BY BRIAN WHITLARK

# A new era for overseeding preparation strategies

**Strategies to prepare bermudagrass fairways for overseeding in the Desert Southwest have changed dramatically over the past five years.**

Overseeding bermudagrass fairways and primary playing areas remains an important part of business in operating a golf facility in the southwestern U.S. Only a decade ago, many facilities designed their business model around a seven-month cycle from November through May. By far, this seven-month period was the most important window for facilities to generate revenue for the entire year. The absence of golfers during the remaining four or five months was common, as "snowbirds" fled north to escape the heat. Recognizing the importance of the overseeding season and conversely the relative insignificance of the summer season, golf facilities would very aggressively verticut, scalp, and generally mangle the bermudagrass in October to prepare a seedbed for establishment of a ryegrass cover turf. The following summer, the agronomic staff would spend four or five months reviving the bermudagrass to a level that would provide a suitable surface for the next overseeding period. The bottom line was that the quality of the bermudagrass playing surface during the summer was not a priority.

Oh, how times have changed. The term "snowbirds" is no longer appropriate, as it seems that most golfers live and play golf year-round in the Desert Southwest, or only leave for short periods of time. To meet the demands and expectations of summer golfers, facilities have had to modify their practices to provide good playing conditions throughout the year, not just during the winter season when the golf course is overseeded. Gone are the days when the bermudagrass was verticut and scalped to the ground. Turf practitioners have learned that seeding into a healthy bermudagrass canopy yields similar overseeding quality without the need to damage the bermudagrass prior to winter dormancy.

What are the benefits of less aggressive preparation strategies for overseeding?

- Less-aggressive verticutting and scalping will yield a more robust bermudagrass plant that will enter the winter dormancy period with greater carbohydrate reserves that will serve as food and energy for the plant when it greens up the following summer.
- The wear and tear on equipment required to verticut, scalp, and even line-trim the bermudagrass down to the ground is costly. It is also tough on the staff. Less aggressive strategies preserve the equipment and are easier on the staff while producing quality overseeding conditions.
- Overseed preparation time is reduced. Therefore, seed can be sown sooner after closing the course, which provides more time for ryegrass to germinate and mature prior
- The reduction in labor allows facilities to shift those resources towards completing other projects.
- Air quality improves significantly when facilities perform minimal overseeding preparations. Moreover, neighboring homeowners with backyard swimming pools will be very pleased.

The new era of overseeding preparation was forged by a few pioneers in the industry and has continued to evolve in recent years. The remainder of this article will summarize the three most successful strategies golf course superintendents have used over the past five years to prepare for overseeding in the Desert Southwest.

**THE SIMPLEST APPROACH IS OFTEN THE BEST.** It seems that at least 50 percent of the golf courses that overseed have a history of fair to poor bermudagrass recovery in

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Overseeded ryegrass quality is excellent at the Desert Highlands Golf Club in Scottsdale, Ariz., where the sand topdressing method is used to prepare for overseeding.

the summer. It is these facilities where the simplest overseeding approach makes the most sense. Consider the following simple, effective plan to overseed the golf course while avoiding aggressive practices that will injure the bermudagrass prior to winter dormancy:

- It is not recommended to verticut, but if verticutting is employed, the depth of the blades should be set ¼-inch above zero or higher. Verticutting blades set below this depth may cut stolons and injure the crown of bermudagrass plants.
- Increase mowing heights by 25 to 35 percent two weeks before overseeding preparations begin. For example, if mowing at 0.400 inches, increase the height of cut to a range between 0.500 and 0.550 inches.
- About one week prior to overseeding preparations, consider spraying triclopyr (Turflon Ester Ultra) at 16 ounces per acre to slow bermudagrass growth. An alternative option is to apply trinexapac-ethyl (Primo) at a rate of 10 to 15 ounces per acre. In general, when overseeding preparations begin after Oct. 15, chemical growth regulation is typically not required due to cooler temperatures and less chance of bermudagrass competition
- Scalp bermudagrass at or just below the summer mowing height. For example, if the summer fairway height of cut is 0.400 inches, and the height of cut increased to 0.500 inches prior to overseeding, the scalping height should be set around 0.375 to 0.400 inches.
- Clipping debris may be left on the surface to be used as mulch for the incoming ryegrass.
- Continue to irrigate with a goal to maintain adequate soil moisture and to avoid soil drying. Dry thatch and organic matter are difficult to rewet and will complicate matters during seed germination.
- At this point, the bermudagrass will still be green, but it is ready for overseeding. Once the seed is applied, some turf managers will use reel mowers set at the same scalping height to mow the seed into the turf canopy. Another option is to use steel drag mats to encourage the seed to feed into the bermudagrass understory.
- Following the first or second mow on the new stand of ryegrass, it is suggested to spray a growth regulator such as Primo to promote ryegrass tillering and increase density.

