

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

**PURPOSE**  
-To reduce runoff and erosion;  
-To conserve moisture;  
-To prevent surface compaction or crusting;  
-To control undesirable vegetation;  
-To modify soil temperature;  
-To increase biological activity in the soil.

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

Maintenance shall be required to maintain appropriate depth and 90% cover. Temporary vegetation may be employed instead of mulch if the area will remain undisturbed for less than six months.

If an area will remain undisturbed for greater than six months, permanent vegetative techniques shall be employed. Refer to **Ds2 - Disturbed Area Stabilization (With Temporary Seeding)**, **Ds3 - Disturbed Area Stabilization (With Permanent Seeding)**, and **Ds4 - Disturbed Area Stabilization (With Sodding)**.

**SPECIFICATIONS**  
**Mulching Without Seeding**  
This standard applies to graded or cleared areas where seedings may not have a suitable growing 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.

**Ds1** Disturbed Area Stabilization (with Mulching Only) (not to scale)

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

**PURPOSE**  
-To reduce runoff and sediment damage of downstream resources.  
-To protect the soil surface from erosion.  
-To improve wildlife habitat.  
-To improve aesthetics.  
-To improve fill, infiltration and aeration as well as organic matter for permanent plantings.

**REQUIREMENTS FOR REGULATORY COMPLIANCE**  
Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. If an area is exposed for longer than six months, permanent perennial vegetative shall be used. If optimum planting conditions for temporary grassing is lacking, mulch can be used as a singular 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. Refer to specification **Ds1 - Disturbed Area Stabilization (With Mulch Only)**.

**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 shaping or grading is required if slopes can be stabilized by hand-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 hand seeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.

Species	Broadcast Rate		Resource Area <sup>1</sup>	Planting Dates by Resource Area												Remarks
	Rate Per Acre <sup>2</sup>	Pure Live Seed <sup>3</sup>		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
<b>Berly (Hordeum vulgare)</b>	3 bu. (144 bu.)	2.3 lb.	M-L													14,000 seed per pound. Winter hardy. Use on productive soils.
Alone																
In Mixture	1/2 bu. (24 bu.)	0.6 lb.	P													
<b>Lespedeza, Annual (Lespedeza striata)</b>	40 lbs.	0.9 lb.	M-L													200,000 seed per pound. May volunteer for several years. Use innoculant FL.
Alone																
In Mixture	10 lbs.	0.6 lb.	C													
<b>Lowgrass, Weeping (Eragrostis curvula)</b>	4 bu.	0.1 lb.	M-L													1,500,000 seed per pound. May last for several years. Mix with Setaria verticillata.
Alone																
In Mixture	2 lbs.	0.05 lb.	P													
<b>Millet, Browntop (Panicum fasciculatum)</b>	40 lbs.	0.9 lb.	M-L													137,000 seed per pound. Good cover. Will die after 2 years.
Alone																
In Mixture	10 lbs.	0.2 lb.	P													
<b>Millet, Pearl (Pennisetum glaucum)</b>	50 lbs.	1.1 lbs.	M-L													60,000 seed per pound. Quick cover. May last 3 to 5 years. Not recommended for mules.
Alone																
In Mixture	10 lbs.	0.2 lb.	C													
<b>Oats (Avena sativa)</b>	4 bu. (128 bu.)	2.9 lbs.	M-L													13,000 seed per pound. Use on productive soils as a winter hardy as well as a cover crop of barley.
Alone																
In Mixture	1 bu. (32 bu.)	0.7 lb.	P													
<b>Rye (Secale cereale)</b>	3 bu. (108 bu.)	2.9 lbs.	M-L													18,000 seed per pound. Quick cover. Drought tolerant and winter hardy.
Alone																
In Mixture	1/2 bu. (28 bu.)	0.6 lb.	P													
<b>Impresso, Annual (Lactuca serriola)</b>	40 lbs.	0.9 lbs.	M-L													227,000 seed per pound. Dense cover. Very competitive and is not to be used in mixtures.
Alone																
In Mixture	10 lbs.	0.2 lb.	C													
<b>Sudangrass (Sorghum sudanese)</b>	50 lbs.	1.4 lbs.	M-L													55,000 seed per pound. Good on droughty sites. Not recommended for mixtures.
Alone																
In Mixture	10 lbs.	0.2 lb.	C													
<b>Triticale (X-Triticosecals)</b>	3 bu. (144 bu.)	2.3 lb.	M-L													Use on lower part of Southern Coastal Plain and in Atlantic Coastal Flatwoods only.
Alone																
In Mixture	1/2 bu. (24 bu.)	0.6 lb.	C													
<b>Wheat (Triticum aestivum)</b>	3 bu. (180 bu.)	4.1 lbs.	M-L													15,000 seed per pound. Winter hardy.
Alone																
In Mixture	1/2 bu. (30 bu.)	0.7 lb.	C													

