

Overseeding Without Waste



Large area overseeder assures better soil contact and higher germination.

With pressure on supplies of perennial ryegrass, overseeding techniques will need to be more efficient than ever before.

Last month, as huge combines were busy harvesting turf seed from vast fields in Oregon, Washington and Idaho, it appeared as if the ryegrass crop would finally meet demand. The skyrocketing popularity of perennial ryegrass for overseeding golf courses, sports fields and resorts in the previous five years had virtually wiped out reserves and caused shortages in some parts of the country. Seed producers were looking for their first carryover in years.

While nature was kind to the seed growers in Oregon this year, it was brutal to the managers of sports turf in more than half the country blasting turf stands with drought and high temperatures. Water shortages forced many sports facilities to shut down irrigation systems. Turf managers could only watch as their Kentucky bluegrass, fescue or ryegrass went dormant or struggled to survive against the constant summer pressure of diseases, weeds, and insects.

With just a matter of weeks before the start of fall football and soccer seasons, cool-season turf managers need the fastest-establishing turfgrass available to restore their fields to respectability. They can't wait to see how much of the dormant turf will rebound in time. They have to turn to perennial ryegrass and overseed or reseed immediately.

At the same time, the tourist season for southern resorts and golf courses is just around the corner. After a summer of brown turf up North, tourists will be craving dark green fairways, tees and greens. To meet this need, superintendents will be overseeding their bermudagrass with ryegrass beginning this month.

Suddenly, meeting the demand for ryegrass this fall is a question in the minds of seed growers and distributors across the nation. "We doubled our perennial ryegrass production last year," says John DeMato with Lofts Seed, "anticipating sizeable growth. But who could have predicted a drought like we had this summer?" DeMato believes the drought will also put pressure on supplies of Kentucky bluegrass and turf-type tall fescues.

"All types of turfgrass seed in general are in short supply," reveals Craig Edminster, director of research for International Seed. "We've been sold out for a year." To him sold out means there is no carryover by the producer. "Distributors have the seed they ordered, it's just that when they sell that it will be hard for them to get more." In other words, the pipeline is full but the reservoir is dry.

The drought has been hard on sod producers too according to Edminster. Instant sports turf may be hard to locate in some areas of the country.

With such pressure on supplies, overseeding techniques will need to be more efficient than ever before. Not only does this impact seeding methods, it also requires greater uniformity and efficiency in irrigation systems, use of preventative fungicides for *Pythium*, and careful maintenance after

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seeding. Turf managers may also have to accept substitutions for some ryegrass cultivars in both mixes and blends. Fortunately, the number of improved cultivars has risen in the past five years providing a wider selection of quality seed.

The two most critical considerations for any type of seeding are contact between the seed and the soil and water. Heavy thatch, dense bermudagrass or dead matted foliage of drought-stricken turf can prevent seed from coming in contact with the

Commercial seeders are basically doing the work of three types of equipment at one time. Verticutters and aerifiers can be used to remove thatch and open up the soil. To avoid seed from lodging solely in aerifier holes or verticut grooves, this work should be performed two to four weeks in advance. If there is no time to wait, make the aerification pattern as tight as possible with repeated passes. Seed can then be broadcast over the area, followed by dragging and/or rolling.

Disturbing the soil has one main disadvantage, it can bring weed seed to the sur-

voids. A drop spreader is helpful in clearly defining the edges of fields or basepaths. Care should be taken not to track seed onto adjacent areas either on shoes or equipment.

Light topdressing is another option after seeding to improve germination. This is most important in areas where traffic is greatest, such as tees, soccer goal mouths, the center of football fields, bench areas and entrances. Soil cores removed by aerifiers are a good source of topdressing available simply by breaking them up and dragging them over the seeded turf.

Some turf managers under extreme time constraints pregerminate seed to save a few days to a week. In this process seed is soaked in drums for up to seven days until it begins to germinate, evidenced when the radicle grows out of the seed. The tender seedlings are mixed with a carrier such as calcined clay, ground corn cobs or Milorganite, and applied to the turf with a spreader.

Tests at California Polytechnic Institute in Pomona, CA, have shown that the water used to soak the seed should be changed every few hours and aerified with bubblers to obtain the best results. Water temperature should be roughly 70 degrees F. Another option is to mix seed with an organic carrier first and keep the pile of the mixture moist.

If you've never tried pregermination before, experiment with it first for divot repair mixes. When you've mastered that, then advance to larger areas.

