

PRIMARY USE: Erosion control.

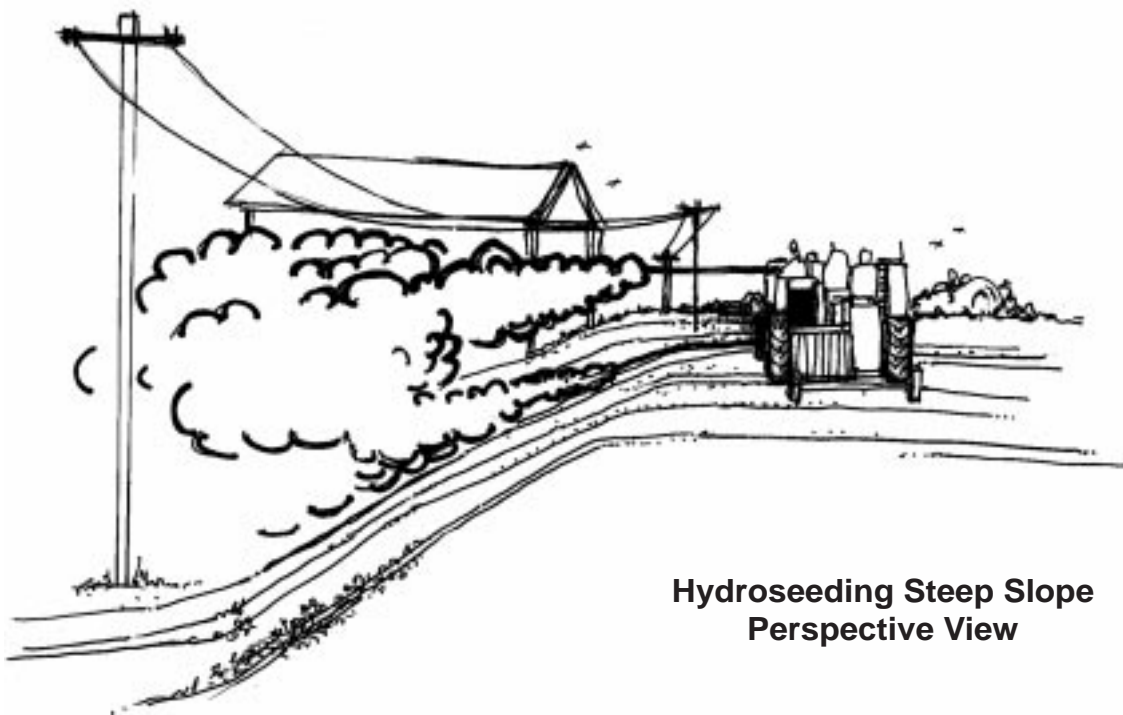
ADDITIONAL USES: Enhance attractiveness of site.

CRITICAL AREA PLANTING

What is it? Planting vegetation, such as trees, shrubs, vines, grasses, or legumes, on highly erodible or critically eroding areas.

Purpose

To stabilize the soil, reduce damage from sediment and runoff to downstream areas, and improve wildlife habitat and visual resources. Use on highly erodible or critically eroding areas. These areas usually cannot be stabilized by ordinary conservation treatment and management and if left untreated can cause severe erosion or sediment damage. Examples of applicable areas are dams, dikes, mine spoil, levees, cuts, fills, surface-mined areas, and denuded or gullied areas where vegetation is difficult to establish by the usual planting methods.



**Hydroseeding Steep Slope
Perspective View**

Limitations

The disadvantages of seeding include: potential for erosion during the establishment stage; the need to reseed areas that fail to establish; seasonal limitations on suitable seeding dates; and a need for water and appropriate temperatures during germination and early growth. Disadvantages of using live plants include greater expense and labor requirements.

Materials

A broad choice of grass, trees, shrubs, and vines are usually available and adapted for most sites.

Installation

Areas to be stabilized with permanent vegetation must be seeded or planted within 30 days after final grade is reached unless temporary stabilization is applied. Woody plants and ground covers provide alternatives to grasses and legumes as low-maintenance, long-term erosion control. However, they are normally planted only for special, high-value applications, or for aesthetic reasons, because there is additional cost and labor associated with their use.

Source: NRCS National Handbook of Conservation Practices

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PERMANENT SEEDING

Selecting Plant Materials

Land use is a primary consideration in planning permanent seedings. Land use can be divided into two general categories: 1. High-maintenance areas that are mowed frequently, limed and fertilized regularly, and either receive intense use (e.g., athletic fields) or require maintenance to an aesthetic standard (e.g., home lawns). Grasses used for these situations are long-lived perennials that form a tight sod and are fine-leaved and attractive in appearance. They must be well-adapted to the geographic area where they are planted and able to endure the stress of frequent mowing. Sites where high-maintenance vegetative cover is desirable include homes, industrial parks, schools, churches, and recreational areas. 2. Low-maintenance areas that are mowed infrequently or not at all, and do not receive lime and fertilizer on a regular basis. Plants must persist with little maintenance over long periods of time. Grass and legume mixtures are favored for these sites because legumes are a source of soil nitrogen. Mixed stands are also more resistant to adverse conditions. Sites suitable for low-maintenance vegetation include steep slopes, stream or channel banks, some commercial properties, and “utility” turf areas such as road banks.

