For proper slit-seeding germination, grooves must penetrate the soil by at least 1/4 inch. Shallower grooves do not provide adequate seed-to-soil contact.

Effective Overseeding North and South

By Jim Puhalla and Mike Goatley

"Overseeding" has different meanings in different areas. In the South, overseeding means applying ryegrass seed to bermudagrass so the field will stay green during colder months when the bermudagrass is dormant. In the North overseeding means applying more seed to an existing field to thicken the turf.

Wherever you live and work, overseeding has a common goal: turf enhancement. Let's look at effective overseeding procedures.

Overseeding Warm Season Fields

There's been a lively debate about overseeding on bermudagrass fields. Overseeding essentially reverses the normal practice of weed control — seeding millions of "weeds" into the bermudagrass turf. But overseeding also offers some protection against physical wear and tear for the bermudagrass on a heavily used field. Fields that get heavy fall and winter use really *should* be overseeded. Otherwise, you may have no playing surface (not even dormant bermudagrass) when the next season arrives.

Here are some things to consider in planning overseeding in the South:

1. Turfgrass Selection. Southern field managers typically overseed bermudagrass sports fields in early to mid-fall with annual or perennial ryegrass. Each has its own strengths and weaknesses.

Annual ryegrasses cost less, germinate and establish quickly, and transition quickly in the spring. On the other hand, annual varieties are more vulnerable to wear, extreme temperatures and disease. They also require frequent mowing and are more likely to stain uniforms.

Perennial ryegrasses, on the other hand, are more durable, and more resistant to disease, insects, extreme temperatures and wear. Like annual ryegrass, perennial ryegrasses germinate and establish quickly, but they transition more slowly in the spring. That's an advantage for spring sports like baseball, where the remaining perennial ryegrass can support play. However, the transition back to bermudagrass in the spring can be difficult to manage since the ryegrass is extremely competitive when the bermudagrass is trying to break dormancy.

Perennial ryegrass is clearly superior for overseeding athletic fields, but the price is higher. The disadvantage of annual cultivars is that, while the *price* is lower, they take more mowing, resulting in a loss of some of the initial savings. So over a longer term, the *cost* of annual cultivars may be higher.

Today, sports turf managers have a tremendous range of quality cultivars to choose from. If possible, choose a blend to broaden the genetic diversity of your turf and serve as a kind of insurance: if one grass fails, the remaining cultivars will often survive and thrive.

Consider specifying seed pre-treated with fungicide to prevent seedling damping-off. Pre-treating adds cost, but helps control that devastating disease when turf is most vulnerable.

A relatively new development is the use of *intermediate* ryegrasses, touted as a cheaper alternative to perennial ryegrass, but one with the appearance, growth, and playing characteristics somewhere between annual and perennial ryegrass. Time will tell if these grasses will fulfill their promise.

2. When to Overseed. Overseeding should be scheduled and planned far in advance.

Order seed in the spring or summer to ensure availability for fall planting. If you wait until the fall, you typically take what you can get. The windows of planting opportunity for southern turf are September 1-22 for the Upper South; September 15 to October 8 for the Mid-South; and October 1-21 for the Deep South. These windows are based upon when soil temperatures are most favorable — 65-70 degrees F at a 4-inch depth.

Overseeding too early can result in poor establishment because of competi-

Although tractor-driven equipment is used on larger areas, this type of slit-seeder can be used to cut grooves in the soil on targeted areas.

tion from the bermudagrass; overseeding too late will result in reduced seed germination.

3. The Mechanics of Overseeding. A good first step in overseeding is a soil test, unless one has been performed within the last year. Apply any fertilizers recommended by the test, being careful not to apply excessive nitrogen that will promote further competition from the bermudagrass. For most overseeding, one-half pound of nitrogen per 1,000 sq. ft. is more than sufficient. A supplemental phosphorus application helps promote root establishment.

If vertical mowing is needed, do it several times during the summer to prepare the bermudagrass base for overseeding in the fall.

Annual bluegrass is the weed of greatest concern on southern overseeded turfs. If you encounter annual bluegrass, consider applying a preemergent herbicide with fenarimol (Rubigan). Applied according to label directions, this is a very effective (if somewhat costly) herbicide for annual bluegrass control.

When you're ready to overseed, begin by mowing the turf. Then seed with a rotary spreader in at least two different directions to avoid skips. Use a drop seeder at field edges. After spreading, mat or drag the seed into the turf to encourage seed-to-soil contact.

Typical annual and perennial ryegrass overseeding rates range from 10 to 20 pounds of pure live seed per 1,000 square feet.

To encourage germination, water lightly and frequently (a few minutes every couple of hours). Ensure that the seed does not dry out, but don't keep the area saturated — a common mistake in irrigating newly seeded turf. When the seed germinates, gradually reduce watering frequency until you can begin watering "deeply and infrequently" to encourage the development of a deep root system and a mature turf.

