

Ds1

DISTURBED AREA STABILIZATION MULCHING ONLY

DEFINITION

Applying plant residues or other suitable materials, produced on the site if possible, to the soil surface.

REQUIREMENT FOR REGULATORY COMPLIANCE

Mulch or temporary rassin shall be applied to all exposed areas within 14 days of disturbance. Mulch can be used as a soil erosion control device for up to six months, but it shall be applied at the appropriate depth, depending on the material used, and covered and have a continuous 90% cover or greater of the soil surface.

SPECIFICATIONS

Mulching Without Seeding

This standard applies to eroded or cleared areas where seedlings may not have a suitable rowin season to produce an erosion retardant cover, but can be stabilized with a mulch cover.

Site Preparation

- 1. Grade to permit the use of equipment for applying and anchoring mulch.
2. Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
3. Loosen compact soil to a minimum depth of 3 inches.

Mulching Materials

Select one of the following materials and apply at the depth indicated:

- 1. Dry straw or hay shall be applied at a depth of 2 to 4 inches providing complete soil coverage. One advantage of this material is easy application.
2. Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Or any material from the clearing shall be of development shall remain on site, be clipped, and applied as mulch. This method of mulch can greatly reduce erosion control costs.
3. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and re-used.

Applying Mulch

When mulch is used without seedling, mulch shall be applied to provide full coverage of the exposed area.

- 1. Dry straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanical equipment. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulch.
3. Apply polyethylene film on exposed areas.

Anchoring Mulch

1. Straw or hay mulch can be pressed into the soil with a disk arrow with the disk set straight or with a special "packer disk." Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving mulch of it in an erect position. Straw or hay mulch shall be anchored immediately after application.

2. Straw or hay mulch spread with special blower-type equipment may be anchored. Tackifiers, binders and hydraulic mulch tackifier specifically designed for tackling straw can be substituted for emulsified asphalt. Plastic mesh or netting with mesh no larger than one inch by one inch shall be installed according to manufacturer's specifications.

3. Netting of the appropriate sizes shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.

4. Polyethylene film shall be anchored or trenched at the top as well as incrementally as necessary.

Ds2

DISTURBED AREA STABILIZATION TEMPORARY SEEDING

DEFINITION

The establishment of temporary vegetative cover with fast growing seedlings for seasonal protection on disturbed or denuded areas.

REQUIREMENT FOR REGULATORY COMPLIANCE

Mulch or temporary rassin shall be applied to all exposed areas within 14 days of disturbance. Temporary rassin, instead of mulch, can be applied to rowed areas at 1/2 inch to 1 inch depth. If an area is expected to be undisturbed for longer than six months, permanent perennial vegetation shall be used. If optimum planting conditions for temporary rassin is lacking, mulch can be used as a soil erosion control device for up to six months but it shall be applied at the appropriate depth, anchored, and have a continuous 90% cover or greater of the soil surface.

CONDITIONS

Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established. Note: Some species of temporary vegetation are not appropriate for companion crop planting because of their potential to out-compete the desired species (e.g., annual ryegrass). Contact NRCS or the local SWCD for more information.

SPECIFICATIONS

Grading and Shaping

Excessive water run-off shall be reduced by properly designed and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment barriers and others. No sapping or rading is required if slopes can be stabilized by and-seeded vegetation or if hydraulic seeding equipment is to be used.

Seedbed Preparation

When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or and-seeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall. When soil has been sealed by rainfall or consists of moist, cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

Lime and Fertilizer

Agricultural lime is required unless soil tests indicate otherwise. Apply a agricultural lime at a rate determined by soil test for pH. Quick-acting lime should be incorporated to modify pH during the germination period. Bio-stimulants should also be considered when there is less than 3% organic matter in the soil. Graded areas require lime application. Soils must be tested to determine required amounts of fertilizer and amendments. Fertilizer should be applied before land preparation and incorporated with a disk, ripper, or chisel. On slopes too steep for, or inaccessible to equipment, fertilizers shall be hydraulically applied, preferably in the first pass with seed and some hydraulic mulch, then topped with the remaining required application rate.

Seeding

Select a grass or rassin-lime mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, culti-packer-seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or culti-packer seeders shall normally place seed one-quarter to one-half inch deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand. See Table 6-4.1.

Mulching

Temporary vegetation can, in most cases, be established without the use of mulch, provided there is little to no erosion potential. However, the use of mulch can often accelerate and enhance germination and vegetation establishment. Mulch without seedling should be considered for short-term protection.

Irrigation

During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be watered to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

Table with 4 columns: SPECIES, RATE PER 1,000 SFT., RATE PER ACRE, PLANTING DATES. Rows include Weeping Love grass, Sudan grass, Browntop Millet, and Rye grass.