■ Optimum Dates    ▨ Permissible, but Marginal Dates  
 1 - Temporary cover crops are very competitive and will crowd out perennials if seeded too heavily.  
 2 - Reduce seeding rates by 50% when drilled.  
 3 - M-L represents the Mountain, Blue Ridge, and Ridges and Valleys MLRAs  
 P - represents the Southern Piedmont MLRA  
 C - represents Southern Coastal Plain, Sand Hills, Black Lands, and Atlantic Coast Flatwoods MLRAs  
 \* - (PLS) Per 1000 sq.ft.

**Ds2** Disturbed Area Stabilization (with Temporary Seeding) (not to scale)

**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.

**PURPOSE**  
-To protect the soil surface from erosion.  
-To reduce damage from sediment and runoff to downstream areas.  
-To improve wildlife habitat and visual resources.  
-To improve aesthetics.

**REQUIREMENTS FOR REGULATORY COMPLIANCE**  
This practice shall be applied immediately to rough graded 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 that for undisturbed areas and areas not covered by permanent structures and area located outside the waste disposal limits of a landfill cell that has been certified by the GA EPD 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; a crop of perennial vegetation appropriate for the region, such that within the growing 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 agricultural or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use. Until the 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.

**PLANNING CONSIDERATIONS**  
1. Use conventional planting methods where possible.  
2. When mixed plantings are done during marginal planting periods, companion crops shall be used.  
3. No till planting is effective when planting is done following summer or winter annual cover crop. Sericea lespedeza planted no till into stands of rye is an excellent procedure.  
4. Black sod provides immediate cover. It is especially effective in controlling erosion adjacent to concrete curbs and other structures. Refer to Specification **Ds4 - Disturbed Area Stabilization (With Sodding)**. Irrigation should be used when soils dry or when summer plantings are done.  
5. Low maintenance plants, as well as natives, should be used to ensure long-lasting erosion control.  
6. Mowing should not be performed during the quail nesting season (May to September).  
7. Wildlife plantings should be included in critical area plantings.

**Wildlife Plantings**  
Commercially available plants beneficial to wildlife species include the following:  
**Moist Bearing Trees**  
Beech, Black Cherry, Blackgum, Chestnut, Chickadee, Hackberry, Hickory, Honey Locust, Native Oak, Persimmon, Sawtooth Oak, and Sweetgum.  
All trees that produce nuts or fruits are favored by many game species. Hickory produces nuts used mainly by squirrels and bear.  
**Shrubs and Small Trees**  
Bayberry, Black Lespedeza, Crabapple, Dogwood, Huckleberry or Native Blueberry, Mountain Laurel, Native Holly, Red Cedar, Red Mulberry, Sumac, Wax Myrtle, Wild Plum, and Blackberry.  
Plant in patches without tall trees to develop stable shrub communities. All produce fruits used by many kinds of wildlife, except for lespedeza which produces seeds used by quail and songbirds.  
**Grosses, Legumes, Vines and Forbs**  
Bahiagrass, Bermudagrass, Grass-Legume mixtures, Partridge Pea, Annual Lespedeza, Orchardgrass (for mountains), Browntop Millet (for temporary cover), and Native grasses.  
Provides herbaceous cover in clearings for a game bird brood-rearing habitat. Appropriate species such as velvet, clover, and lespedeza may be mixed with grass, but they may die out after a few years.

**Planting**  
Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks on steep slopes require plant establishment.  
When conventional seeding and fertilizing are required, slope and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulch application, and maintenance of the vegetation.  
Concentration of water will cause excessive soil erosion that is diverted to a safe outlet. Concentrations of water that cause excessive soil erosion shall conform with the appropriate standards and specifications.

