

## CRITICAL AREA PLANTING SPECIFICATIONS

### NATURAL RESOURCES CONSERVATION SERVICE

#### **Plant Material Selection and Planting Method**

The targeted planting periods (i.e. winter, spring, summer, fall) and application (i.e. levees, channels, shaped spoils, gullies, etc) for critical area planting will be the main factor for selecting the appropriate plant material, seeding mixtures, and rates. Maintenance requirements, soil fertility, location within landscape, and hydrology should also be considered when selecting plants for permanent vegetation. Native species or mixes that are adapted to the site and have multiple values should be considered.

Grasses, legumes, forbs and woody plants suitable for critical area plantings including adapted cultivars, seeding rates, and optimum planting dates are listed in Appendix 1 - Planting Rates for Louisiana by MLRA's.

Temporary Vegetation or Cover: Temporary vegetation (i.e. annual grasses) should be used on areas that are subject to erosion and where the establishment of a permanent cover may be delayed due to the planting period or final site preparation. If the period of temporary protection is 60 days or less, use mulch without seeding. In adverse growing conditions of extremely low temperatures (December – February) and extremely hot and dry periods (July and August) mulch provides superior protection and should be used in combination with seeding. Mulch will be applied according to mulching specifications in Standard and Specifications, Mulching (484).

Grasses: All seed and planting materials will be labeled and meet state seed quality law standards. Vegetative material, such as sprigs, green hay, and roots, can be obtained on farm, if available, or from a reputable source. Seeding rates will be determined based on pure live seed (PLS) or percent germination information found on the seed tag. Percent PLS can be computed using decimal values with the following equation.

$$\text{Percent Pure Live Seed} = [(\% \text{ germination} + \% \text{ hard seed}) \times \% \text{ purity}] / 100.$$

All seeding, sprigging and hydro-seeding operations shall be performed in such a manner that the seed or sprigs are applied uniformly in the specified rates in the designated areas. Hydro-seeding is a seeding process where seed, water, and possibly fertilizer and lime are mixed together and sprayed over the seedbed in one application using a hydraulic seeder/mulcher. Unless otherwise specified, seeding or sprigging of either temporary and/or permanent cover shall be accomplished within 2 days after final grading and seedbed preparation is completed and approved.

Trees, Shrubs, and Vines: Tree planting dibbles can be used to plant bare root seedlings. Holes should be deep enough so that roots can be placed straight down and slightly deeper than they grew in the nursery. The soil must be firmed around the roots so that there is no air space.

Plant root stock at the same depth or slightly deeper (1 inch) than it was growing in the nursery or container. Properly planted root stock should resist gentle lifting pressure. An initial cover establishment of grasses and or legumes may be needed depending on site conditions.

Mulch or temporary vegetation may be necessary to help keep the soil intact because trees will not effectively control erosion for 3 to 4 years. Permanent vegetation can be established then chemically treated in spots or strips before transplanting bare root or container trees.

Direct seeding can be used in certain situations if approved by an area or state specialist. Direct seeding is not an option on slopes steeper than 3:1 (horizontal to vertical). Use viable, mature

seed. Locally collected seed or that purchased from commercial sources may be seeded by hand or mechanical methods.

#### Ground cover, vines, and shrubs:

Sod: Solid sod may be applied on sites where immediate cover is required such as steep slopes, waterways, or other areas where large volumes of water are concentrated and where establishment of turf from seed is impractical. The sod shall consist of dense, well-rooted plants. It must contain a minimum of 90 percent vegetative cover of the desirable species, and shall be free of noxious weeds. Do not allow the sod to dry out, freeze or go through a heat after lifting sod and prior to placement. Cut sod at least 2 inches deep, excluding top growth, in uniform size convenient for handling and placement. Sod must be planted within 48 hours of digging.

The placement of the sod should be across the slope starting at the bottom and working up the slope. Fit the sod closely together to avoid open spaces. The joints (end of strips) shall be staggered as in laying bricks. Do not overlap sod strips. Roll or tamp the sod after placement to insure contact of the grass roots with the soil. Maintain adequate moisture for at least two weeks to insure establishment of the sod. On slopes steeper than 4:1 (horizontal to vertical), secure the sod to the soil surface with wooden pegs or staples. Cover the upper edge of the sodded area with a soil retention blanket or similar product for protection against water lifting and undercutting.

#### **Site Preparation**

Gullied, rilled, or rough sites will be smoothed and shaped to permit the use of tracked or wheeled equipment for establishment and maintenance of vegetation. Slopes that are being seeded with wheeled equipment for cover should not be steeper than 3:1 (horizontal to vertical). Wheel equipment can operate on 3:1 slopes however, for safety and ease of maintenance, flatter slopes should be considered. On slopes steeper than 3:1, ground cover plants should be considered. On slopes steeper than 1 ½:1, retaining walls, reinforced earth, or other structural means should be considered.