Notes: 1) Unusual site conditions may require heavier seeding rates. 2) Seeding dates may need to be altered to fit temperature variations and conditions.

Ds3

DISTURBED AREA STABILIZATION - PERMANENT VEGETATION

DEFINITION

The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

REQUIREMENT FOR REGULATORY COMPLIANCE

This practice shall be applied immediately to rowed areas that will be undisturbed for longer than six months. This practice or sodding shall be applied immediately to all areas at final grade. Final Stabilization means that all soil disturbing activities at the site have been completed, and limits for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by the Georgia EPA for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures. Permanent vegetation shall consist of, planted trees, shrubs, perennial vines or a crop of perennial vegetation appropriate for the region, such as at the rowin season a 70% coverage by perennial vegetation shall be achieved. Final stabilization applies to each phase of construction. For linear construction projects on land used for a recreational or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land for its recreational or silvicultural use. Until this standard is satisfied and permanent control measures and facilities are operational, interim stabilization measures and temporary erosion and sedimentation control measures shall not be removed.

CONDITIONS

Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

CONSTRUCTION SPECIFICATIONS

Grading and Shaping

Grading and shaping may not be required where hydraulic seeding and fertilization equipment is to be used. Vertical banks shall be sloped to enable plant establishment.

When conventional seeding and fertilization are to be done, grade and shape where feasible and practical, so that the equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.

Concentrations of water that will cause excessive soil erosion shall be diverted to a safe outlet. Diversions and other treatment practices shall conform with the appropriate standards and specifications.

Lime and Fertilizer Rates and Analysis

Agricultural lime is required at the rate of one to two tons per acre unless soil tests indicate otherwise. Graded areas require lime application. If lime is applied within six months of planting permanent perennial vegetation, additional lime is not required. A agricultural lime shall be applied in the specifications of the Georgia Department of Agriculture. Lime spread by conventional equipment shall be "ground limestone." Ground limestone is calcitic or dolomitic limestone ground to 1/80 mesh at 90 percent of the material will pass through a 100-mesh sieve, not less than 50 percent will pass through a 50-mesh sieve and not less than 25 percent will pass through a 100-mesh sieve. Fast-acting lime spread by hydraulic seeding equipment shall be "finely round limestone" containing from 100 to 180 microns in size to 2 microns in size. Finely round limestone is calcitic or dolomitic limestone ground to 95 percent of the material will pass through a 100-mesh sieve. It is desirable to use dolomitic limestone in the Sand Hills, South Coastal Plain and Atlantic Coastal Plain MLRAs. A agricultural lime is generally not required where only trees are planted. Initial fertilization, nitrogen, phosphorus, and maintenance fertilizer requirements for each species or combination of species are listed in Table 6-5.1.

Lime and Fertilizer Application

When hydraulic seeding equipment is used, the initial fertilizer shall be mixed with seed, inoculant (if needed), and wood cellulose or wood pulp fiber mulch and applied in a slurry. The inoculant, if needed, shall be mixed with the seed prior to being placed into the hydraulic seeder. The slurry mixture will be applied during application to keep the seed and fertilizer mixed. The mixture will be spread uniformly over the area with one or more applications. Finely round limestone can be applied in the slurry or in combination with the top dressing. When conventional planting is used, lime, fertilizer and fertilizer shall be applied uniformly in one of the following ways: 1. Apply before land preparation and it will be mixed with the soil during seedbed preparation. 2. Apply with the soil used to fill the erosion distribute in furrows. 3. Broadcast after steep surfaces are scarified, pitted or trenched. 4. Apply in pits to be placed at root depth in the erosion beside each pine tree seedling.

Plant Selection

Plants shall be selected on the basis of species characteristics, site and soil conditions, planned use and maintenance and a time of year of planting, method of planting and the needs and desires of the land user.

Some perennial species are easily established and can be planted alone. Examples of these are Common Bermuda, Tall Fescue, and Weeping Love grass.

Other perennials, such as Bahia Grass and Sericea Lespedeza, are slow to become established and should be planted with another perennial species. The additional species will provide quick cover and ample soil protection until the target perennial species become established. For example, Common seedling combinations are 1) Weeping Love grass and Sericea Lespedeza (a scarified) and 2) Tall Fescue with Sericea Lespedeza (a scarified).

Plant selection may also include annual companion crops. Annual companion crops should be used only when the perennial species are not planted during their optimum planting period. A common mixture is Brown Top Millet with Common Bermuda in mid-summer. Care should be taken in selecting companion crop species and seeding rates because annual crops will compete with perennial species for water, nutrients, and rowin space. A seeding rate of the companion crop may prevent the establishment of perennial species.