**Time and Fertilizer Rates and Analysis**  
Agricultural lime is required at one to two tons per acre unless soil tests indicate otherwise. Seed should be applied in a band or broadcast. Additional lime is not required. Cultural lime shall be within the specifications of the Georgia Department of Agriculture.  
Guidelines for lime application: Soil shall be "ground limestone". Ground limestone is calcitic or dolomitic limestone ground to that 90 percent of the material will pass through a 100 mesh sieve, no less than 50 percent will pass through 200 mesh sieve and not less than 25 percent will pass through a 40 mesh sieve.  
If it desirable to use dolomitic limestone in the Sand Hills, Southern Coastal Plain and Atlantic Coastal Flatwoods MLRAs.  
Agricultural lime is generally not required where only trees are planted. Initial fertilization, nitrogen, topdressing, and maintenance fertilizer requirements for each species or combination of species are listed in a Table hereon.

**Lime and Fertilizer Application:**  
When hydraulic seeding equipment is used, the initial fertilizer shall be mixed with seed, innoculant (if needed), and wood cellulose or wood pulp fiber mulch and applied in a slurry. The innoculant, if needed, shall be mixed with the seed prior to being placed into the hydraulic seeder. The slurry mixture will be agitated during application to keep the ingredients thoroughly mixed. The mixture will be spread uniformly over the area within one hour after being placed in the hydropseeder.  
Finely ground limestone can be applied in the mulch slurry or in combination with the top dressing.  
When conventional planting is to be done, lime and fertilizer shall be applied uniformly in one of the following ways:  
1. Apply before land preparation so that it will be mixed with the soil during seedbed preparation.  
2. Mix with the soil used to fill the holes, distribute in furrows.  
3. Broadcast after steep surfaces are scarified, potted or trenched.  
4. A fertilizer pellet shall be placed at root depth in the closing hole beside each pine tree seeding.

**Plant Selection:**  
Refer to the Tables hereon for approved species. Species not listed shall be approved by the State Resource Conservationist of the Natural Resources Conservation Service, before they are used.  
Plants shall be selected on the basis of species characteristics, site and soil conditions, planned use and maintenance of the area; 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 Lovegrass.  
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 larger perennial species become established. For example, Common Sericea Lespedeza combinations are 1) Weeping Lovegrass with Sericea Lespedeza (scarified) and 2) Tall Fescue with Sericea Lespedeza (unscarified).