Seedbed Preparation

The soil on a disturbed site must be amended to provide an optimum environment for seed germination and seedling growth. The surface soil must be loose enough for water infiltration and root penetration. The pH (acidity or alkalinity) of the soil must be such that it is not toxic and nutrients are available, preferably between 6.0 and 6.5. Sufficient nutrients, added as fertilizer, must be present. It is as important to add lime as to add fertilizer. After seed is in place, it must be protected with a mulch to hold moisture and modify temperature extremes, while preventing erosion during seedling establishment.

Steep Slopes

The operation of equipment is restricted on slopes steeper than 3:1, severely limiting the quality of the seedbed that can be prepared. The soil on such slopes cannot be sufficiently worked, and amendments cannot be thoroughly incorporated. Where steepness prohibits the use of farm machinery, seeding methods are limited to broadcast or hydroseeding, with hydroseeding giving the most dependable results. Vegetation chosen for these slopes must not require mowing or other intensive maintenance. Using a hydraulic seeder, seed, fertilizer, wood fiber mulch, and a tacking agent can be applied in one operation. Good mulching practices are critical to protect against erosion on steep slopes. When using straw, anchor with netting or asphalt. On slopes steeper than 2:1, jute, excelsior, or synthetic matting may be required to protect the slope.

Seeding

Seeding dates vary for different grasses and legumes. Seedings carried out within these dates have a high probability of success. It is possible to have satisfactory establishment when seeding outside these dates. However, as you deviate from them, the probability of failure increases rapidly.

Hydroseeding

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

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Sprigging

Some hybrid grasses cannot be grown from seed and must be planted vegetatively. Vegetative methods of establishing these include sodding, plugging and sprigging. Sprigs are fragments of horizontal stems which include at least one node (joint). They are normally sold by the bushel and can either be broadcast or planted in furrows using a tractor-drawn tobacco or vegetable transplanter.

Maintenance

Generally, a stand of vegetation cannot be determined to be fully established until soil cover has been maintained for one full year from planting. Inspect seeded areas for failure and make necessary repairs and reseeding within the same season, if possible.

Trees

Although trees are among the best soil stabilizers, years are required for the development of forest cover adequate to meet sedimentation control objectives. Efforts must first focus on establishing densely-growing species to stabilize the site and protect the area between immature trees. Trees can be dug on-site with a tree spade, or purchased from a nursery. Large trees come with their roots and the attached soil wrapped in burlap, and small trees and shrubs are sold in plastic containers or as bare-root stock. The soil ball of containerized and burlapped trees should be 12 in (305 mm) in diameter for each inch of trunk diameter. November through March is the preferred planting time for deciduous trees and evergreens. Avoid summer planting. Stake small trees with vertical stakes driven into the ground, just beyond the root ball. Secure large trees with guy wires. Cushion wire, where it contacts the tree, with rubber hose.



**Bank Planting
Perspective View**

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Shrubs

Shrubs vary in form from small trees to sprawling, woody ground covers. They differ from most trees in that several small trunks arise from a common base. As a supplement to herbaceous plantings, shrubs can be used to: increase the aesthetic value of plantings; provide screening; enhance windbreaks; provide food and cover for wildlife; accelerate the transition to a diverse landscape; provide post-construction landscaping. The best shrubs for erosion control have characteristics such as fast growth, ease of establishment, large lateral spread or prostrate growth, year-round foliage (evergreens), disease and insect resistance, ability of the roots to fix nitrogen, and adaptation to a broad range of soil conditions. Planting is best done in late fall, winter, or early spring. Follow the general procedures for tree care and planting.

Ground Covers and Vines

“Ground cover” refers to low-growing, herbaceous or woody plants that spread vegetatively to produce a dense, continuous cover. They are used in landscape plantings and as an alternative to turf. Typically only a few ornamental grasses are included in this category. Many ground covers, such as English ivy, are vines that spread along the ground but also climb on buildings, fences, or other vegetation. In addition to stabilizing disturbed soil, vines and ground covers perform the following functions: they maintain cover in heavily shaded areas where turf will not thrive; they provide attractive cover that does not need mowing; they restrict pedestrian traffic. For most stabilization purposes, fast-growing, evergreen, low-maintenance ground covers are preferable. Ground covers are best planted in fall or early spring. Good soil is important in establishing ground covers because their dense growth requires large amounts of nutrients and water. Well-drained soils high in organic matter work best. When possible, apply 4 - 6 in (102 - 152 mm) of organic matter in the form of peat, sawdust, or well-rotted manure, and incorporate into soil. On steep slopes, till the soil in contour rows, or dig single holes for each plant.