This practice applies where short-lived vegetation can be established before final grading or in a season not suitable for planting the desired permanent species. It helps prevent costly maintenance operations on other practices such as sediment basins and sediment barriers. In addition, it reduces problems of mud and dust production from bare soil surfaces during construction. Temporary or permanent seeding is necessary to protect earthen structures such as dikes, diversions, grasslined channels and the banks and dams of sediment basins.

## Typical Components of the Practice

- Scheduling
- Seedbed Preparation
- Applying Soil Amendments (fertilizer and lime) Planting
- Mulching or Installation of Erosion Control Blanket Inspection

### Installation

Prior to start of installation, plant materials, seeding rates and planting dates should be specified by a qualified design professional. Plans and specifications should be referred to by field personnel throughout the installation process.

Plantings should be made during the specified planting period if possible. When sites become available to plant outside of the recommended planting period. either a temperary seeding, mulching or chemical stabilization will be more appropriate than leaving the surface bare for an extended period. If fime and fertilizer application rates are not specified, take soil samples during final grading from the top 6" in each area to be seeded. Submit samples to a soil testing laboratory for lime and fertilizer recommendations.

## Seedbed Preparation

Grade and loosen soil to a smooth firm surface to enhance rooting of seedlings and reduce till erosion. If compaction exists, loosen the surface to 6" to 8". Break up large clods and loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions.

For broadcast seeding and drill seeding, loosen the soil to a depth of 6".

For no-till drilling, the soil surface does not need to be loosened unless the site has surface compaction. If shallow compaction exists, the area should be chiseled across the slope at least 6". If compaction exists between 6" and 12" the area should be chiseled or subsoiled at least 12".

Lime and fertilizer should be incorporated during seedbed preparation.

## Applying Sail Amendments

### Liming

Follow the design plan or soil test recommendation. If a plan or soil test is not available, use 2 tons/acre of ground agricultural lime on clayey soils (approximately 90 lbs/1,000 ft<sup>2</sup>.) and 1 ton/acre on sandy soils (approximately 45

Spread the specified amount of lime and incorporate into the upper 6" of soil following seedbed preparation and applying fertilizer.

Agricultural lime is usually applied as a separate operation and spread in dry form. It is not normally applied with a hydraulic seeder because it is abrasive and, also, may clog the system. On the other hand, liquid lime is applied with a hydraulic seeder but because of cost is used primarily to provide quick action for benefit of plants during their seedling stage with the bulk of liming needs to be provided by agricultural lime. Dry lime may be applied with the fertifizer

Apply a complete fertilizer at rates specified in the design plan or as recommended by soil tests, in the absence of soil tests, use the following as a

8-24-24 or equivalent - apply 400 lbs/acre (approximately 9 lbs/1000 ft<sup>2</sup>) at

When vegetation has emerged to a stand and is growing, 30 to 40 lbs/acre (approximately 0.8 lbs/1000 ft<sup>2</sup>) of additional nitrogen fertilizer should be

Note: Fertilizer can be blended to meet exact fertilizer recommendations. Take soil test recommendations to local fertilizer dealer for hulk fertilizer blends. This may be more economical than bagged fertilizer.

Incorporate lime and fertilizer to a depth of at least 6" with a disk or rotary tiller on slopes of up to 3:1.

On steeper slopes, lime and fertilizer may be applied to the surface without incorporation. Lime and fertilizer may be applied together; however, fertilizer should not be added to the seed mixture during hydrosceding. Lime may be added with the seed mixture.

## Planting

**Fertilizing** 

Plant the species specified in the plan at the rate and depth specified. In the absence of plans and specifications, plant species and seeding rates may be selected by qualified persons from Table TS-i.

Apply seed uniformly using a cyclone seeder, drop-type spreader, drill, drill seeder, cultipacker seeder or by hand on a fresh, firm friable seedbed.

When using a drill seeder, plant seed 14" to 15" deep. Calibrate equipment in the

When planting by methods other than a drill seeder or hydroseeder, cover seed by raking, or dragging a chain, brush or mat. Then firm the soil lightly with a roller. Seed can also be covered with hydro-mulched wood fiber and tackifier.

Cover broadcast seed by taking or chain dragging; then firm the surface with a roller or cultipacker to provide good seed contact. Small grains should be planted no more than I" deep and grasses and legume seed no more than 1" deep.