Ryegrass shall not be used in any seeding mixtures containing perennial species due to its ability to out-compete desired species chosen for permanent perennial cover.

Seedbed Preparation

Seedbed preparation may not be required where hydraulic seeding and fertilization equipment is to be used (but is strongly recommended for any seeding process, when possible). When conventional seeding is to be used, seedbed preparation will be done as follows:

Broadcast plantings

- 1. Tillage, at a minimum, shall adequately loosen the soil to a depth of 4 to 6 inches as needed to incorporate lime and fertilizer smoothly and firm the soil allow for the proper placement of seed, spurs, or plants and allow for the anchoring of straw or hay mulch if a disk is to be used.
2. Tillage may be done with any suitable equipment.
3. Tillage shall be done on the contour where feasible.
4. On slopes too steep for the safe operation of tillage equipment, the soil surface shall be pitted or trenched across the slope with appropriate tools to provide two places 6 to 8 inches apart in which seed may lodge and germinate. Hydraulic seeding may also be used.

Individual Plants

- 1. Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting.
2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
3. Where pine seedlings are to be planted, subsoil under the row 36 inches deep on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

Inoculants All the lime seed shall be inoculated with appropriate nitrogen-fixing bacteria. The inoculant shall be a pure culture prepared specifically for the seed species and used within the dates on the container. A mixture of inoculants recommended by the manufacturer shall be used to bond the inoculant to the seed. For conventional seeding, use the amount of inoculant recommended by the manufacturer. For hydraulic seeding, four times the amount of inoculant recommended by the manufacturer shall be used. All inoculated seed shall be protected from the sun and temperatures and stored in a cool, dry place until establishment, and erosion control effectiveness. Select the mulch material from the following and apply as indicated:

- 1. Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 1/2 tons per acre.
2. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Dry straw or dry hay shall be applied at the rate indicated above and hydraulic seeding.
3. One thousand pounds of wood cellulose or wood pulp fiber, including a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 or steeper.
4. Sericea Lespedeza may contain mature seeds and shall be applied at a rate of 1 ton per acre.
5. Pine straw or pine bark shall be applied at a thickness of 2 inches for bedding purposes. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. This is not appropriate for seeded areas.
6. When using temporary erosion control blankets or biodegradable mulch, this is not required.
7. Bituminous treated paving may be applied on planted areas, slopes, in ditches or dry waterways to prevent erosion. Bituminous treated paving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications.
Wood cellulose and wood pulp fibers shall not contain emulsion or rowin in bituminous. They shall be evenly mixed with the soil. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

Applying Mulch

Straw or hay mulch shall be spread uniformly within 24 hours after seeding and/or planting. The mulch may be spread by blower-type spreading equipment, or spread by hand. Mulch shall be applied to cover 75% of the soil surface.

Wood cellulose or wood pulp fiber mulch shall be applied uniformly with hydraulic seeding equipment.

Anchoring Mulch

- 1. Hay or straw or hay mulch immediately after application by one of the following methods:
a. Hay and straw mulch shall be pressed into the soil immediately after the mulch is spread. A special "packer disk" or disk arrow with 1/2 inch disks set straight may be used. The disks may be smooth or serrated and shall be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving mulch of it in an erect position. Mulch shall not be plowed into the soil.
2. Synthetic tackifiers, binders or hydraulic mulch specifically designed to tack straw, shall be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers shall be mixed and applied according to manufacturer's specifications. All tackifiers, binders or hydraulic mulch specifically designed to tack straw should be verified non-toxic to EPA 2021.0 testing. Refer to Tackifiers-Tac.
3. Rye or wheat can be included with Fall and Winter planting to stabilize the mulch. They shall be applied at a rate of one-quarter to one-half bushel per acre.
4. Plastic mesh or netting with mesh no larger than one inch by one inch may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

Bedding Material

Mulch is used as a bedding material to conserve moisture and control weeds in nurseries, ornamental beds, around shrubs, and on bare areas on lawns. Material Depth

- Grain straw 4" to 6"
Grass Hay 4" to 6"
Pine needles 3" to 5"
Wood waste 4" to 6"

Irrigation

Irrigation will be applied at a rate that will not cause runoff.

Topdressing

Topdressing will be applied on all temporary and permanent (perennial) species planted alone or in mixtures with other species. Recommended rates of application are listed in Table 6-5.1.

Second Year and Maintenance Fertilization

Second year fertilizer rates and maintenance fertilizer rates are listed in Table 6-5.1.

