



A Transition Success Story At Desert Mountain

By Fred Yelverton

Desert Mountain is a private golf course community in northern Scottsdale, Ariz., that has six Jack Nicklaus Signature courses. The turf species at Desert Mountain are typical of the area — Tifway bermudagrass on tees, fairways and roughs and creeping bentgrass putting greens.

Like many courses in the desert Southwest, a vast majority of member play occurs from November through May of each year. Because of this, the bermudagrass is overseeded each fall.

As is typical in the Southwest, perennial ryegrass overseeding rates are high (typically in the 600 pounds per acre range, although many other courses in the Phoenix area use higher rates) and the bermudagrass is aggressively scalped just prior to overseeding to prepare a good seedbed for the perennial ryegrass.

Shawn Emerson, director of agronomy at Desert Mountain, overseeds five of the six courses, and overseeding dates range from mid to late September through mid-October. Perennial ryegrass growth must be aggressively promoted in order to re-open the courses for member play between late October to mid November.

Perennial ryegrass growth and the resulting

appearance on the overseeded golf courses is striking. The desert climate with high light intensities, warm winter temperatures and low humidity results in very healthy perennial ryegrass. The perennial ryegrass fairways, tees and roughs, with the desert landscape as a backdrop, provide for some of the more beautiful golf course scenery anywhere in the world. The aesthetics, along with ideal playing conditions that include very healthy bentgrass putting surfaces, combine for great winter golf.

Then the month of June arrives. Late spring and early summer is an interesting time for turfgrass management in the desert. Temperatures can often reach triple digits in the day but cool down significantly at night. In addition, the relative humidity during the day is extremely low and often in single digits.

Evapotranspiration rates are also very high during this time of year. As a result, the perennial ryegrass continues to thrive even as daytime temperatures climb into the 90s and low 100s. Bermudagrass wants to green up and grow, but the perennial ryegrass is still very healthy and provides a thick canopy over the bermudagrass.

Because bermudagrass is highly intolerant of

The Desert Mountain course shows the beauty of perennial ryegrass overseeding.

shade, the health of the underlying bermudagrass starts to rapidly decline. As July approaches, day temperatures continue to climb but night temperatures still drop considerably with humidity levels remaining low. The bottom line is perennial ryegrass continues to thrive and the bermudagrass health continues to decline.

In the Scottsdale area, perennial ryegrass will continue to survive through July and often into August. At that time, higher humidity coupled with routine daytime temperatures in the 100s results in perennial ryegrass death. That is where the problem arises.

Perennial ryegrass in the Scottsdale area can grow about 11 months of the year. If it is allowed to remain in without removal with herbicides, the underlying bermudagrass can die. By August the canopy shading from perennial ryegrass has been so intense that bermudagrass either thins significantly or completely dies. Shading of bermudagrass by perennial ryegrass is exacerbated in roughs where the higher mowing heights result in more canopy shading of bermudagrass.

This is the problem for many courses in the Scottsdale/Phoenix area. Aesthetics and winter playing conditions are great, but once the perennial ryegrass dies in August, the underlying bermudagrass is thin due to competition from perennial ryegrass. This problem progresses over time. After several years of heavy overseeding and allowing the perennial ryegrass to die naturally, the bermudagrass is nonexistent on many areas of the golf course.

At Desert Mountain, Shawn Emerson was

interested in reversing this trend of losing bermudagrass. Because an increasing number of members were staying in the summer, the membership at Desert Mountain was interested in improving summer playing conditions.

In addition, Emerson and the agronomic staff at Desert Mountain understood that a healthy bermudagrass base would make overseeding easier.