Species	Seeding Rate/Ac	North	Central	South		
	PLS	Seeding Dates				
Millet, Browntop or German	40 lbs	May 1-Aug i	Apr 1-Aug 15	Apr l-Aug 15		
Rye	3 bu	Sept I-Nov 15	Sept 15-Nov 15	Sept 15-Nov 15		
Ryegrass	30 lbs	Aug i-Sept 15	Sept l-Oct 15	Sept 1 -Oct 15		
Sorghum-Sudan Hybrids	40 lbs	May I-Aug 1	Apr 15-Aug 1	Apr I-Aug 15		
Sudangrass	40 lbs	May I-Aug I	Apr 15-Aug 1	Apr l-Aug 15		
Wheat Common	3 ba	Sept I-Nov 1	Sept 15-Nov 15	Sept 15-Nov 15		
Common Bermudagrass	10 lbs	Apr 1-July 1	Mar 15-July 15	Mar 1-July 15		
Crimson Clover	10 lbs	Sept 1-Nov 1	Sept 1-Nov 1	Sept I-Nov I		

1 PLS means pure live seed and is used to adjust seeding rates. For example, to plant 10 lbs PLS of a species with germination of 80% and 10% inert material, 10 ths PLS = 10 ths/ % live

Surface roughening is particularly important when hydroseeding, as roughened slope will provide some natural coverage for lime, fertilizer, and seed. The surface should not be compacted or smooth. Fine seedbed preparation is not necessary for hydroseeding operations; large clods, stones, and irregularities provide cavities in which seeds can lodge.

Mix seed, inoculant if required, and a seed carrier with water and apply as a slurry uniformly over the area to be treated. The seed carrier should be a cellulose fiber, natural wood fiber or cane fiber mulch material which is dyed an appropriate color to facilitate uniform application of seed. Use the correct legume inoculant at 4 times the recommended rate when adding inoculant to a hydroseeder slurry. The mixture should be applied within one hour after mixing to reduce damage to seed.

Fertilizer should not be mixed with the seed-inoculant mixture because fertilizer salts may damage seed and reduce germination and seedling vigor. Fertilizer may be applied with a hydroseeder as a separate operation after seedlings are established.

## Mulching

Cover 65% to 75% of the surface with the specified mulch materials. Mulching is extremely important for successful seeding in many situations and whether the mulching material is straw or a manufactured product, the material needs to be applied properly (See Mulching practice for more details).

### Verification of Installation

Check materials and installation for compliance with specifications during installation of products.

## Common Problems

Consult with a qualified design professional if the following occurs:

- Design specifications for seed variety, seeding dates or mulching cannot be met; substitutions may be required. Unapproved substitutions could lead to failure.
- · Seeding outside of the recommended results in an inadequate stand. Reseed according to specifications of a qualified design professional (see recommendations under Maintenance).

### Maintenance

Inspect seedings weekly until a stand is established and thereafter at least monthly for stand survival and vigor. Also, inspect the site for erosion.

Eroded areas should be addressed appropriately by filling and/or smoothing, and reapplication of lime, fertilizer, seed and mulch.

A stand should be uniform and dense for best results. Stand conditions, particularly the coverage, will determine the extent of remedial actions such as seedbed preparation and resceding. A qualified design professional should be consulted to advise on remedial actions. Consider no-till planting.

## Fertilizing

If vegetation fails to grow, have the soil tested to determine whether pH is in the correct range or nutrient deficiency is a problem.

Satisfactory establishment may require refertilizing the stand, especially if the planting is made early in the planting season. Follow soil test recommendations or the specifications provided to establish the planting.

Temporary plantings may be moved and baled or simply moved to compliment the use of the site.

Millet, sorghum-sudan hybrids, sudangrass, rye and wheat may be mowed, but no lower than 6" (closer moving may damage the stand).

Ryegrass is tolerant of most mowing regimes and may be moved often and as close as 4" to 6" if this regime is started before it attains tall growth (over

Bermudagrass is tolerant of most mowing regimes and can be mowed often and close, if so desired, during its growing season.

# Sodding (SOD)



# Practice Description

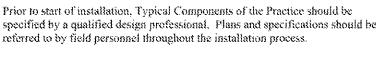
Sodding is the use of a transplanted vegetative cover to provide immediate crosion control in disturbed areas. Sodding is well suited for stabilizing crodible areas such as grass-lined channels, slopes around storm drain inlets and outlets, diversions, swales, and slopes and filter strips that cannot be established by seed or that need immediate cover.

# **Typical Components of the Practice**

- Plant Selection
- Surface Preparation
- Soil Amendments (lime and fertilizer) Installing the Sod

- Irrigation Installation Verification

# Installation



# Plant Selection

Use plants specified in plan. If not specified, select a variety using Figure SOD-1. Tables SOD-1 and SOD-2.