After smoothing and shaping, the seedbed will be prepared to a minimum depth of 3 inches and harrowed to uniformly smooth surface. For soils with poor physical conditions, such as old cropland fields or soils, which have been compacted, use a chisel plow or similar equipment to break a minimum of 6 to 8 inches. Four inches of topsoil should be applied when excavation is made into subsoil or where growing conditions are not favorable. All loose rock, roots or other obstructions that will interfere with establishment and maintenance of vegetation must be removed from the surface.

Use a cultipacker, roller or similar implement to firm seedbed prior to planting. If rain has settled a freshly prepared seedbed, then harrow before planting seed. Native grass and forbs should be planted on an extra firm seedbed.

On cuts with firm undisturbed material, and soil sealed from rainfall, use a disc harrow, spring-tooth harrow, or similar implement to loosen surface and mix fertilizer into soil. Fertilizer and lime should be incorporated 2 to 3 inches deep.

Temporary vegetation can be established by broadcasting seed on the surface if seeding is done immediately after the surface is worked. No additional seedbed preparation is necessary if the soil is loose and has not been sealed by rainfall.

Concentrated flow of water from off-site areas or water draining over cut banks and fill slopes should be diverted by the use of temporary diversions, closed drains, ditches, lined waterways or other erosion control methods. For concentrated flow areas that have been seeded to grass, it may be necessary to use rolled erosion control products, silt fences or hidabales. Silt fences

consist of manufactured materials at least 24 inches high stretched across the concentrated flow area and held in place by steel posts. The bottom of the silt fence should be buried at least four inches. Once the vegetation is well established in the concentrated flow area, the silt fence can be removed. Hidabales consist of square bales of hay placed length-ways with the cut side up in a trench across the concentrated flow area with 4 to 6 inches left above the trench or soil line.

Steep embankments resulting from construction activities or on slopes equal to or greater than 3:1 (horizontal to vertical), temporary rolled erosion control products may be necessary to provide protection until vegetation is established. Rolled erosion control products include but are not limited to erosion control nets, open weave geotextiles, erosion control blankets and geosynthetic mattings. These products can be manufactured from wood excelsior, straw, jute, coconut fiber, coir, polyolefin, PVC and nylon. Temporary rolled erosion control products will be installed according to mulching specifications in Standard and Specifications, Mulching (484).

### Soil Fertility

**A representative soil sample is required for all critical area plantings to determine lime and fertilizer needs.**

Temporary Vegetation: No lime will be applied for temporary vegetation. Use temporary cover on soils with pH 4.5 or higher. Mulch will be used for temporary cover on soils to acid (pH <4.5) for temporary seeding.

In lieu of a soil test, fertilizer will be applied at a 1-1-1 ratio of N, P<sub>2</sub>O<sub>5</sub>, & K<sub>2</sub>O. Apply 25 to 35 pounds of actual N, P<sub>2</sub>O<sub>5</sub>, & K<sub>2</sub>O per acre or 0.60 to 0.80 lbs. per 1,000 sq. ft.

Example Fertilizer Mixes: 30 lbs of N, P<sub>2</sub>O<sub>5</sub>, & K<sub>2</sub>O = 250 lbs. of 12-12-12 or 375 lbs. of 8-8-8

Permanent Vegetation: Lime is recommended for all soils with a pH below 5.0. Lime applications should follow rates recommended on soil test results. If recommendations are not available, use the following general guidelines. One-ton agricultural limestone or dolomitic limestone per acre will generally raise the pH approximately one unit. Soil pH should be maintained at 5.5 or higher. *NOTE: Broadcast lime and fertilizer on the soil surface. On areas requiring seedbed preparation, lime and fertilizer should be incorporated.*

In lieu of a soil test, fertilizer will be applied at a 1-1-1 ratio of N, P<sub>2</sub>O<sub>5</sub>, & K<sub>2</sub>O. Apply 50 to 100 pounds of actual N, P<sub>2</sub>O<sub>5</sub>, & K<sub>2</sub>O per acre or 1.2 to 2.3 lbs. per 1,000 sq. ft.

Example Fertilizer Mixes: 75 lbs of N, P<sub>2</sub>O<sub>5</sub>, & K<sub>2</sub>O = 625 lbs. of 12-12-12 or 938 lbs. of 8-8-8

Poultry litter or cattle manure can also be applied to add organic matter, improve soil structure, water holding capacity and to provide plant nutrients.