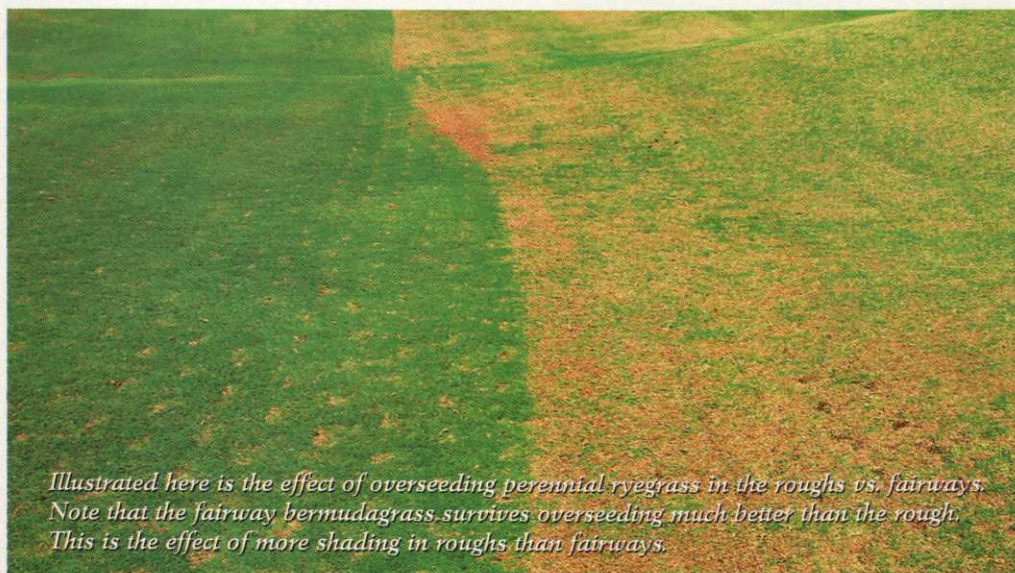
For instance, it is much easier to grow perennial ryegrass in a healthy bermudagrass base than it is on bare ground. In addition, the staff

Tracking of these products onto bentgrass greens is a concern.

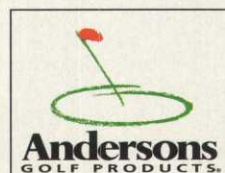
also understood that a healthy bermudagrass base and the resulting healthy perennial ryegrass stand would help reduce problems with annual bluegrass (*Poa annua*).

In cooperation with Emerson and his staff, an aggressive management plan was initiated to re-establish bermudagrass on the five overseeded courses. This was a three-year plan because all interested parties realized that recovery of the bermudagrass could not take place in one year. The plan was comprehensive and included issues such as fertility, water quality, plant growth regulators and mowing heights. However, the most significant part of the management plan included transitioning the perennial ryegrass out with herbicides in late spring/early summer.

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Illustrated here is the effect of overseeding perennial ryegrass in the roughs vs. fairways. Note that the fairway bermudagrass survives overseeding much better than the rough. This is the effect of more shading in roughs than fairways.



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The plan was initiated in the fall and winter of 2002-03. The objectives of the three year plan were essentially met after two years, which was one year ahead of schedule. With bermudagrass successfully re-established, the membership and club management have justifiably recognized and praised Emerson and the agronomic staff at Desert Mountain.

New herbicides. As previously mentioned, the most significant part of re-establishing bermudagrass at Desert Mountain was getting rid of the perennial ryegrass before it would voluntarily die. The objective was to use herbicides to remove the perennial ryegrass as the bermudagrass was attempting to grow in late spring/early summer.

The goal at Desert Mountain was to provide bermudagrass 100 days of growth without perennial ryegrass competition.

With overseeding dates from late September to early October, the perennial ryegrass needed to be completely gone by about mid to late June. This would provide the needed 100 days for bermudagrass recovery. Even though bermudagrass does not grow as much in late June and early July in the desert as it does in August (when humidity is higher), removal of the ryegrass allows the bermudagrass to green up and begin to initiate its growth. More importantly, however, removal at this time prevents bermudagrass from dying.

In the spring of 2003, foramsulfuron

(Revolver) was registered and available for use on golf courses. Revolver belongs to a relatively new class of herbicides called the sulfonylureas (sometimes referred to as SU herbicides).

