Successful Sod Installation Begins With Proper Selection

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IT SEEMS that one of the major problems is the sod industry today is improper installation of sod. Sod producers in Maryland are producing some of the highest quality sod in the United States and yet year after year the industry is plagued by a small percent of sodding failures. Admittedly, some of these failures can be accounted for by the very nature of the difficult climate present in the transition zone. The months of June, July and August provide brutal conditions for transplanting sod, yet with appropriate care sod can be successfully installed.

Any successful sod installation starts with the proper selection of quality sod containing varieties that perform well in the climate of the area. After the appropriate sod has been selected, the site for installation must be adequately prepared. The sod must be properly harvested and rushed to the site for immediate installation. After immediate and proper installation, the sod must be placed on a long range turfgrass management program designed specifically for the sod selected.

The selection of quality sod in Maryland can be a difficult job for the amateur. There are basically three types of sod available in Maryland: 1) non-cultivated sod, 2) cultivated sod and 3) certified sod. Non-cultivated sod is grass that is harvested from fields that were not seeded primarily for sod production. This type of sod is what used to be termed "Pasture sod". It is generally very cheap, of very poor quality and certainly not a good buy. It is often the type of sod used in situations where specifications are so loosely written that anything green would suffice. The probability of ever producing quality turf from pasture sod is minimal and would have to include the cost of herbicides and overseeding with improved varieties.

Cultivated sod is produced specifically for sale as sod. There are several types of cultivated sod on the market ranging from very poor quality to very high quality. The determination of this quality is left to the judgment of the consumer.

Certified sod is sod produced under the supervision of the Maryland Department of Agriculture. Production fields are inspected for weed problems by Department of Agriculture officials before seeding and at intervals prior to sale of the sod for other pests. Certification guarantees genetic purity of the seed used and insures that the sod meets the rigid quality standards set by the Maryland Department of Agriculture. The inspection program demands good cultural practices during production of the sod and guarantees the sod is free of undesirable weeds and harmful insects and diseases at the time of harvest.

Adequate site preparation is no less important than sod selection, but somehow is often neglected. There is a common misconception in the industry that areas to be sodded do not require the same preparation as areas to be seeded. Soil preparation for sodding or seeding is the same. Improper sodbed preparation is a common cause of sodding failure in Maryland.

Sodbed preparation when the soil is too moist results in compacted soils not conducive to sod rooting. Plows, disks, cultimulchers and rotovaters are all good implements for sodbed preparation. Use of rapidly revolving rotary tillers is generally discouraged because they tend to churn the soil to the point that the soil structure is destroyed. If topsoil has been added or replaced on the area, it should be blended with the soil beneath to avoid layering. Complete tests of areas to be sodded are essential and will provide specific recommendations to correct fertilizer and lime deficiencies.

If soil tests indicate either a lime or phosphorus deficiency it is essential that the corrective amounts be incorporated in the seedbed to a depth of 4 to 6 inches. Both phosphorus and lime do not move rapidly downward in the soil and, therefore, incorporation is essential at the time of sod installation. When a complete soil test has not been made it is advisable to disc in the equivalent of 12-15 pounds per 1000 square feet of 0-20-20 and 50 pounds of limestone or its equivalent per 1000 square feet.

A starter fertilizer should be applied and worked into the surface inch of the soil just prior to installation. This starter fertilizer should provide one pound of nitrogen, 1.5 to 2 pounds of P_2O_5 and 1.5 to 2 pounds of K_2O per 1000 square feet. Studies have shown that at normal levels of nutrition there is no difference in root production between soil applied and sod applied starter fertilizer. These same studies indicate that soil moisture content at all time of sod transplanting is very important. During hot periods rooting has been show to be delayed 11 days when sod was installed on air dry soil as opposed to mositened soil. This delay in rooting occurred even when the sod installed on air

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dry soil was watered to wet the soil under the sod immediately after installation (1). Obviously, waiting 11 days for sod to root in the middle of summer may be the difference between success and failure.

