

# GOOD, STRONG SOD STARTS WITH A WELL-PREPARED SEEDBED

By John Kerr, Assistant Editor

Sod producers have come a long way in the past 10 years to make their industry respectable and profitable. Their own ingenuity along with research from extension agents and turf specialists has helped them produce a solid, saleable crop. Technologies differ slightly for each area of the country because of varying soil, rainfall, and type of seed, but the basics remain unchanged. To prepare a good seedbed, a sod grower must know how to properly manage these factors.

The starting point in growing good sod is a soil analysis, according to Eugene Meyer, turf specialist at O.M. Scott & Sons, Marysville, OH. It is an easy thing to obtain since every state has soil laboratories and commercial industries have soil testing services. You must also start out with a quality, clean seed and a good variety or else you will have problems to counter through the full growing cycle.

"The main thing is getting an established grade, and once that's done, working up a good bed by tilling," says Meyer. "You need to get a good, firm seedbed." If you don't prepare enough and large clods are in the soil, you inhibit growth, whereas overworking the soil leaves you with a powdery, fine composition that is just as bad. Meyer prefers to get the soil between the size of a marble to a golf ball, leaving enough fines and open areas for seedbed germination.

He suggests to plow and turn the soil with a disc harrow from one to six times, depending on the type of soil. You should go at least 2 inches and up to 6 inches deep. Level with a harrow, land leveler, or a Roseman or York rake if you know how to operate them. A heavy roller will destroy soil structure and shut off air space.

There are numerous ways to seed— drop spreaders, rotary spreaders to broadcast, or specific seeders like the Brillion, most widely used in the industry. Once the seed is down, it needs to be covered and in contact with the soil to draw moisture. To do this, you can use some light harrowing, a chain link fence, or a cultipacker.

It is Meyer's opinion that it doesn't make much difference whether the initial fertilization is done before or after seeding. What's important is to use a starter-type fertilizer with high amounts of phosphorus, for example, 20-26-6, 18-24-6, or 16-21-5. Although it is necessary to have a balance of nutrients, phosphorus is very critical the first four to six weeks. After this period, it is time to apply more fertilizer, primarily high in nitrogen.

After seeding, water is the most critical factor for seedbed germination, as long as you have warm weather, Meyer says. The beds should be kept moist for the first 30 days, not allowing any lengthy dry periods. You should mow once the turf reaches 2 to 2½ inches, and after maturing, keep it at about 2 inches. It will be ready for harvest when you can pick up a corner of a piece and it stays together.

"I think most sod growers do a relatively good job," Meyer says. "Sometimes they'll try to out-guess mother nature." Planning ahead helps you

work around weather patterns. For a fall planting, the prime time (the last week of August and the first three weeks of September in Ohio), you should make important decisions in the early summer.

Ed Keeven, owner of Emerald View Sod Farm outside of St. Louis, exemplifies the planning and expertise of 26 years of turf farming. For his fall planting, Keeven plows or chisel plows by the 15th of June, then disc files to let the weeds come up. "It's a good way to do summer fallowing," he says.

He uses a culti-mulcher or disc to tear his weeds up and this dries them out before seeding time. It is much cheaper to do this and use herbicides than fumigate, which can cost \$800 an acre. "With all the herbicides available today, you can control any type of weed," he says. Two in particular are Dacthal for preemergent crabgrass control and Balan which goes on after the grass has been mowed at least twice.

About two or three weeks before seeding, Keeven likes to land level the ground and make it as smooth as possible. If the soil stays tight and doesn't get too loose, he can use a disc and harrow. If the soil is loose and stays dry with a tendency to get powdery, he is better off with a cultimulcher to hold in the moisture he has and still kill his weeds. Keeven may culti-mulch and disc two or three times from mid-June to the beginning of August.

