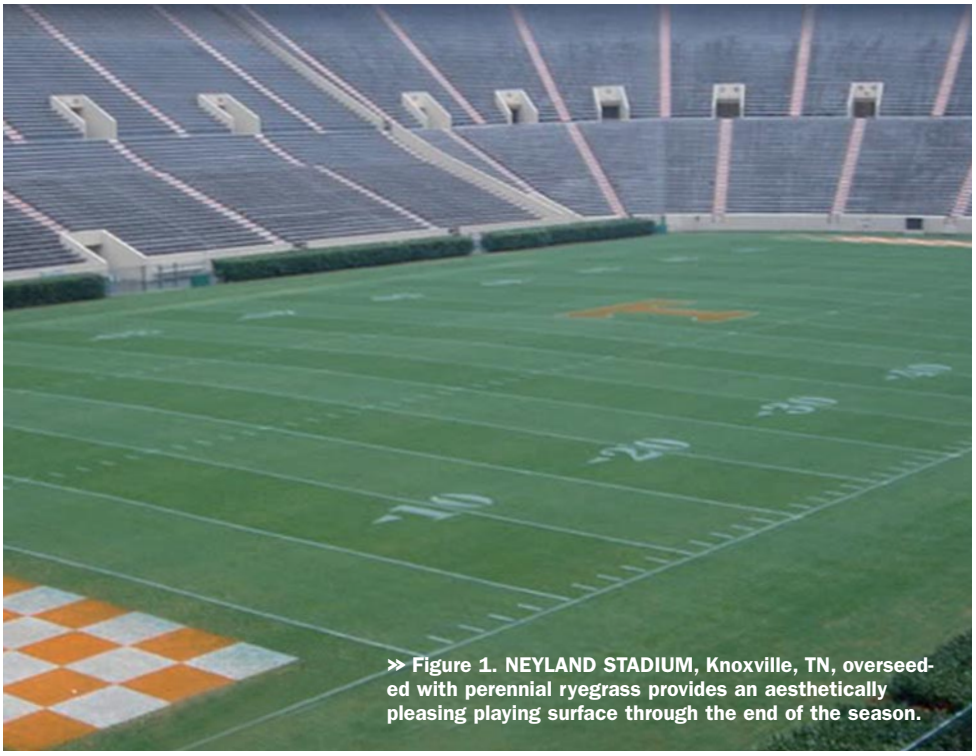
Overseeding
for the transition zone



>> Figure 1. NEYLAND STADIUM, Knoxville, TN, overseeded with perennial ryegrass provides an aesthetically pleasing playing surface through the end of the season.

>> Figure 2. OVERSEEDING with perennial ryegrass at the University of Tennessee's football practice fields in the middle of September.

>> Figure 3. LIGHTWEIGHT ROLLING will promote good seed to soil contact and increase perennial ryegrass survival.

IN THE TRANSITION ZONE fall means two things: football and overseeding bermudagrass athletic fields. Overseeding protects the dormant bermudagrass from the deleterious effects of traffic stress during fall and spring (Figure 1). Research at the University of Tennessee has found that overseeding can increase the number of games a field will maintain acceptable (>70%) cover by up to as much as 23%. While there are numerous benefits to overseeding, athletic field managers should consider several things before moving forward with an overseeding project.

COST

While overseeding can greatly improve the aesthetic and functional quality of a bermudagrass athletic field during the late fall and early spring, it is important to consider the costs of overseeding. In 2004, the total cost of overseeding a bermudagrass field with perennial ryegrass in Tennessee was reported to be $821.71. This figure includes the cost of seed, extra mowing, labor, and herbicides required for ryegrass removal. The cost of overseeding a bermudagrass athletic field can be significant for some athletic field managers.

SPECIES SELECTION

Field managers that choose to overseed are making an investment in their fields. Selecting a high quality seed is one of the most important parts of this investment. Commonly, blends of perennial ryegrass seed are available that are high in purity and germination percentage, which allows for a uniform stand of perennial ryegrass to be quickly established after seeding. While several species can be established as overseeded turf, perennial ryegrass is often selected as it germinates quickly from seed, exhibits dark green color, and slow growth after establishment (decreasing the need for mowing). Perennial ryegrass also offers increased traffic tolerance compared to other species like intermediate and annual ryegrass. Once a seed source is selected be sure to store it in cool, dark areas that are free of moisture.