Prior to release of this product, another sulfonylurea, metsulfuron (Manor or Blade), was available for use. Rimsulfuron (Tranxit) was also available but was not registered in the state of Arizona at that time.

From previous research, it was known that Revolver would selectively remove the perennial ryegrass very rapidly. Typically, it kills ryegrass in 10 days to 21 days whereas Manor or Blade take a little longer (20 days to 28 days). The advantage Revolver provided was that it allowed the Desert Mountain agronomic staff to leave the perennial ryegrass in longer because it kills the ryegrass faster.

In addition, Revolver also kills annual bluegrass whereas Manor or Blade do not.

In the spring of 2003, Revolver was used extensively at Desert Mountain. The rate utilized was 18 ounces of product per acre (0.4 ounces per 1,000 square feet). Timing of application varied depending on which of the five courses management wanted to remain open. But the objective was to provide 100 days (or as close to that as possible) of bermudagrass growth without perennial ryegrass.

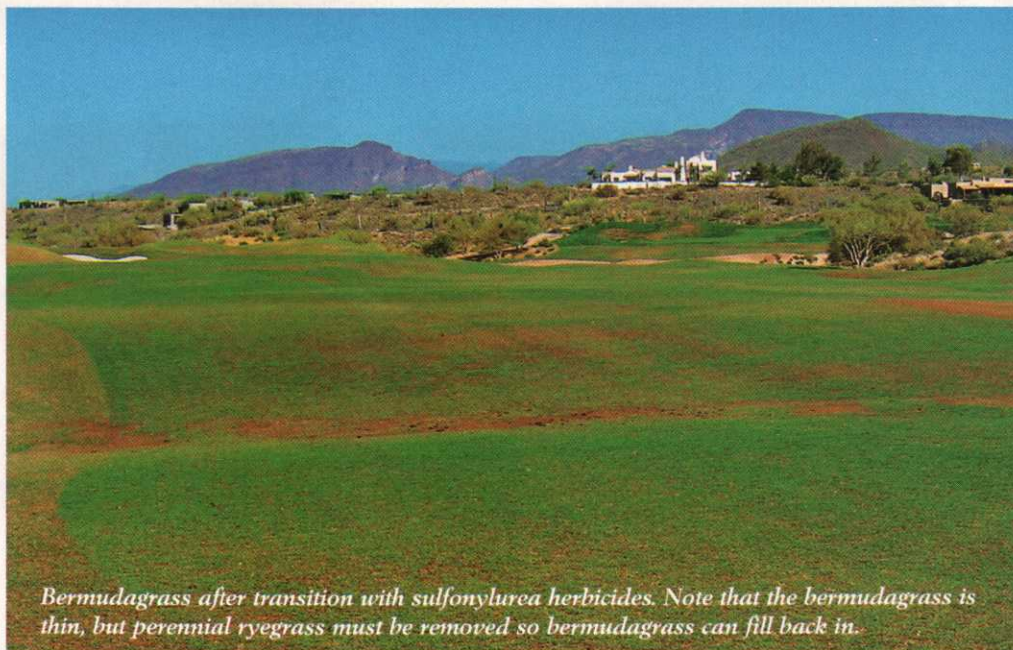
Once the perennial ryegrass was completely dead, the overall health of the bermudagrass was easily evaluated. In many areas on the golf course, sprigging, seeding and sodding had to