Begin mowing when you remove only one-third of the leaf blade when cutting at the recommended height. For the first couple of mowings, don't collect clippings, to avoid removing seed that might still germinate.

4. Winter Care. As long as temperatures stay above freezing, the overseeded ryegrass will be growing, and above 50 F the growth will accelerate. Continue mowing and other maintenance functions, even during periods of little field use, to have the turf in good condition when the season arrives.

There's no use applying fertilizer to turf that is not actively growing. (The

Dormant seeding can be performed on unprepared soils during the brief period each winter when the daily freeze/thaw cycle causes this kind of heaving in the soil's surface. Where this effect is not present, the ground is too compacted and should be sliced.

fertilizer is wasted, and can leach or run off in surface water.) However, growing turf needs regular fertilizer applications. Heavily used fields need a pound of nitrogen a month, lower-use fields about half that rate. Over-fertilization of overseeded ryegrasses can create tremendous mowing requirements and make the turf susceptible to winter kill and disease.

Phosphorus, potassium and other nutrients can also be applied in the winter, but both the bermudagrass and the overseeded ryegrass can make greater use of these nutrients if they are applied at the time of overseeding, before winter arrives. Phosphorus fertilization encourages seedling root development.

Many parts of the country get enough rainfall to make supplemental irrigation unnecessary. However, if winter precipitation is low, both overseeded and base turfs must be irrigated enough to provide sufficient moisture. Winter desiccation of warm season turfgrasses is an under-appreciated contributor to winter kill, because its effects are not visible on dormant grass. On overseeded ryegrass, wilting indicates moisture stress. Carefully monitor precipitation and provide irrigation when needed. One-half inch of water per week is generally sufficient to keep overseeded ryegrass actively growing.

5. Spring Transition. The warming temperatures and dryness typical of mid to late spring in the South will result in significant loss of the overseeded turf, and the return to a bermudagrass field. This actually indicates a successful overseeding. Of course, a totally successful transition will not be widely noticed — the public would not realize that one grass was dying and was being replaced by another — but accomplishing such a "seamless" transition is easier said than done.

The transition back to bermudagrass can be best accomplished by switching your fertility, irrigation and mowing programs to favor the bermudagrass. Vertical mowing or core aerifying in spring also favors the bermudagrass.

Overseeding Cool Season Fields

The procedures for overseeding cool-season fields are similar to warm season, but the timing is different. Cool season fields can be overseeded at different times of the year; many high profile facilities apply seed weekly during the season to provide constant rejuvenation. For fall sports, spring is a good time to overseed. For spring sports, late summer is generally the best time. All fields should be overseeded after the season to prepare the field for next year.

1.Turfgrass Selection. A bluegrass field or a blue/rye field can be overseeded with 100 percent bluegrass seed at a rate of 2 to 3 lbs. per 1,000 sq. ft. if there is at least 75 percent turf cover. Areas with 50 to 75 percent turf cover should be seeded with a mixture of 2 lbs. bluegrass and 5 lbs. ryegrass seed per 1,000 sq. ft. Areas with less than 50 percent turf cover should be seeded with 10 lbs. of ryegrass per 1,000 sq. ft. Ryegrass fields should be overseeded with ryegrass.

2. Slit-Seeding. When overseeding cool season fields, it's important to get good seed-to-soil contact. The success of overseeding is substantially improved by slicing; most of the germination takes place in the slices in the soil. Watch closely to make sure the groves are at least 1/4-inch deep. If the slit seeder just grazes the surface of the soil, little germination will take place. Adjust the blades as necessary.

3. Dormant Seeding. One technique sometimes used successfully in the North is "dormant seeding," the application of seed during the late fall or winter when temperatures prevent germination. Dormant seeding should not be used as the primary seeding method for a newly seeded field; this method is best suited to slit-seeding an existing field. For instance, dormant seeding can be the best alternative for a poorly drained field that stays so wet in the spring that equipment can't be taken onto it.

The ideal winter weather for dormant seeding is consistent cold to prevent premature germination, continuous snow cover to maintain a steady moisture level, and little rain to wash the seed off the soil. Under any circumstances, seedling mortality is quite high with dormant seeding, so seeding rates should be as much as 50 percent above normal.

There is one brief period each spring when seed can be successfully broadcast with no soil preparation. In northeast Ohio, for instance, that period normally occurs in late February and early March. At this point, the daily cycle of freezing at night and thawing in the daytime creates small "craters" in the soil in the early morning that flatten out by afternoon, helping to draw the seed into the soil.

(Dormant seeding is normally unsuccessful in the South, because periodic warm temperatures promote seed germination, and the seedlings are killed when the mercury falls again.)

Adjusted for regional climate, overseeding provides one of the best available methods for enhancing the health and playability of any stand of sports turf. Following a few simple rules and timing your applications to the season's weather will help make your field a showplace. ❑

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