SEEDING PROCESS

Seeding rate is a critical component of a successful overseeding project. Research conducted at Tennessee has reported that optimum ryegrass cover throughout the fall can be achieved with overseeding rates of 400 to 800 pounds of pure live seed/acre. Rates lower than 400 pounds of pure live seed/acre have been shown to provide inadequate cover, while higher rates have not resulted in improved performance; thus, the money spent on extra seed was essentially wasted.

Timing of overseeding is also important. The goal is to overseed before the bermudagrass enters dormancy. In Tennessee, most fields are overseeded between the middle of

September and the middle of October; however, these timings may vary in other parts of the country. The goal is to find 7-14 day windows when fields will not be in use to allow the new seed to germinate and mature before being subjected to foot traffic. Seed should be applied in two directions across the field to promote uniform coverage (Figure 2).

In order for an overseeded turf stand to become established, seed-to-soil contact is essential. While scalping the bermudagrass canopy is one method of facilitating seed-to-soil contact, it is not recommended as it places unnecessary stress on the bermudagrass. Rather than scalping, gradually lower the height of cut a few weeks ahead of overseeding. A light vertical mowing can also open the bermudagrass canopy to facilitate seed-to-soil contact. Another strategy is to stand up the bermudagrass canopy by using brooms or grooming equipment.

SEEDLING MAINTENANCE

Sand topdressing after overseeding can help push seed through the bermudagrass canopy and serve as mulch, reducing water loss from the underlying soil. Sand topdressing should be continued throughout the fall even after the perennial ryegrass is mature as it helps prevent the buildup of organic material at the soil-turf interface. Many coaches and players claim that overseeded ryegrass has a "slick" layer between the soil and canopy that results in poor traction. Weekly sand topdressing will help dilute the buildup of any organic material. Topdressing rates should be light enough that there is no sand present in mower clippings.

Lightweight rollers can be used to smooth the surface and further promote seed-to-soil contact (Figure 3). Fields should be rolled when dry to prevent newly sown seed from adhering to the roller and being removed from the seedbed. Starter fertilizer should also be applied after overseeding. Look for fertilizers with 1-2-1 or 1-1-1 analyses. This fertilizer should be applied at a rate of 1 to 2 lb phosphorus (P_2O_5) per 1,000 ft2. Newly overseeded fields will also need to be watered several times per day to prevent newly sown seed from drying out. Once mature, the juvenile perennial ryegrass stand will also require more water than bermudagrass, as perennial ryegrass has a less robust root system.

Mowing should be withheld for at least three days after overseeding to prevent seeds from being accidentally removed from the surface on mower tires, blades, etc. Once mowing resumes newly overseeded perennial ryegrass fields should be maintained at heights ≥ 7/8 of an inch. Mowing will force the ryegrass to mature sooner. Care should be taken when mowing with a reel mower if field conditions are wet, as the reel mower may pull out newly emerged ryegrass.

RYEGRASS TRANSITIONING

Historically, older cultivars of perennial ryegrass could not withstand summer temperatures in Tennessee and would naturally be eradicated during the early summer as temperatures increased. However, perennial ryegrass breeding efforts have led to the development of heat-tolerant cultivars that can perpetuate during the Tennessee summer heat. This is problematic, as research has shown

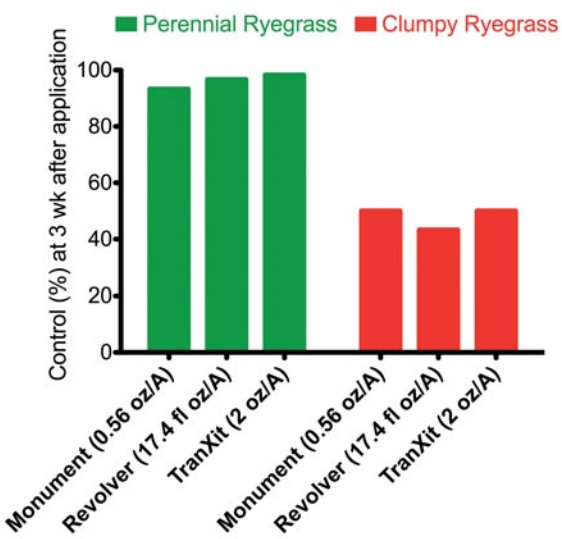
Figure 4. Clumpy ryegrass can be both unsightly and a potential safety hazard on athletic fields