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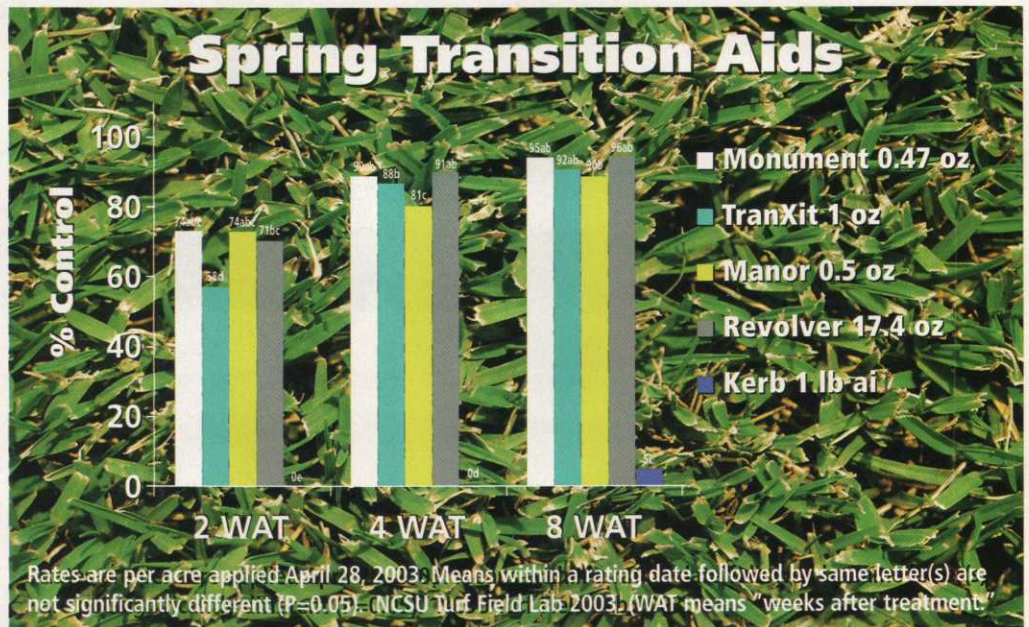


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Bermudagrass after transition with sulfonylurea herbicides. Note that the bermudagrass is thin, but perennial ryegrass must be removed so bermudagrass can fill back in.



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take place. In many areas, the bermudagrass did not look very good but management and the members had been warned that it would look bad during the early stages of this management plan. Management had to be reassured that this was the correct course of action to take. However, the recovery of bermudagrass by the end of the first summer was dramatic.

By the time fall overseeding was to take place in 2004, everyone knew the management plan was working and it was just a matter of time before the bermudagrass completely recovered.

During the spring of 2004, the decision to spray out the ryegrass was much easier to sell. Also, during the winter of 2003-04, trifloxysulfuron (Monument), another sulfonylurea herbicide, was registered for use. Monument was used on one of the five golf courses, and results similar to Revolver were obtained.

Tranxit has also received a registration in Arizona and has performed well in tests at Desert Mountain. All three (Revolver, Monument and Tranxit) are effective in killing perennial ryegrass and annual bluegrass. However, precautions need to be taken to prevent lateral movement of these products onto bentgrass putting greens.

In addition, tracking of these products onto bentgrass greens is another concern. To prevent lateral movement, these products should not be applied up-slope and in close proximity to bentgrass greens.

To prevent tracking, these products should

be applied after golfers and equipment have left for the day. In addition, because dew can re-suspend the herbicide overnight, a light irrigation is recommended prior to golf or equipment traffic the following day. By the end of the summer of 2004, the bermudagrass had essentially recovered with the exception of some very small areas. Year three of the management plan (summer of 2005) will be just a matter of growing in these few small areas.

Many golf courses in the Scottsdale area have adopted the Desert Mountain practice of aggressively removing the perennial ryegrass with the new sulfonylurea herbicides. Other courses are starting to see the benefit of removing the perennial ryegrass.

Without the use of herbicides, it is doubtful that bermudagrass can be sustained in the Scottsdale area when routinely overseeded.

Fred Yelverton, Ph.D., is a professor and extension specialist in turfgrass at North Carolina State University in Raleigh.

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QUICK TIP

Drought or flood: Moisture must be managed despite Mother Nature's fickleness and individual soils' characteristics. Pervade, Retain Pro, and Retain Max are cost-effective tools that provide managers flexibility to insure the rootzone has adequate but not excessive moisture.