

Overseeding Bermudagrass Turf

By Richard L. Duble

To some, overseeding is a simple operation — just scatter some seed and wait until they germinate. But to the professional sports turf manager, whose success depends on the quality of the product, overseeding is a complex operation that requires preparation, timing and luck. Unfortunately, knowledge and experience do not always suffice. Just plain bad luck, usually unfavorable weather conditions, can sometimes ruin sound procedures.

The objective of a skilled sports turf manager is to minimize the chance for failure by proper seedbed preparation, planting adapted grass varieties at the proper time, and careful management during the seedling stage.

Seedbed Preparation

Seedbed preparation is just as important for establishment of a new turf. Perhaps one of the greatest causes of a poor stand of winter grasses is poor



Late summer (before September 1) is an ideal time to aerify to alleviate compaction, reduce thatch, and help develop a bed for overseeding. Photo courtesy: Jim Puhalla.

seedbed preparation. Thatch, compacted soils, and weeds in the seedbed can result in seedling diseases and thin stands of grass during the early stages of overseeding.

Seedbed preparation does not begin two weeks before the date of seeding. It begins several months prior to seeding. Light vertical mowing during the summer helps to reduce thatch in bermudagrass turf. Aeration and topdressing also help

Overseeding with PGRs

By Brian Delgado

To be most effective, overseeding must be conducted in a quick, efficient manner while minimizing any disruption to play. Fortunately, sport turf managers have a wealth of technology to assist them with overseeding. While better seed and superior equipment go a long way toward improving efficiency, foliar-absorbed plant growth regulators (PGRs) are taking today's overseeding projects into the 21st century.

PGRs fall into three classifications: Class A, Class B or Class C.

Class A PGRs interfere with the production of gibberellins late in their biosynthetic pathway, which reduces growth and stem elongation. They are useful in moderately to intensively managed turf areas. Primo (active ingredient trinexapac-ethyl) is a Class A PGR and enters through the turf's foliage.

Class B PGRs also block gibberellin synthesis, but interfere with the production very early in their biosynthetic pathways. These compounds can be used on moderately to intensively managed turf, but their usefulness can be limited by the degree of turf bronzing that often accompanies foliar growth suppression. Cutless (flurprimidol) and Scotts TGR (paclobutrazol) are Class B PGRs and enter through the turf's roots.

In contrast, Class C PGRs are mitotic inhibitors, which prevent cell division or stop

new growth for a defined period. Excellent seedhead control is often possible with Class C PGRs; however, turf color and recuperative potential can be diminished. Slo-Gro (maleic hydrazide), Embark (mefluidide) and Limit (amidochlor) are Class C PGRs. Slo-Gro and Embark enter through foliage, Limit through roots.

A PGR's mode of entry can determine how useful it can be in an overseed program according to Dr. Bert McCarty of Clemson University. Root-absorbed PGRs may slightly hinder the overseeding process, McCarty says. These PGRs' residual activity in the soil may cause seedling establishment to be slowed.

Foliar-absorbed PGRs such as Primo have little residual soil activity. As a result, adds McCarty, overseeding can begin soon after the PGR application with minimum effect upon the overseed.

McCarty examined the success of perennial ryegrass overseed establishment in Primo-treated Tifway bermudagrass and untreated test plots. After making a PGR application earlier in the month, McCarty overseeded his test plots on October 24. He found that ryegrass coverage ranged from 73 to 95 percent in the treated turf while the untreated controls only had a range from 54 to 88 percent. Similar tests later in the season were less compelling than the October overseeding because of decreased bermudagrass competition as the season progressed.

While testing continues, the limited data currently available shows that some PGRs are more compatible with overseed maintenance. It's best to check label recommendations prior to using any PGR to ensure overseed compatibility.

PGRs have also been tested in the field by sports turf managers, such as Dale Wysocki, who has served as facility superintendent for the Minnesota Vikings' practice facility at the team's headquarters in Eden Prairie, MN, since April of 1995. His job responsibilities include caring for the team's two natural turfgrass football practice fields — no small feat for a facility that experiences almost constant use.