**Plant, Planting rate, and Planting Date for Temporary Cover or Companion Crops**

Species	Broadcast Rate Rate Per Acre <sup>2</sup>	Resource Area <sup>1</sup>	Planting Dates by Resource Area												Remarks	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
<b>Bermuda, Common (Cynodon dactylon)</b>	10 lbs.	0.2 lb.	P													1,875,000 seed per pound. Quick cover. Low growing and sod forming. Full sun. Good for athletic fields.
Alone																
In Mixture	3 lbs.	0.1 lb.	C													
<b>Crownvetch (Coronilla varia)</b>	15 lbs.	0.3 lb.	M-L													100,000 seed per pound. Dense cover. Drought tolerant and the resistant. Attractive rose pink and white flowers. Long life span. Mix with 30 pounds Tall Fescue or 15 pounds of Rye. Inoculate seed with M-Innoculate. Use from North Atlantic and Southeast.
Alone																
In Mixture	3 lbs.	0.1 lb.	P													
<b>Crotalaria (Crotalaria retusa)</b>	10 lbs.	0.2 lb.	M-L													Plant with winter annuals. Plant Tall Fescue.
Alone																
In Mixture	3 lbs.	0.1 lb.	C													
<b>Cyperus (Cyperus setaceus)</b>	40 cu ft.	0.9 cu ft.	M-L													A cubic foot contains approximately 450 plugs. A bushel contains 1.25 cubic feet or approximately 800 plugs.
Alone																
In Mixture	10 cu ft.	0.3 cu ft.	C													
<b>Scarfied</b>	60 lbs.	1.4 lbs.	M-L													350,000 seed per pound. Widely adapted. Low maintenance. Mix with Weeping Lovegrass, Common Bermuda, Bahia, or Tall Fescue. Mix with 30 pounds Tall Fescue or 15 pounds of Rye. Inoculate seed with M-Innoculate. Use from North Atlantic and Southeast.
Alone																
In Mixture	15 lbs.	0.3 lb.	C													
<b>Unscarified</b>	75 lbs.	1.7 lbs.	M-L													Mix with Tall Fescue of winter annuals.
Alone																
In Mixture	15 lbs.	0.3 lb.	C													
<b>Seed-bearing hay</b>	3 tons	1338 lbs.	M-L													Cut when seed mature; mow, but before 70% of plants, and cut Tall Fescue or winter annuals.
Alone																
In Mixture	10 lbs.	0.2 lb.	C													
<b>Lespedeza (Amorpha virginica)</b>	40 lbs.	0.9 lb.	M-L													300,000 seed per pound. Height of growth 1 1/2 to 24 inches. Adaptability in various areas. Spreading type growth. Green growth has bronze coloration. Mix with Weeping Lovegrass, Common Bermuda, Bahia, Tall Fescue or winter annuals. Do not mix with Sericea Lespedeza. Slow to develop solid stands. Inoculate seed with M-Innoculate.
Alone																
In Mixture	10 lbs.	0.2 lb.	C													
<b>Lespedeza, Shrub (Lespedeza thurbergii)</b>	3' x 3'		M-L													Provide wildlife food and cover.
Alone																
In Mixture	10 lbs.	0.2 lb.	C													
<b>Lowgrass, Weeping (Eragrostis curvula)</b>	4 lbs.	0.1 lb.	M-L													1,500,000 seed per pound. Quick cover. Drought tolerant. Grows well with Sericea lespedeza on moorlands.
Alone																
In Mixture	2 lbs.	0.05 lb.	P													
<b>Maintenance (Panicum hemeranthum)</b>	2' x 3' spacing		M-L													For very steep sites, may chop channels. Dig plugs from local sources. Use along river banks and shorelines.
Alone																
In Mixture	10 lbs.	0.2 lb.	C													
<b>Paragrass, Atlantic Coastal (Panicum anisatum var. anisatum)</b>	20 lbs.	0.5 lb.	M-L													Grows well on coastal sand dunes, borrow areas, and gravel pits. Provides winter cover for all birds. Mix with Sericea lespedeza except on sand dunes.
Alone																
In Mixture	10 lbs.	0.2 lb.	C													
<b>Red Canary Grass (Phalaris arundinacea)</b>	30 lbs.	1.1 lbs.	M-L													Grows similar to Tall Fescue.
Alone																
In Mixture	10 lbs.	0.3 lb.	C													
<b>Sudangrass (Sorghum sudanese)</b>	10 lbs.	0.2 lb.	M-L													277,000 seed per pound. Mix with Weeping lovegrass or other low-growing grasses or legumes.
Alone																
In Mixture	10 lbs.	0.2 lb.	C													

■ Optimum Dates    ▨ Permissible, but Marginal Dates  
 1 - Reduce seeding rates by 50% when drilled.  
 2 - M-L represents the Mountain, Blue Ridge, and Ridges and Valleys MLRAs  
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**Ds3** Disturbed Area Stabilization (with Permanent Vegetation) (not to scale)

**Applying Mulch**  
Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or planting. The mulch may be spread by blower-type spreading equipment, other spreading equipment or 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  
Anchor straw or hay mulch immediately after application by one of the following methods:  
1. Hay and straw mulch shall be pressed into the soil immediately after mulch is spread. A special "packer disk" or disk harrow with the disk set straight may be used. The 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 disks shall be dulled enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be plowed into the soil.  
2. Synthetic tackifiers, binders or hydraulic mulch specifically designed to lock 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 lock straw should be verified non-toxic (through EPA2021-0 testing. Refer to 18 - Tackifiers, Inc.  
3. Rye or wheat can be included with Fall and Winter plantings 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 soil and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

**Bedding Material**  
Mulch may be used as a bedding material to conserve moisture and control weeds in nurseries, ornamental beds, ground shrubs, and on bare area 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. See Table hereon for recommended rates of application.  
Second Year and Maintenance Fertilization  
Second year fertilizer rates and maintenance fertilizer rates are listed in a Table hereon.  
Lime Maintenance Application  
Apply one ton of agricultural lime every 4 years or as indicated by soil tests can