Figure SOD-1 Geographical Areas for Species Adaptation

# Grasses Adapted for Sodding in Alabama

TEMPORARY SEEDING

**\DETAIL** 

Species		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
Bermudagrass	Tilway, Tifgreen, Tiflawn, Common	North, Central, South  Central, South  Central, South  South		
Bahiagrass	Pensacola			
Centipede	No Improved Varieties			
St. Augustine	Bitterblue, Rateigh, Common			
Zoysia	Emerald, Meyer	Cerdral, South		
Cool Season Species				
Tall Fescue	Kenticky 31	North		

Species	Tolerance Ratings					Maintenance	
	Shade	Heat	Gold	Drought	Wear	Mowing Height	Моухіпд Егедиелсу
Bermudagrase	No	Good	Poor	Exce(	Excel.	1"	High
Bahlagrasa	Fair	Good	Paor	Excel.	Good	2-3"	High
Centipede	Fair	Good	Poor	Goed	Poor	1.551	wo.i
Tali Fescue	Good	Fair	Good	Good	Good	3"	High
St Augustine	Geod	Good	Poer	Poor	Poor	2-3"	Medium
Znvsia	Fair	Good	Fair	Exost.	Good	15	Eliah

# Surface Preparation

Clear the area of clods, rocks, etc. and smooth the area. Grade and loosen the soil to a smooth firm surface to enhance rooting. Break up large clods and loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions. Operate the equipment on the contour.

Where topsoiling is specified, additional steps will be done based on the design plan or, if not available, according to the Topsoiling practice.

# Application of Soil Amendments

Apply fertilizer and lime according to the plan or by soil test recommendations. In the absence of a plan or soil test recommendations apply agricultural limestone at the rate of 2 tons per acre (100 lbs. per 1000 sq. ft.) and 10-10-10 fertilizer at the rate of 1000 lbs, per acre (25 lbs per 1000 ft.2) Apply ground agricultural limestone unless a soil test shows a pH of 6.0 or greater. Incorporate amendments to depth of 4" to 6" with a disk or rotary filler.

# SODDING

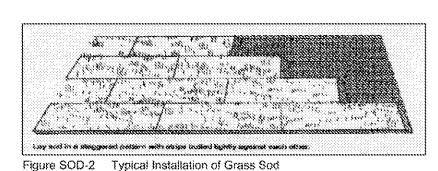


Rake or harrow to achieve a smooth, final grade on which to lay the sod. Surface should be loose, and free of plants, trash and other debris.

During high temperatures, moisten the soil immediately prior to laying sod. This cools the soil and reduces mot burning and dieback.

# Installing the Sod

Lay the first row of sod in a straight line with subsequent rows placed parallel to and butting tightly against each other. Stagger joints to create a brick-like pattern and promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight to prevent spaces which would cause drying of the roots (See Figure SOD-2).



On slopes 3:1 or steeper, or wherever concentrated flow may be a problem, lay sod with staggered joints and secure by stapling or pegging. Install sod with the length perpendicular to the water flow (on the contour). See Figure SOD-3. Staple firmly at the corners and middle of each strip. Jute or synthetic netting may be pegged over the sod for further protection against washout during establishment.

Immediately after laying the sod, roll or tamp it to provide firm contact between roots and soil, then irrigate sod deeply so that the underside of the sod pad and the soil 6" below the sod is thoroughly wet.

Until a good root system develops, water sod during dry periods as often as necessary to maintain moist soil to a depth of at least 4".

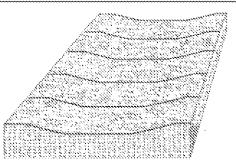


Figure SOD-3 Installation of Sod in Waterways

# Construction Verification

Check materials and installation for compliance with specifications.

# Common Problems

Consult with a qualified design professional if any of the following occur:

 Variations in topography on site indicate the sodding materials will not function as intended; changes in plan may be needed.

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- Design specifications for sod variety cannot be met or irrigation is not possible; substitution or seeding may be required. Unapproved substitutions could result in crosion or sodding failure.
- Sod laid on poorly prepared soil or unsuitable surface and grass dies because it is unable to develop a root system with the soil; remove dead sad, prepare surface properly and resod.
- Sod not adequately irrigated after installation; may cause root dieback or grass does not root rapidly and is subject to drying out: irrigate sod and underlying soil to a depth of 4" and keep moist until roots are established.
- Sod not anchored properly may be loosened by ramoff; use guidance under Site Preparation to repair the damaged areas, lay healthy sod, anchor properly and irrigate as planned.

# Slow growth due to lack of nitrogen; apply additional fertilizer.

# Maintenance

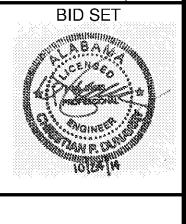
# Keep sod moist until it is fully rooted.

Mow to a height of 2" to 3" after sod is well-rooted, in 2 to 3 weeks. Do not remove more than 1/2 of the leaf blade in any mowing.

Permanent, fine turf areas require yearly fertilization. Fertilize warm-season grass in late spring to early summer; cool-season grass in early fall and late

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