To maintain the turfgrass conditions necessary to accommodate the football team's practices, Wysocki overseeds up to 14 times a year. During the spring and early summer, he makes monthly overseed applications. After summer camp, just prior to the football season, he often overseeds on a weekly basis.

To assist with his turf management activities, including his overseeding measures, Wysocki applies the plant growth regulator Primo at the half-ounce rate every three weeks.

"The results are very dramatic," says Wysocki. "Primo gives the seedlings a better chance to establish. Because of the effective growth management, I know my overseed is going to get the nutrients and water it needs for a quick start."

control thatch, provide a smooth surface, and create favorable conditions for germination of winter grasses. Timing of each of these practices is crucial to their success.

Light vertical mowing should begin in midsummer and continue until bermudagrass growth slows. Frequent vertical mowing so that the effects are not noticeable after several days is the most successful program to follow.

Aeration is also important to seedbed preparation. Early spring, late spring, and late summer are ideal times to aerify to alleviate compaction, reduce thatch, and help develop a seedbed. Overseeded sites should not be aerated after September 1 because it promotes germination of annual bluegrass. Core aeration within a month of the date of planting also results in the seed emerging in clumps rather than in a uniform stand over the site. Light and frequent topdressing also helps prepare a bermuda sports field for overseeding. Topdressing materials may vary, but most topdressings consist of a high percentage of medium-textured sand.

More important than helping to prepare a seedbed, all of these practices (vertical mowing, aeration, and topdressing) help maintain an attractive, smooth, resilient surface up to the time of overseeding. Of course, routine mowing is the unwritten requirement that must go along with the other practices to maintain fine bermudagrass sports fields.

Where these cultural practices are followed, there is little else that needs to be done at the time of overseeding.

Turfgrass Selection

Sports turf professionals prefer the perennial ryegrasses. Their fast establishment, wear tolerance, and competitiveness provide greater opportunity for success. And in overseeding operations, reducing opportunities for failure is important to the sports turf manager. Seed quality is an important consideration when purchasing seed. In addition to certification of grass variety, seed labels contain information on purity, germination, and weed seed content. Since seeding rates are based on a pure live seed

basis, information on purity and percent germination is required to calculate the amount of seed to plant. A typical ryegrass seed label may appear as follows: Purity: 98 percent; Inert: 1.5 percent; Crop: 0.4 percent; Weeds: 0.1 percent; Germination: 90 percent.

To calculate the pure live seed in this seed lot multiply the percent purity by the percent germination. In the above example, the seed lot contains 88.2 percent pure live seed (98 percent X 90 percent). If seeding specifications require 20 pounds of ryegrass per 1,000 square feet, then 22.7 pounds of the above seed lot must be planted (20 ÷ 88.2 percent). A weak stand of winter grasses may result if planting rates are not determined on a pure live seed basis.

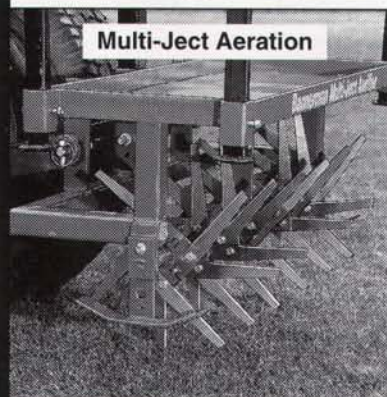
Planting Procedures

Distribute seed in several directions to obtain uniform distribution. Water lightly for several days to work the seed into the turf.

Watering is critical during the establishment period, but avoid overwatering.

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Overseeding

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Wet, water-soaked sites are prone to disease problems during seedling establishment. The surface must be lightly watered at frequent intervals to obtain rapid germination. Uniform application of water is essential to uniform emergence of seedlings. Light watering two to three times a day for seven to ten days is ideal. After seedlings emerge, water frequency can be gradually reduced to your regular schedule. Do not continue the light, frequent irrigation schedule past the germination period. Thorough irrigation at less frequent intervals is important to promote root development.