Seed rates for overseeding sports turf vary widely, from five pounds per 1,000 square feet to nearly 50. Turf specialists at North Carolina State University recommend a rate between 5-15 pounds for fairways, 10-20 pounds for collars and tees, 25-40 pounds for greens, 10-15 pounds for soccer and football fields, 10-20 pounds for baseball infields and football bench areas, and 5-15 pounds for baseball outfields and sidelines.

Dr. Douglas Brede, director of research for Jacklin Seed, warns that seed size can also vary between cultivars. This affects the seed count for each pound of seed — larger seed having a smaller count per pound. Since each seed is a potential plant and the seed count can vary by as much as 20 percent, it's something to consider.

An option available the past two years is coated seed. While this seed costs about twice as much as uncoated seed, the fungicide, fertilizer, and moisture retention provided by the coating is said to greatly improve germination and establishment. Seed rates can thus be cut nearly in half.

As everyone knows, seed needs to be moist to germinate. After sowing, frequent light irrigation is critical for rapid germination and establishment. This period of excessive wetness is an invitation to diseases, especially *Pythium*. It's important to get the seed up and growing as rapidly as possible so irrigation can be cut back to reduce the vulnerability of ryegrass to disease.

If *Pythium* has been a problem in the area



Broower seeder used for large areas with prepared soil.

soil. For this reason, scalping and verticutting are common before overseeding.

Steve Cockerham, head of the sports turf test plots at the University of California at Riverside, cautions superintendents not to set the blades of their mowers too low. "If you remove too much of the bermudagrass plant in the fall, you may be robbing it of carbohydrate reserves it needs during winter dormancy. This may be part of the reason so many golf courses lost bermuda last year to winterkill."

Nature has provided each seed with a limited amount of energy to germinate and grow. When this supply is exhausted, nutrients in the soil must be there to take over. Nutrient availability in thatch is obviously much poorer than in soil.

Soil provides a reservoir for both water and nutrients. That is why commercial seeders are designed to break through thatch and disrupt soil before seed is sown. Typically they have blades or discs which cut through thatch and open up the soil. Seed is then dropped into the disturbed soil before it is rolled. These measures place the seed in direct contact with the soil and the percentage of seed germination is greater than for simple broadcasting. Since germination is greater, less seed can be used to achieve coverage.

face where it can germinate. If the soil is intensively worked, then an application of the preemergent herbicide siduron (Tupersan) can be made without disrupting the germination of the turf seed. Late summer and fall are peak times for germination of *Poa annua* and winter annuals. Fortunately, ryegrass competes very well against *Poa annua*. This is one advantage it has over fine fescues, rough bluegrass and creeping bentgrass for overseeding.

Where annual bluegrass is a definite concern, fenarimol (Rubigan 50 WP) can be applied no less than two weeks prior to overseeding. A third option for control of annual bluegrass in bermudagrass greens overseeded with perennial ryegrass is ethofumesate (Prograss). This can be applied only to perennial ryegrass and only 30 to 45 days AFTER overseeding. Ethofumesate will harm rough bluegrass or fine fescues. Also, it should not be applied within 60 days of expected green-up in the spring.

Ryegrass is not a spreading turfgrass. If seed does not fall evenly over the area strips or patches without ryegrass will result. To avoid this situation, turf specialists advise that turf be overseeded in two directions at half rate. If a row seeder or drop spreader is used, going over the area a third time with a rotary spreader can help fill in these

previously or weather conditions are hot and humid, fungicide treatments are advised. This disease can develop rapidly so preventative treatment or immediate curative treatment are necessary. Fungicides labelled for this use include Aliette, Banol, Koban, Subdue and Terraneb SP. Retreatment every seven days to three weeks may be needed. As mentioned previously, seed coated with fungicides (Koban or Apron) is available.

Brown patch can also kill seedlings. If circular brown patches of dead turf are discovered, an application of Banner, Bayleton, Chipco 26019, Daconil 2787, Dyrene or Fore may be needed.

Uniformity of irrigation is important to both germination and prevention of disease. Malfunctioning heads or valves can flood one area while shorting another. Seed will float and move if water is allowed to puddle or run off.

Ryegrass is not as forgiving to inconsistencies in watering as bermudagrass. Irrigation zones within the turf area should be corrected to match application rates and times. Allowances may be necessary for areas in shade or exposed to the wind. A properly designed irrigation system will have these areas on separate zones.

Programs set for deep, infrequent watering will need to be changed to light, frequent irrigation. This should not be done arbitrarily. Test moisture depth with a soil probe after various cycle times and note how rapidly

Seed will float and move if water is allowed to puddle or run off.

the surface soil dries under different weather conditions. Cycles may need to be repeated four or more times each day in hot, dry weather. On the other hand, one or two cycles may be adequate on cloudy or cool autumn days.