Properly harvested sod should contain approximately ¾ inch of soil. Standard size sections of sod should be strong enough to support their own weight if picked up by any end. Quality sod should not be harvested during periods when moisture content (excessively dry or wet) may adversely affect its survival. Sod should be harvested, delivered and installed within a period of 36 hours.

As noted earlier, during periods of high temperature, it is beneficial to lightly irrigate the soil immediately prior to laying the sod to cool and moisten the soil. The sod should not be stretched or overlapped and joints should be closely butted together. On sloping areas where erosion may be a problem sod should be laid with staggered joints, rolled and secured by pegging. All sod should be rolled and watered immediately after installation to prevent drying and remove air pockets. This irrigation should thoroughly wet the sod and the soil under the sod.

The sod should receive water daily until adequate root systems are developed to support the grass plants. The first mowing should not occur until the sod is firmly rooted and secure in place. Not more than 1/3 of the grass blade should be removed by the initial or subsequent cuttings.

After the sod has successfully rooted and established itself, it should be placed on a rational fertilization program corresponding to most university and industry recommendations.

Following these simple but essential steps for proper sod installation will considerably decrease sodding failures. □

Reference 1) King, J. W. and J. B. Beard. 1972. Agronomy Journal 64 (3):259-262

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greening with IBDU and nitrogen recovery from IBDU exceeded that from ureaform during the initial years of use," he said. "Two applications in spring and fall have given good results on both bentgrass and bluegrass. On bluegrass we found no advantage to three applications. A single spring application had a longer residual effect than a single fall application."

Plastic-coated fertilizer. Sierra Chemical Co. uses the "Osmocote" process to produce plastic-coated fertilizers, he said. In this process, plastic coatings, also called resin or polymeric coatings, are applied to soluble sources of nitrogen, phosphorus and potassium. For release to occur, water passes through the coating and dissolves the fertilizer salt. This causes pressure which swells the capsule, and the dissolved salts diffuse out through enlarged pores in the coating.

Different coating thicknesses are used to obtain different release patterns, he said. The thicker the coating, the slower the release. Release increases with increased temperature. If coatings are ruptured or cracked by mechanical damage or due to prolonged, excessive drying, release rate increases. The release rate is not significantly influenced by soil moisture levels, volume of water applied, soil pH, or microbial activity.

"The number of applications required is dependent on the formulation," Waddington said. "We used a six-month formulation on a putting green and performance fell short of six months. At lower temperatures the same formulation would be expected to last longer. We applied the fertilizer after aerification on the green to minimize mower damage to particles. After a single application of six pounds nitrogen per thousand square feet on fairway bentgrass, we observed turf damage when coated sources were damaged by tractor and mower traffic."

Sulfur-coated urea. Sulfur-coated urea is made by spraying preheated urea granules with molten sulfur. Sometimes a wax coating is then applied to seal pores in the sulfur coating. In some experimental formulations using wax, a microbicide was used to slow microbial decomposition of the wax. Nitrogen is released from sulfur coated urea by degradation of the coating and/or diffusion of soluble nitrogen through pores in the coating.

"Release rate is affected by coating thickness and temperature," he said. "The formation of ferrous sulfide on sulfur-coated urea under water-logged conditions also slows release of nitrogen. As with plastic-coated materials, breakage of the coating increases release."

He said the seven-day dissolution rate in water is commonly used to characterize different formulations of sulfur-coated urea. The Tennessee Valley Authority has done considerable development and agronomic work with sulfur-coated urea. Imperial Chemical Industries, Ltd., of England is commercially producing sulfur-coated urea under the trade name of "Gold-N". It contains 32 percent nitrogen, and was available in the United States during 1974. "We have had very good results with this and some TVA experimental formulations in our research," he said. "Some of the heavily coated materials did not give very good performance in the first year of use. However, other researchers have shown that these types release in later seasons." □