Planting date plays an important role in the success of an overseeding program. Planting too early increases problems with seedling diseases and with bermudagrass competition. These two factors can seriously weaken and thin overseeded turfgrasses. On the other hand, planting too late can prolong the time required to obtain a complete

cover because of low temperatures. Generally, the ideal time to plant is after bermudagrass has nearly ceased growing but before freezing temperatures are expected. A more specific date would be when soil temperature at the four-inch depth reaches 72 degrees Fahrenheit or two to three weeks before the average first frost date. In the northern half of the bermudagrass belt (North Texas, Oklahoma, Arkansas, Tennessee, North Carolina, and the northern regions of Mississippi, Alabama, and Georgia) this date would be October 1-15. In the southern half of the zone the optimum date would be October 15-November 1, and in southern extremes of Texas and Florida, November 1-November 15.

Seeding rate is also important to establishing a fast, dense cover of overseeded grasses. Perennial ryegrasses should be planted at ten to 20 pounds of pure live seed per 1,000 square feet.

Maintenance Practices

Mowing, watering, fertilization, and pest management are all critical to the

successful establishment of newly overseeded winter grasses. Mistakes or poor judgement with any of these practices can lead to poor stands of winter grasses. It is absolutely necessary to keep the mower razor sharp during this period to prevent pulling up the young seedlings.

Newly overseeded sites should not be kept wet and should not be allowed to become excessively dry. Close attention to watering is important for the first several weeks after planting to establish the grass and provide playable conditions. Avoid late evening watering that keeps grass moist all night. Diseases can develop and spread rapidly when grass remains moist overnight, especially *Pythium*.

Fertilize overseeded sites with a complete fertilizer such as 12-4-8 at about one pound of nitrogen per 1,000 square feet. Apply fertilizer immediately after seeding so as not to burn the young seedlings. After seedlings emerge, light applications of nitrogen will help produce a dense, healthy stand of grass. Soluble nitrogen sources, such

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as urea or ammonia sulfate, can be applied most effectively as a foliar spray at rates not exceeding 1/2 pound of nitrogen per 1,000 square feet per week. Nitrogen sources with a low burn potential, such as Nutraléne, IBDU, or Milorganite, can be applied in dry applications at rates between 1/2 and one pound of nitrogen per 1,000 square feet. Very low rates of soluble nitrogen, such as two to four ounces per 1,000 square feet, can be applied as a foliar spray.

Seedling diseases such as *Pythium* and brown patch must be controlled to maintain a thick, healthy stand of winter grasses. Application of a preplant fungicide and the use of treated seed will go a long way toward producing a disease-free turf. Diseases are much more effectively controlled on a preventative rather than a curative basis. Once a disease becomes a problem it can set overseeded grasses back several weeks. Strict attention must be given to spray schedules for disease prevention for the first several weeks after planting.

Broadleaved weeds such as lawn burweed, chickweed, and clover can be controlled after winter grasses are established. Products such as Trimec, Weedone DPC, Turflon II Amine, and Confront can be used if label directions are followed.

Set up a Schedule

It is important to develop an overseeding schedule well in advance of planting time. A suggested program might include the following.

1. Select the grass seed: Measure overseeded sites to determine the quantity of seed needed. Decide on a variety or mixture and order seed in midsummer.
2. Prepare the seedbed: Set up a vertical mowing schedule during midsummer. Aerate in late summer. Topdress (prepare topdressing material ahead of time).
3. Seed the site: Determine seeding rate (calibrate spreaders). Determine seeding date.
4. Set up a watering schedule during and after seedling emergence.

5. Fertilize before and after seeding.
6. Mow the site: Determine appropriate height. Determine appropriate frequency.

The most common causes of failure include (1) poor seedbed preparation, (2) planting too early or too late, (3) seedling diseases, (4) herbicide injury (pre- and postemerge), (5) overwatering and excessive rain, (6) fertilizer burn, and (7) mowing with dull mowers. □

Richard L. Duble is a professor and extension turfgrass specialist at Texas A&M University. The above article is an abbreviated version of a section titled "Overseeding Bermudagrass Turf" from the second edition of his book Turfgrasses: Their Management and Use in the Southern Zone (College Station: Texas A&M University Press, 1996); for more information or to order call (800) 826-8911. The staff of sportsTURF wishes to thank Jim Puhalla of Sportscape International for his assistance in editing this article.

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