Jumpstarting Bermuda

SUs provides superintendents options to achieve spring transition

By Kai Umed

In the southwest United States, spring transition can be a challenge in higher-cut turf such as golf course roughs, greens surrounds, shaded areas or sports turf facilities.

Eliminating perennial ryegrass as early as possible and trying to "jumpstart" the bermudagrass provides for an optimal long summer growing season before the overseeding starts again in the fall. The summer season objective is to produce a vigorous bermudagrass foundation that has healthy rhizomes that have amassed substantial carbohydrate reserves for surviving the winter and to emerge during the next spring season transition.

Golf course greens, tees and fairways can often be mechanically transitioned in concert with increasing spring air temperatures that "burn out" the ryegrass or *Poa* trivialis. Increasing soil temperatures also encourage the bermudagrass to green up and then grow out of winter dormancy. At about 1,000 feet of elevation in the Phoenix area, reducing water and lowering mowing heights to 0.5 inch or less stresses the winter turfgrass and provides room for the bermudagrass to fill in during mid-May through June.

In the Scottsdale area where the elevation climbs to better than 2,500 feet, and sometimes even at the lower desert floor, cooler spring temperatures may not be conducive for effectively eliminating ryegrass, especially in higher-cut turf areas. In roughs that were allowed to grow to 1.5-inch heights during the winter season, lowering the ryegrass mowing heights to 0.75 inch still presented effective competition to deter healthy bermudagrass transition.

The introduction of the sulfonylurea (SU) herbicides provides golf course superintendents and sports turf managers a variety of options to address and achieve spring transition.

The SU family of herbicides was originally discovered as very potent broad-spectrum herbicides. Over time, the molecules were manipulated to confer selectivity in various crops while maintaining very good efficacy against weeds. Many of these SU herbicides demonstrated good safety and weed-control efficacy on grass crops such as corn, wheat, barley and rice. Additionally, many of these products applied on grasses at sub-lethal rates demonstrated growth-regulating activity such as shortening the height or preventing seedhead formation. These SU herbicides can selectively remove perennial ryegrass from bermudagrass turf at different rates of speed at different rates of use depending on several conditions.

The SU herbicides can be influenced by weather and the health of the turfgrasses.

TABLE 1

Sulfonylurea herbicides evaluated for transition

Herbicide treatment	Product rate (oz/A)	Rate (lb a.i./A)
foramsulfuron (Revolver*)	8.8	0.013
rimsulfuron (TranXit*)	1.0	0.016
trifloxysulfuron (Monument*)	0.1	0.0047
sulfosulfuron (Certainty*)	1.25	0.059
flazasulfuron (Katana* proposed)	0.5	0.0078

Warmer temperatures will favor bermudagrass vigor so that it can tolerate the SU herbicides better than the susceptible ryegrass, which will be stressed by both high temperature and the active SU herbicide.

Field trials

Our objective in a series of field trials was to achieve a gradual or "natural" transition that would occur when the ryegrass thins out because of heat and cultural practices that could be augmented with the use of SU herbicides to effectively remove ryegrass.

The SU herbicide rates applied in our experiments were the lower label rates (Table 1) with a non-ionic surfactant added to all sprays in 30 gallons per acre of water that were applied using a backpack sprayer equipped with a hand-held boom. The experiments were conducted on different cultivars of perennial ryegrass being maintained at rough heights of cut at about 1.5 inches.

The earliest small plot trial was initiated in late April, where single and sequential applications of herbicides were evaluated for ryegrass removal efficacy. Two additional trials were conducted in late May-early June with single applications of transition-aid herbicides.

In late April, soil temperatures at 4-inch depth were in the mid-60 degrees Fahrenheit and average high temperatures during the day was in the mid-70s with nighttime low temperatures in the low 50s range. In late May, soil temperatures were in the low 80s with daytime temperatures getting above 100 and nights dropping to the low 60s range.

Sequential applications of Revolver, TranXit, Monument, Certainty and flazasulfuron made in late April and followed two weeks later effectively removed ryegrass before the end of May. Single applications in late May and early June removed ryegrass before the end of June.

The transition was highly acceptable in the turf wherever bermudagrass was able to fill-in for the eliminated ryegrass. Wherever bermudagrass was not actively filling in for the removed ryegrass, unsightly bare patches were identified. This was especially pronounced where ryegrass was nearly completely removed during May with early sequential treatments.

Sequential applications that were initiated in late April and not resprayed within two weeks gradually removed ryegrass. At seven weeks after the first April application, the remaining ryegrass was sprayed again and eliminated at the end of June.

The transition-aid herbicides augmented standard cultural management practices that included lowering mowing heights, core aerification and verticutting. Where ryegrass was effectively removed and unsightly bare patches resulted, early identification could enable early remedial actions to resod, sprig, seed or encourage bermudagrass to re-establish a solid foundation.

It is important to grow, establish and maintain the foundation of bermudagrass turf with healthy and vigorous roots, rhizomes and stolons. Without this solid bermudagrass foundation, there would be very little to transition back to in the spring or bermudagrass will not adequately fill in where removed ryegrass creates a void.

When transition is complete, bermudagrass should optimally have at least 100 days of good summer growing conditions prior to fall overseeding.

Another way to approach transition is to calculate backwards 100 days from the next intended overseeding date. For example, if overseeding is planned for early October, ryegrass should be eliminated by using SU herbicides about July 4 to allow for 100 days of bermudagrass growth.

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