Lime Maintenance Application

Apply one ton of agricultural lime every 4 to 6 years or as indicated by soil tests. Soil tests can be conducted to determine more accurate requirements, if desired.

Use and Management

Mow Sericea Lespedeza a year after frost to ensure that the seeds are mature. Mow between November and March. Bermuda grass, Bahia grass and Tall Fescue may be mowed as desired. Maintain at least 6 inches of top rowin under any use and management. Moderate use of top rowin is beneficial after establishment. Exclude traffic until the plants are well established. Because of the usual nesting season, mowings should not take place between May and September.

Table with 4 columns: SPECIES, RATE PER 1,000 SFT., RATE PER ACRE, PLANTING DATES. Rows include Bahia, Bermuda, Centipede, Lespedeza, Weeping Love grass, and Switch Grass.

Notes: 1) Unusual site conditions may require heavier seeding rates. 2) Seeding dates may need to be altered to fit temperature variations and conditions.

Du

DUST CONTROL ON DISTURBED AREAS

DEFINITION

Controlling surface and air movement of dust on construction sites, roads, and demolition sites.

CONDITIONS

This practice is applicable to areas subject to surface and air movement of dust where on and off-site damage may occur without treatment.

METHOD AND MATERIALS

A. Temporary Methods
1. Mulches. See standard Ds1 - Disturbed Area Stabilization (With Mulch Only). Synthetic resins may be used instead of asphalt to bind mulch material. Resins should be used according to manufacturer's recommendations.
2. Vegetative Cover. See specification Ds2 - Disturbed Area Stabilization (With Temporary Seeding).
3. Spray-on Adhesives. These are used on mineral soils (not effective on moist soils). Keep traffic off these areas.

Tillage. This practice is designed to row and aerate clods in a surface. It is an energy measure that should be used before wind erosion starts. Be plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, moldboard plows, and similar implements are examples of equipment that may produce the desired effect.

Irrigation. This is generally done as an emergency treatment. It is achieved with water until the surface is wet. Repeat as needed.

Barriers. Solid board fences, spaced and overlap fence, concrete walls. Bales of hay and similar material can be used to control air currents and slow down wind. Barriers placed at right angles to prevailing currents at intervals of 15 to 20 feet are effective in controlling wind erosion.

Chemical Control. Only at times when it will keep the dust from being re-entrained.

Permanent Methods
1. Permanent Vegetation. See specification Ds3 - Disturbed Area Stabilization (With Permanent Vegetation). Existing grass and legume stubs may afford valuable protection if left in place.
2. Topsoiling. This is essential to the practice with less erosive soil material.
3. Stone. Cover surface with crushed stone or coarse gravel.

Ds4

DISTURBED AREA STABILIZATION W/ SODDING

DEFINITION

A permanent vegetative cover consisting of sods or other erodible or critically eroded lands.

CONSTRUCTION SPECIFICATIONS

1. Sod should be machine cut and contain 3/4" (+ or - 1/4") of soil, not including shoots or thatch.
2. Sod should be cut to the desired size in 1/2" or 5/8". Torn or uneven pads should be rejected.
3. Sod should be cut and installed within 36 hours of digging.
4. Avoid planting when subject to frost heave or other weather, if air action is not available.
5. The sod type shall be as shown on the plans or installed according to Table 1.

Installation
Lay sod with 1/2 inch joints and in straight lines. Don't overlap joints. Stagger joints and do not stretch sod (See Table 1). On slopes steeper than 3:1, sod should be anchored with pins or other approved methods. Installed sod should be rolled or tamped to provide good contact between sod and soil. Irrigate sod and soil to a depth of 4" immediately after installation. Sod should not be cut or spread in extremely wet or dry soil. Irrigation should be used to supplement rainfall for a minimum of 2-3 weeks.

Maintenance
Re-sod areas where an adequate stand of sod is not obtained. New sod should be mowed sparingly. Grass should be cut less than 2"-3" or as specified (See Figure 1). Apply one ton of agricultural lime as indicated by soil test or every 4-6 years. Fertilizer rates in accordance with soil tests or Table 2.

Table 1 Sod Planting Requirements

Table with 4 columns: GRASS, VARIETIES, RESOURCE AREA, GROWING SEASON. Rows include Bermuda grass, Bahia grass, Centipede, St. Augustine, Poyasia, and Tall Fescue.

Table 2 Fertilizer Requirements for Sod

Table with 5 columns: SPECIES, PLANTING YEAR, FERTILIZER (N-P-K), RATE (lbs./acre), NITROGEN TOP DRESSING RATE (lbs/acre). Rows include Cool Season Grasses and Warm Season Grasses.

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