that bermudagrass needs approximately 100 days of growth without perennial ryegrass competition to provide maximum performance during the summer. Growth of heat-tolerant overseeded turfs will not be significant; most of these perennial ryegrasses will persist in a dormant state during the summer as dense clumps that are not only unsightly, but also are a potential safety hazard on athletic fields. In these instances, the persisting perennial ryegrass is commonly referred to as a weed termed "clumpy ryegrass" (Figure 4). Clumpy ryegrass is more difficult to control than overseeded perennial ryegrass. Research at the University of Tennessee has reported that a well-timed herbicide application in early spring should provide nearly 100% control of the overseeded perennial ryegrass within 21 days after treatment,

Herbicide	Formulations	Active Ingredient	Rate/A	Comments
Certainty	75WDG	sulfosulfuron	1.25-2 oz.	Repeat applications may be necessary for complete control. Make sequential application when daily temperatures exceed 80 F. If single application is preferred, apply at the 2 oz rate.
Katana	25WG	flazasulfuron	0.5-3 oz.	Apply at 50% bermudagrass green-up for optimal maintenance of a green turf situation.
Kerb	50WP	pronamide	1-2 lb.	Very slow, but effective. Highly mobile. Can slow bermudagrass green-up in spring.
Manor	60WDG	metsulfuron	0.125-0.5 oz.	Repeat applications are often required for complete control
Monument	75WG	trifloxysulfuron-sodium	0.1-0.53 oz.	The lower rate allows for a more gradual transition. Higher labeled rates and warmer temperatures will result in faster removal.
Revolver	0.19SC	foramsulfuron	8.8-26.2 fl. oz.	Repeat applications (4 to 6 week interval) may be necessary for complete control. Higher labeled rates and warmer temperatures will result in faster removal.
Tranxit	25DF	rimsulfuron	0.5-2 oz.	Should not be applied in areas where children can con tact turf. Repeat applications may be necessary for complete control.

Table 1. HERBICIDES that are used in the chemical transition of perennial ryegrass back to bermudagrass.

Figure 5. MORE HEAT TOLERANT CULTIVARS of perennial ryegrass tend to persist into the summer months creating clumps of perennial ryegrass which are more difficult to control.



while many of the same herbicides will only provide an average of 50-60% control of clumpy ryegrass during the same time period (Figure 5).

Turf managers who decide to overseed in the fall should be committed to chemically removing the overseeded perennial ryegrass in spring with a transitioning herbicide. Research at North Carolina State University has reported that cultural practices will not result in complete removal of overseeded perennial ryegrass turf. Herbicidal transition aids are essential. In Tennessee, these transition aids should be applied sometime beginning in mid-April through mid-May. Numerous herbicides are labeled to chemically remove overseeded perennial ryegrass from bermudagrass turf (Table 1). The speed of transition should be considered when choosing a herbicide. Kerb and Manor (formerly marketed as Blade) are older products that tend to work slower than some of the newer sulfonylurea herbicides, like Monument. A slower response does not mean that these herbicides are less effective. In general, warmer temperatures usually increase the speed of transitioning. Applications at soil temperatures lower than 50 degrees F are not recommended, due to potential reductions in efficacy.

Make sure to take extra precautions if applying transitioning herbicides on slopes or areas adjacent to sensitive cool-season turfgrasses, like creeping bentgrass. Herbicides used to chemically remove perennial ryegrass have been shown to move off-site with not only surface water, but with foot or equipment traffic as well. Maintaining buffer zones between treated and sensitive areas and removing dew with irrigation (<1/8 inch) the morning after application will help to prevent problems.

Overseeding dormant bermudagrass athletic fields with perennial ryegrass will improve color and functional quality during cooler months. Given the cost of overseeding, it is important that field managers take the time to plan each step of the project in advance, from seed selection to herbicidal removal. ■

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