Although some turf managers have been apprehensive to adopt this new strategy, those who have tried it are pleased and will never go back to the days of scalping the bermudagrass down to near dirt. The necessity for seed-to-soil contact is a myth when overseeding. The bermudagrass canopy will help to protect new ryegrass plants, especially once cart traffic is allowed on overseeded areas. The ryegrass roots eventually find their way into the soil.

**BURN-DOWN HERBICIDES MAKE THEIR MARK.** This idea has been around for many de-

Close observation of bermudagrass fairway treated with pelargonic acid (Scythe) reveals green stems underlying the burnt leaves. The burn-down process simplifies overseeding preparations without damaging the crown of the bermudagrass plant.

cades but has seen a resurgence of late. As recently as five or six years ago, it was common for golf facilities to spend more than $10,000 to haul away green waste, or organic debris, generated from aggressive fairway renovation prior to overseeding. However, within the last few years, superintendents in the Palm Springs area began experimenting with chemicals such as pelargonic acid (Scythe) and diquat (Reward) to expedite overseed preparations. Superintendents found that the "burn-down" herbicides reduced the need for aggressive mechanical practices, reduced green waste production and related air quality problems, relieved wear and tear on equipment, saved on fuel, and reduced the labor associated with overseeding preparations.

Recognizing an opportunity for research, Dr. Jim Baird, turfgrass specialist at the University of California at Riverside, evaluated the relative effectiveness of these herbicides when compared to traditional verticutting, flail mowing and scalping in the fall of 2011 and again in 2012. The research, which can be found at bit.ly/185vFoR, revealed the following key points:

- Triclopyr (Turflon Ester Ultra) sprayed prior to any mechanical disruption at 16 ounces per acre enhanced bermudagrass suppression when combined with diquat, pelargonic acid, or glufosinate (Finale).
- Burn-down herbicides resulted in an approximately 75 percent reduction in green waste when compared to a combination of flail mowing and scalping. However, scalping alone at a height of 0.250 inches produced similar green waste and ryegrass establishment when compared to the burn-down herbicides.
- Although Scythe burns turf the fastest, the research suggests that Reward offers the best combination of cost, bermudagrass growth suppression, green waste reduction and speed of activity.
- When applied appropriately, none of the herbicides reduced ryegrass seed germination or growth.
- None of the herbicides tested resulted in delayed bermudagrass recovery the following summer.

The popularity of the burn-down herbicides increased rapidly over the past two overseeding seasons. Through communication with several superintendents in the Palm Springs and Phoenix areas, the following suggestions are offered regarding the use of diquat and pelargonic acid to aid in overseeding preparations:

- It is suggested to apply Turflon Ester Ultra at 16 ounces per acre prior to spraying burn-down herbicides, or pelargonic acid may be tank-mixed with triclopyr (Mahady, 2011) with equal effect.
- Application timing is important. It is suggested to apply diquat 3 to 5 days before seeding or pelargonic acid three days prior to overseeding and to continue with nightly irrigation (excluding the evening of the same day the herbicide is applied). Application timing is critical to avoid any negative effects on ryegrass germination and to maximize bermudagrass suppression.
- In the fall of 2012, superintendents were successful applying diquat at rates ranging from 22 to 32 ounces per acre. Best results from Scythe are found when spraying a 10 percent volume-to-volume (v/v) solution. However, a 7.5 percent v/v solution tank mixed with triclopyr at 16 ounces per acre will achieve similar results (Mahady, 2011). Scythe burns the bermudagrass faster than Reward (brown bermudagrass is typical within 3 to 4 hours of spraying Scythe and within 12 to 24 hours of spraying Reward). However, Reward offers longer bermudagrass suppression and is more cost-effective when compared to Scythe. For this reason, Reward has been the preferred choice for superintendents in the southwestern U.S. when treating large acreages.
- In the Phoenix area, superintendents reported no vertical mowing following herbicide application and scalping heights ranging from 0.325 to 0.425 inches. Scalping height was reportedly lower in the Palm Springs area at 0.250 to 0.350 inches.
- Most superintendents reported a significant reduction in green waste when compared to historically used methods such as verticutting and scalping.
- Superintendents received significantly less complaints from golfers and neighboring homeowners regarding air quality or debris in their backyard swimming pools.

**Left:** Aggressive fairway renovation prior to overseeding creates air quality problems, is tough on equipment and staff, and creates a large amount of organic debris that results in expensive disposal costs. **Top right:** The practice of aggressive verticutting during overseeding preparations was common five or six years ago, but this is very damaging to bermudagrass as it prepares for winter dormancy. **Bottom right:** Despite the green color and dense bermudagrass cover, this fairway is ready for overseeding. This example of minimal overseeding preparation is typical throughout the Desert Southwest, and facilities are benefiting from the departure from the aggressive strategies employed in the past.

• Superintendents also reported reductions in labor, fuel usage and wear and tear on equipment when using burn-down herbicides.

**SAND TOPDRESSING REPLACES SCALPING AND VERTICUTTING.** This strategy does not involve any aggressive mechanical preparation or herbicide application but does provide the facility with a plan that will continue to improve overseeding, bermudagrass transition and golf course playability for many years to come. Rather than verticutting, scalping or applying a burn-down herbicide, consider sand topdressing to facilitate overseeding preparations. Phil Shoemaker, director of agronomy at the Desert Highlands Golf Club in Scottsdale, Ariz., topdresses overseeded areas with approximately ¼-inch of sand (approximately 40 tons per acre). The topdressing application is completed within two days with the help of an outside contractor. The Desert Highlands GC staff smooths the sand with a Keystone steel drag mat, and they follow with seeding ryegrass at 500 pounds per acre. Shoemaker prefers to mow the seed into the canopy at a height of 0.350 inches, which is the same fairway mowing height used prior to over-seeding preparations. Shoemaker is quick to point out that nightly irrigation continues throughout this process. The goal is to maintain adequate soil moisture and avoid dry conditions that make rewetting the soil profile very difficult. Within 3½ to 4 days after course closure, the sand is applied and the seed is sown and ready for multiple irrigation events throughout the day. Primo is applied prior to sand topdressing at a rate of 11 ounces per acre, and weekly applications at 3 ounces per acre follow once the ryegrass has been mowed several times.

Shoemaker noted that prior to the sand topdressing method, when the facility employed verticutting and scalping, $12,000 to $15,000 was spent on green waste removal. Although the sand topdressing costs about $22,000 to $24,000, the facility is only spending about $10,000 more that it had previously. Eliminating the aggressive mechanical practices has saved more than just fuel, labor, equipment wear and tear,and garbage bin costs. The sand has significantly improved over-seeding quality and the ability of the bermudagrass to recover the following summer. Furthermore, after seven years of this program, the fairways drain better than ever and members enjoy the firmer conditions and additional ball roll.

The three new techniques used by superintendents in this article have proven to produce quality overseeding conditions while minimizing inputs required for overseeding preparations. Furthermore, these new strategies have also proven to reduce or eliminate damage done to bermudagrass prior to winter dormancy. A new era of over-seeding strategies has been ushered in, and the benefits are significant. **GCI**

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## Reference

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