

Save the Game: Turf Repair

By Holly Gibson

A hard-fought football season has set your school up for a run at the title. The big game is at your stadium and the school board wants an award-winning field.

Unfortunately, the field has weathered football, soccer, cross-country and community league play for many months. The turf was looking forward to a long winter vacation.

If your soil temperatures fall below 60 degrees F, you will probably encounter difficulties establishing from seed. Fortunately, research into pregermination, soil priming, coated seed and turf covers provides a few tricks for quick seed establishment that will leave you looking like a hero without blowing a hole in your budget.

Pregermination and seed priming involve treating seed to encourage germination before you seed. There is a slight difference between the two procedures.

Pregermination

In cold weather, the soil temperature falls so low, that germination takes much longer than normal or doesn't occur at all. Therefore, pregermination can help the seed past the temperature problem.

"Pregermination is best because it gets the seed past some of its dormancy mechanisms," says Doug Brede, research director for Jacklin Seed Co.

Pregermination involves mixing the seed in a water solution and letting it sit for a period, agitating the mix several times. In some cases, the roots begin to emerge from the seed coating.

"That is about the most rapid means to get turf established other than sodding," Brede says.

Brede says the most reliable pregermination method for providing quick seed establishment is to use a 55-gallon drum and fill with a 50-pound bag of turfgrass seed. Add enough water to thoroughly wet all the seed, leaving a thin layer of water above. Some seed should be floating on the top.



Brede says he has found good results by adding 8 ounces of a rapidly water-soluble fertilizer, such as Miracle-Gro. Keep the drum where the temperature doesn't fall below 60 degrees F. It would be better to keep the temperature about 70 degrees F. Stir the mixture occasionally.

After two days, pour the seed from the drum onto a concrete slab. Allow it to dry a bit, but not completely.

Applying the seed is the tricky part. Most spreaders won't handle wet material well. Various carriers such as sand, perlite, corn cobs, or organic fertilizers have been tried with varying degrees of success.

The best method developed so far, says Brede, is to use a hydraulic seeder to spray the seed onto the field. However, you want to be sure the hydraulic pressure is not too high. Try the normal setting or slightly below normal. If you get a poor stand, the setting might have been too high. Try turning it down.

The agitation is what damages the seed. Some pregerminated seed has gone far enough to have tiny roots protruding from the seed. These roots can break off under the agitation of a hydraulic seeder. The goal is to pregerminate the seed, but leave the seed coating still intact. This will protect it as you seed.

Apply a complete fertilizer to the freshly seeded area. Brede says he has

had found a 10-10-10 fertilizer works best. Although it may sound high, he says the irrigation schedule you should follow for seed establishment will water in the fertilizer.

If all works well, you should have turf after about two days. In good conditions, the turf can emerge as quickly as 24 hours.

To help the turf along, you can use a turf cover. Brede suggests covering the turf with VisQueen, a plastic sheet. Punch holes into the cover for irrigation and oxygen exchange. A quick way to punch holes is to fold the plastic four- to five-inches thick. Run a core aerator over the folded plastic. This provides regularly spaced holes quickly.

Place a soil temperature gauge under the cover. If the temperature rises to 90 degrees F, peel it back or irrigate.

Seed priming

Seed priming involves blending the seed in a carrier to control how the water enters the seed. You can also prime seed in a water solution, which allows the water to enter quickly. For generally greater germination rates, you can use a solid matrix primer that uses a compound to help control the speed at which the water penetrates the coating.

These methods will offer the greatest payoff when time is short and you need to establish turf in cold temperatures. Leah Brilman, research director for Seed Research of Oregon, says a recently presented paper on solid matrix priming offers help for sports turf managers.

Chris Burrows of Washington State University made his presentation at the recent Northwest Turfgrass Association meeting. He used a priming mix of 16 parts Kentucky Bluegrass seed, 8 parts Micro-Cell-E (a synthetic calcium silicate) and 18 parts water. The mix was loosely covered. You could place the priming mix in a trash can and cover it with plastic wrap. Punch many holes in the wrap to allow oxygen exchange.