Once the seedlings are established, usually three to four weeks for perennial ryegrass, gradually cut back the frequency and increase the duration of irrigation. The emphasis is switching from germination to root growth. You eventually want the roots to extend down six or more inches to obtain moisture. Overwatering discourages deep rooting and encourages disease.

Since typical overseeded areas are on a fertilization program, additional fertilization for overseeding is discouraged because it may prolong the aggressiveness of the bermudagrass. If you don't feel comfortable with this, have the soil tested first. Supplemental phosphorus, potassium or

micronutrients such as iron can be applied with little to no nitrogen. This will improve rooting without stimulating foliar growth of the bermudagrass.

This is where timing comes in. The goal is to overseed two to three weeks before the first expected frost or when the temperature of the soil at a depth of four inches is less than 75 degrees F. The specialists at North Carolina State University say if you hit this time frame, the bermudagrass will be far enough into dormancy by the time the ryegrass starts needing nitrogen, that is about three weeks after overseeding.

From then until the season is over, the ryegrass needs between one-half to one pound of nitrogen every month. This can be applied as two applications of quick release N per month or one application of slow-release. Continue to watch phosphorus and potassium levels. Recent advances in fertigation and soluble fertilizers permit very small amounts of nitrogen and micronutrients to be applied to the soil on a weekly basis.

Traffic and damage on the turf may require a recovery rate greater than temperature-dependent slow-release fertilizers can support during cold weather. Even quick-release materials vary in their delivery of nitrogen to turf during cold weather. Don't assume that because the nitrogen is there that it is working.

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Furthermore, additional seed should be broadcast during the fall to be worked into thin spots by players. Divots must be repaired with a seed/soil mix since ryegrass does not spread. The overseeding process is one of constant renewal at a time when even cool-season turfgrass is slow to recover.

Turf managers are as concerned about spring transition as they are winter performance. Even desert resorts and golf courses are increasingly concerned about recovery of bermudagrass for late spring and summer play. Southern athletic fields barely wrap up football before spring soccer begins. Baseball practice seems to start a week earlier every spring.

the mowing height of the winter turf should be reduced to stress the ryegrass and expose the soil to light and warm air. On greens and tees that are already mowed fairly low, the turf can be spiked every two weeks during cool weather, aerified or verticut lightly and frequently.

Do not fertilize or cut back irrigation to the point that the soil becomes dry. Bermudagrass devotes much of its energy in the spring to root development. Stimulating foliar growth with nitrogen not only diverts the energy of the bermudagrass away from root growth, it stimulates the ryegrass to compete more strongly. Bermudagrass also requires adequate soil moisture at this sensitive point in its biological cycle. Cutting back on water hurts the bermuda as much as the ryegrass.



Annual ryegrass appears much lighter than perennial ryegrass.

"Many of the improved perennial ryegrasses are extremely durable," says Cockerham based upon test plots in Riverside. "They are going strong when it's time for the bermuda to come back. But what's worse is when the ryegrass does finally give up, some of the bermuda is dead. We don't know if it's winterkill, traffic or the ryegrass that's harming the bermuda." For this reason Cockerham believes superintendents in certain parts of the country will start selecting ryegrasses that are less aggressive in the spring.

Technically, bermudagrass growth resumes when soil temperatures reach 60 degrees F. in the spring. While the bermuda is still dormant, the ryegrass can be stressed in various ways to encourage its decline. If use of the turf area can be restricted for a few weeks, glyphosate (Roundup) can be applied to the ryegrass in some states to wipe it out. As long as the bermuda is dormant, it will not be harmed.

North Carolina State recommends that several weeks before green-up is expected,

As temperatures rise, heat and humidity are ryegrass' worst enemies. Therefore cool weather or shade can slow transition. A last resort to remove ryegrass from established bermudagrass is pronamide (kerb). Consult your local extension turf specialist and your local chemical supplier about safe rates and time of application.

Overseeding has a definite role to play in sports turf management today. Perennial ryegrass has grown from a simple nurse crop with limited production in the Northwest to a multipurpose turfgrass with production greater than any other turfgrass. The sports turf industry is responsible for this tremendous shift in less than 20 years.

But overseeding has its challenges. "We need to look more closely at seeding rates and their effect on bermudagrass during transition," states Cockerham. "We also need to research the effect of winter maintenance and start to look for perennial ryegrasses that are less competitive in the spring. There is a lot we don't know that we should." ☺