After leveling the land, it is time to put in drains if he needs them. Then just before seeding, Keeven uses his cultimulcher about 2 or 3 inches into the soil. He adds his starter fertilizer, approximately 6-24-24, and will mix his own if he wants to add extra potash. About 300 pounds of fertilizer go on every acre and this is harrowed in about a ½-inch deep.

He uses his Brillion seeder, usually twice over the land. Later on in the fall when the grass is up, Keeven adds about 200 pounds of slow-release fertilizer which will have a lot more nitrate in it. To prepare his seedbed for the following fall once the sod has been cut, Keeven will plant soybeans in the spring to loosen up the ground. He finds a variety that matures in 90 days is most effective; even though it may not give a good yield, it will be a crop and it will help his field.

Another innovative sod grower in the country is Bill Meredith, owner of Meredith Sod Farms Inc. in Howe, Idaho. His manager, Bob Grace, emphasizes the need for a proper start. "I feel strongly that you have to have a good, firm seedbed from the beginning; otherwise, you're fighting it all the way through."

Grace says, "It's important to spend a lot of time and preparation in the seedbed because you want to ship a 20 by 40-inch slab of sod which has no bums in it or tears from the sod cutter. If you have a good firm seedbed and not too loose, the seed will stay in one place better."

In the loamy clay soil of the Rocky Mountain west, a base with very little organic in it, the

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Meredith farm grows a healthy crop. Meredith uses plenty of fertilizer to get the most out of his soil. He and Grace have also adapted their own wheels for the Brillion seeder, which they claim saved them \$36,000 last year on 560 acres.

With the standard Brillion seeder, Meredith thought that the grooves it made in the front which were filled with seed, got buried from the rear roller. He thinks his own wheels can save on seed, which is especially important to places such as California where the land is expensive and intensively grown. One California grower has cut his seed from 120 to 80 pounds an acre, Meredith says.

Another piece of equipment that Meredith has developed for his operation is a sod washer. Since it costs more to truck sod than to raise it, he finds washing away much of the dirt can be a big saver. He has never promoted it because of the tremendous marketing problem. If you use it, you have to get the sod down immediately or else refrigerate it.

One area to use washed sod is in football stadiums. At the Denver Bronco stadium, a crew removed 6 inches of dirt, put down plastic, and then put in heat pipes, drain pipes, and feed pipes and covered them with sod. Now it has complete protection against the elements. If it snows, you turn the heat on; if it rains, you suck it dry. You can also fertilize and water the turf from underneath.

To avoid the labor in moving sprinkler pipes and get uniform watering, Paul Unruh and his crew at The Turf Farm in Minden, Nevada, have devised an underground system with pop-up heads. "It lets you plow in areas where you want low cross depth," says Perry Lemmon, sales manager. You can water the land at any time, irrigating from your home if you choose. Nobody has to walk on the turf to move the pipes once they've been installed and the labor crew will not have to be called in on a Saturday or Sunday to operate the system.

"We try to hold 2½ gallons to 7 or 8 gallons a sprinkler per minute," Lemmon says. This all depends on the type of soil. The system must be adapted for each type of soil since some take moisture faster than others. Being 18 inches below the ground also eliminates conflict from equipment.

Lemmon thinks the sprinkler system gives a more uniform coverage because all the sprayers can function simultaneously and wind won't affect them. This means the grower can get efficient use of his water and won't have to irrigate as often. It is a concept that its designers have considered for five years but just started marketing last October. Lemmon says growers are already finding success with it.

Dr. Robert Shearman, an extension turfgrass specialist and assistant professor of horticulture at the

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University of Nebraska, has worked with many sod growers in his region. He says the key things to remember for cool-season grasses, such as bluegrass, are to prepare a good seedbed, uniformly distribute the seed, understand nutrient needs for establishment, select the best blend of cultivars for rapid establishment (or those not as fast, but which develop strongly), and post-emergent care such as weed control, fertilizing, frequent mowing, and sufficient moisture.

