begin seeing germination within three to seven days. The new fairway turf will need to be mowed within two to three weeks from the initial seeding, and it is important to use lightweight mowers equipped with solid rollers. Triplex greens-mowers are recommended for the initial mowings and for the cleanup pass around fairway perimeters on an ongoing basis. Five-plex mowers outfitted with solid rollers will be adequate once the turf achieves a sufficient level of maturity.

MANAGING EXPECTATIONS

Regrassed fairways have much better initial playability than turf seeded into bare soil for the following reasons:

- Regrading is not required when fairways are regrassed, so compaction is minimal and soil structure remains intact.
- There is no surface unevenness or potential for soil settling, which are typical of newly constructed fairways.
- With smooth surfaces, mowing is less damaging to the turf and there is less potential for scalping. As such, initial mowing heights can be lower with regrassing projects. This will help to speed establishment, and good turf density can be attained more rapidly.
- A significant amount of cultivation must be performed to create a good seedbed, but some old thatch/mat will remain intact. This organic layer helps prevent erosion problems, which are common when seeding into bare soil. The existing thatch-mat layer also will cushion the new stand of turf and provide greater resiliency against cart and foot traffic when play resumes. The fairways

will look new, but they will not play like it because the thatch-mat base is already intact.

Some annual bluegrass will become established with the bentgrass, and the biotypes that establish first will likely be weaker ones that will seed prolifically the following spring. Frequently, regrassed fairways may be “white with seedheads” the following spring, and detractors may claim that the project failed. Some may be tempted to prevent seedhead formation with PGR treatments, but this will actually strengthen the annual bluegrass and make it more competitive. The best approach is to let it seed, because once the seeding cycle is over, those annual bluegrass plants will turn yellow and their health will decline drastically. This will correspond with the seasonal increase in the growth rate of the bentgrass. With lightweight mowers and possible use of PGRs, bentgrass populations will quickly crowd out much of the weaker annual bluegrass. Fortunately, the seeding cycle will have little impact on playability, but it may be mid or late June before the fairways look their best.

IT SOUNDS EXPENSIVE

In reality, regrassing fairways is not very expensive, but there can be hidden costs. Following is a brief rundown of potential costs likely to be encountered:

MATERIAL COSTS

- Non-selective herbicide (glyphosate): approximately \$25 per acre.
- Creeping bentgrass seed (seeding rate of 1 to 1.5 pounds per 1,000 square feet; \$12 to \$14 per pound of seed): \$525 to \$915 per acre.
- Total material costs: \$550 to \$940 per acre.

POSSIBLE ADDITIONAL COSTS

- Architectural fees for recontouring and/or realigning fairways.
- Outside contractor to assist with and expedite renovation and seeding processes.
- New sod to reestablish the edge of roughs and create sharp contrast with the fairway turf. Most find that this is well worth the additional cost.

- Revenue will undoubtedly be lost. The course will have to be closed for a minimum of three weeks and possibly as long as six weeks.

LONG-TERM SAVINGS

Controlling pests and diseases should cost less with top-performing new bentgrass cultivars, but how much depends on many variables. Pest and disease pressure at your particular facility are primary considerations. Dollar spot is the disease that is most treated in golf turf management, and new bentgrass cultivars are much more resistant to this particular disease than older varieties. The same is true of snow mold diseases that also require treatment. Therefore, it is reasonable to expect a reduction in the number of fungicide applications. For some, treatments could be reduced by as much as 40 to 60 percent. Given typical fairway acreages, the cost savings would be impressive. In fact, some golf facilities could recoup the material costs of the regrassing project in just one year.

- Realize that there is a learning curve with maintenance of new grasses, particularly with respect to their disease resistance. It is difficult to “trust” the new grasses, especially when conditions are extremely favorable for disease activity.
- It is normal to be overprotective with new fairway turf, and golfers who invested in the project and tolerated the inconvenience often will be

impatient if conditions are not ideal. Thus, it is critical to incorporate a number of untreated “control” plots whenever pest control applications are made. This is the best way to fully appreciate and demonstrate the new turf’s disease resistance. Treating pest and disease problems on the new bentgrass in the same way as the previous stand of turf will obviate half the benefit of regrassing in the first place.

VALUE ADDED

Golf courses have a way of changing very gradually over time. Putting greens usually shrink, approaches often become narrower, and fairways seem to wander a bit from their original dimensions. Regrassing fairways offers a terrific opportunity to shift and realign them, and this can have an extremely positive impact on aesthetics and playability.

Regrassing fairways is not for the faint of heart. It takes vision and fortitude to gain approval from golfers for this type of course improvement project, but, when properly implemented, a few weeks of inconvenience can yield years of improved playability, reduced water usage, and lower maintenance costs. So, if your fairway turf quality and playability aren’t what you’d like them to be, it is not necessarily a problem, but an opportunity.

DAVID OATIS is director of the USGA Green Section’s Northeast Region.



Through the process of regrassing to a new stand of bentgrass, fairways will transition from green to brown and back to green again in just four to five weeks.