Burrows left the mix stand without agitation for seven days. After that time, he spread the mix to dry. His results showed that seed treated in this manner emerged from the soil in 15 days with a 44-percent germination rate at 50 degrees F. The untreated seed only germinated 14 percent.

Brilman suggests using perennial ryegrass for quick seed establishment.

Use the same procedure, only leave the primer mix only about three or four days. She suggests substituting vermiculite if Micro-Cell-E is unavailable. Keep the primer mix in an area where the temperature is between 60 and 72 degrees F. Because perennial ryegrass germinates more quickly than Kentucky Bluegrass, you will have much quicker seedling emergence.

Turf covers

If your budget allows you to purchase a turf cover, you can establish seed in cold temperatures without pregermination or seed priming. The cover elevates the soil temperature to encourage germination.

Turf covers come in many different forms from plastic to geotextiles. Plastics are the least expensive types, but they need holes punched to allow water penetration. Geotextiles come in a wide array of woven and spun blankets. The thinner covers allow you to irrigate through them.

With any turf cover, place a soil moisture temperature gauge in the soil. Check the temperature at regular intervals, preferably in the afternoon. You want to make sure the soil temperature isn't

too high, therefore, a morning check won't give an accurate reading of the high soil temperature. If the soil gets too hot, just peel back the cover for awhile.

John Roberts with the University of New Hampshire Cooperative Extension studied the influence of Reemay and Typar geotextile covers on the germination and establishment rate of perennial ryegrass. The study ran from October 1985 through May 1986.

Researchers covered different plots of conventionally seeded perennial ryegrass with 0.9-ounce-per-square-inch Reemay and 1.9-per-square-inch Typar blankets, leaving an uncovered control. The blankets remained over the seedlings through the winter months.

Roberts reports that both the Reemay and Typar blankets were successful in accelerating germination. However, the covered seedlings only germinated two days ahead of the uncovered control, which Roberts attributes to cloudy weather. After five weeks, the covered seedlings were substantially ahead of the uncovered control. Researchers recorded a 50-percent increase in root length and leaf height.

Measurements taken by researchers

in the spring indicated that the blankets protected the seedlings from drying winds in late winter and early spring.

Roberts reports that Typar was more effective in conserving soil moisture in the upper inch, produced slightly cooler soil surface temperatures and was more resistant to tearing under windy conditions.

Treated seed

If you are trying to establish seed beneath a cover, try using an Apron-treated seed.

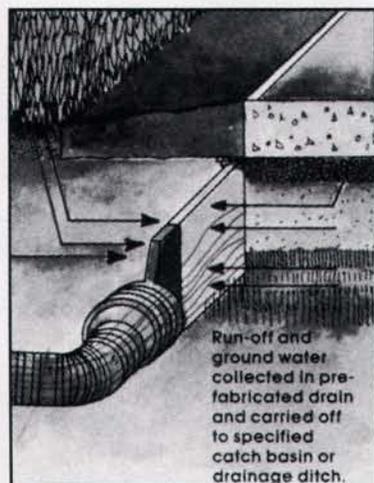
"That will prevent some seedling disease problems under covers where you have high humidity and warm temperatures," says Brilman.

Treated seed can also help you after the big game when the field has been torn up. If you live where the winter temperature dips below 35 to 40 degrees F and stays there, dormant seeding can be your answer. After the game and before the snow hits, seed the field.

A fungicide-treated seed can help give you protection against some disease problems, says Brilman. Check with your fungicide or treated seed dealer for exact recommendations. □

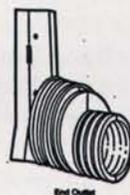
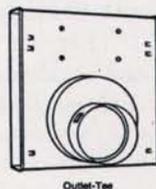
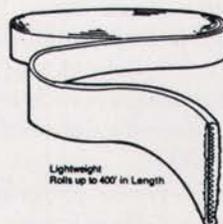
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