Shearman has been looking at fertilizer application for preparing a seedbed, and comparing surface application to mixing for a homogenous blend. "With starter fertilizers with a high phosphorus content, you need to apply those to the surface and not blend into the upper 2 to 6 inches," he says. "The reason is the new seedling needs nutrients close and readily available. Often phosphorus gets chemically bound in the soil so it's unavailable for the plant roots, particularly new seedlings which don't have an extensive root system."

"Poorly prepared seedbed with large clogs in them are going to block seeds out; they won't have good soil contact," he continues. "The situation has been to work soil down to a fine granular, almost powdery material. That gives a good seed-to-soil contact but destroys a number of the physical properties of the soil beneficial later on. The tendency

now, particularly in large areas, is not to work the soil as fine." This would depend on the type of soil, since a sandy soil will work down to a fine substance more than a clay or loam.

Work with preemergent herbicides on seedbeds has revealed both positive and negative effects. Shearman has studied Siduron, which is recommended for cool-season grasses to prevent warm-season weeds, particularly crabgrass. It controls the detrimental weeds but also suppresses the establishment of desirable grass. "If we have to use it, we up the seeding rate 10 percent because it decreases the percent of germination, increases the number of days it takes for the seedling to emerge, and reduces the amount of rooting seedlings have," he says.

One approach Shearman suggests is to get the seed planted earlier so you don't have to use a preemergent herbicide, but only a regular herbicide. "I don't feel you should use any pesticide indiscriminately," he says. On Kentucky bluegrass, four or five weeks after the seedling emerges, you can use 2,4-D or combination products like Trimec for control of broadleaf weeds with minimum injury to desirable grass, according to Shearman.

Like his colleagues, Dr. Donald White from the department of horticulture and landscape architect-

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ture at the University of Minnesota, stresses an assessment of phosphorus needs. He thinks it's important to till phosphorus into the root zone from the beginning. "Some growers wait until the turf is growing to add phosphorus and it doesn't move in the soil very regularly," White says. "When you remove sod, you remove phosphorus." Dr. Jack

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### Minnesota sod producers have variety trials on a cooperative basis under their own care and soil conditions.

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Butler from the department of horticulture at Colorado State University thinks adding phosphorus can increase your initial growth by 200 or 300 percent.

White thinks that nitrogen, in its soluble form, should always be applied to the surface. He recom-

mends applying a half pound of nitrogen to 1,000 feet of surface and mix that in to the top 1/2 inch of the soil.

To help pick out the right type of cultivars, people ought to check with their local extension service and state university. "With energy and inflation problems, you're probably better off with a common and intermediate type of Kentucky bluegrass because they require less fertilizer," White says. They survive better through low maintenance. He suggests a mixture of two or three varieties with at least one shade-tolerant bluegrass.

In Minnesota, the sod producers have variety trials in their fields for cultivars. It is a practice that doesn't take much time but can be very profitable. The growers have what they want to experiment with under their own care and their own soil conditions, and can help each other with their findings.

White looks at this type of cooperative experimentation as an easy, effective aid for the sod farmer in the future. Yet for the ones who are successful, and many have found the right formula for their particular situation, they must really assess their needs if they decide to do things differently. "If you're doing things right, there's got to be a darn good reason for you to change," White says. **WTT**



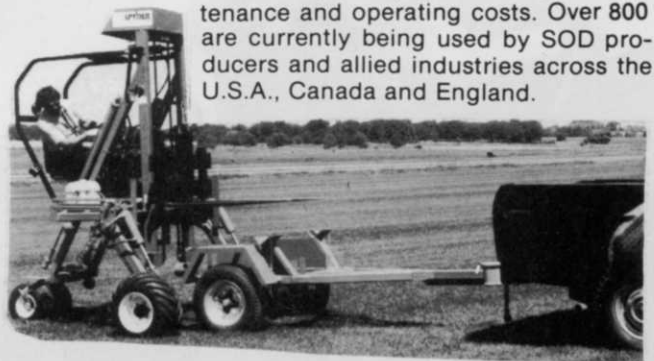
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