

Chapter 5 - VEGETATIVE PRACTICE STANDARDS

TREES, SHRUBS, VINES, AND GROUND COVER

Definition

Stabilizing disturbed areas by establishing a vegetative cover of trees, shrubs, vines, or ground covers.

Purpose

To stabilize the soil with vegetation other than grasses or legumes, to provide food and shelter for wildlife, and to provide windbreaks or screens.

Conditions Where Practice Applies

Trees, shrubs, vines and ground covers may be used on steep slopes where mowing is not feasible; as ornamentals for landscaping purposes; or in shaded areas where grass establishment is difficult.

Planning Considerations

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.

Very few of these plants can be dependably planted from seed, and none of them is capable of providing the rapid cover possible with grasses. Trees and shrubs in particular require a long time to produce cover adequate to control erosion. Consequently, efforts must first focus on short-term stabilization using densely-growing herbaceous species or a dependable mulch.

There are many different species of woody plants and ground covers from which to choose. Most are not as broadly adapted as herbaceous species, and care must be taken in their selection. It is essential to select planting material suited to both the intended use and site.

The large selection of available plant material makes it impractical to give planting specifications for even the most common species. Instead, general planting guidelines are given here.

1. 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.

For areas in which tree or shrub plantings are planned, initial seedings of grasses and legumes may need to be altered somewhat to reduce competition with the woody species. Unless the site is highly

erodible, seeding rates may be reduced or competitive species may be omitted. Species such as tall fescue, which produce vigorous early growth, are highly competitive. Annual lespedezas, which start growing relatively late in the spring, are much less competitive with tree seedlings. On highly erodible sites the addition of a low seeding rate of weeping lovegrass may be effective.

Two alternative approaches to establishing tree cover on disturbed sites are (1) planting seedlings of the desired species, usually at the earliest suitable date, or (2) allowing natural invasion by native species.

Planting speeds tree establishment, ensures adequate stands, and allows selection of species composition. Where forest production is the objective, planting is preferable to natural invasion. Where invasion is acceptable, tree planting is not necessary if there is a seed source near the site.

2. **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:

- a. increase the aesthetic value of plantings,
 - b. provide screening,
 - c. enhance windbreaks,
 - d. provide food and cover for wildlife,
 - e. accelerate the transition to a diverselandscape,
 - f. provide post-construction landscaping.
3. **Ground Covers.** As used by landscapers, "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 or 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.

Ground covers differ in growth form, growth rate, and shade tolerance. They may be evergreen or deciduous. Some are suitable only as part of a high-maintenance landscape; others can be used to stabilize large areas with little maintenance.

In addition to stabilizing disturbed soil, vines and ground covers perform the following functions:

- a. They maintain cover in heavily shaded areas where turf will not thrive.
 - b. They provide attractive cover that does not need mowing.
 - c. They restrict pedestrian traffic (people are likely to avoid walking through a thick bed of ivy or a planting of juniper).
4. Maintenance. Most ground covers need yearly trimming to promote growth. Trim back from trees, flower beds, fences, and buildings. Add mulch where needed and fertilize as described above every 3-4 years.

Plans and Specifications

Plans for installing trees, shrubs, vines, and ground covers shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve the intended purpose. Plans shall identify location of all plantings.

Specifications for planting and installing trees, shrubs, vines, and ground covers shall use or be in conformance with the following. Any variation from these specifications shall be approved by an engineer.

1. General. Areas planted to shrubs or trees must also be covered with a suitable mulch, or seeded to permanent vegetation, to protect the site until the woody plants become established. Do not use plants that will shade-out the woody seedlings. A circle of mulch around seedlings helps them compete with herbaceous plants.
2. Tree Sources. 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 inches in diameter for each inch of trunk diameter.
 - a. Bare-root tree seedlings should be handled only while dormant in later winter, early spring, or after leaf fall in autumn. Availability of stock usually limits planting to winter or spring. Store packages of seedlings in a shaded location out of the wind. If it is necessary to store moss-packed seedlings for more than two weeks, add one pint of water per package. Do not add water to clay-treated seedlings.

Do not allow all roots to dry out during planting by carrying seedlings exposed to air and sun. Keep moss-packed seedlings in a container packed with wet moss or filled with thick muddy water. Cover clay-treated seedlings with wet burlap.

A method for hand planting bare-root seedlings is illustrated in Figure 5-16. With a tree planting bar or spade, make a notch deep enough to accommodate the roots. Place the roots in the notch to the same depth as in the nursery, then firm soil around roots by pressing the notch closed. Water immediately and mulch the area within 2 ft of the plant. Several weeks after planting, broadcast a handful of 10-10-10 fertilizer around each plant, at least 1 ft from the base.

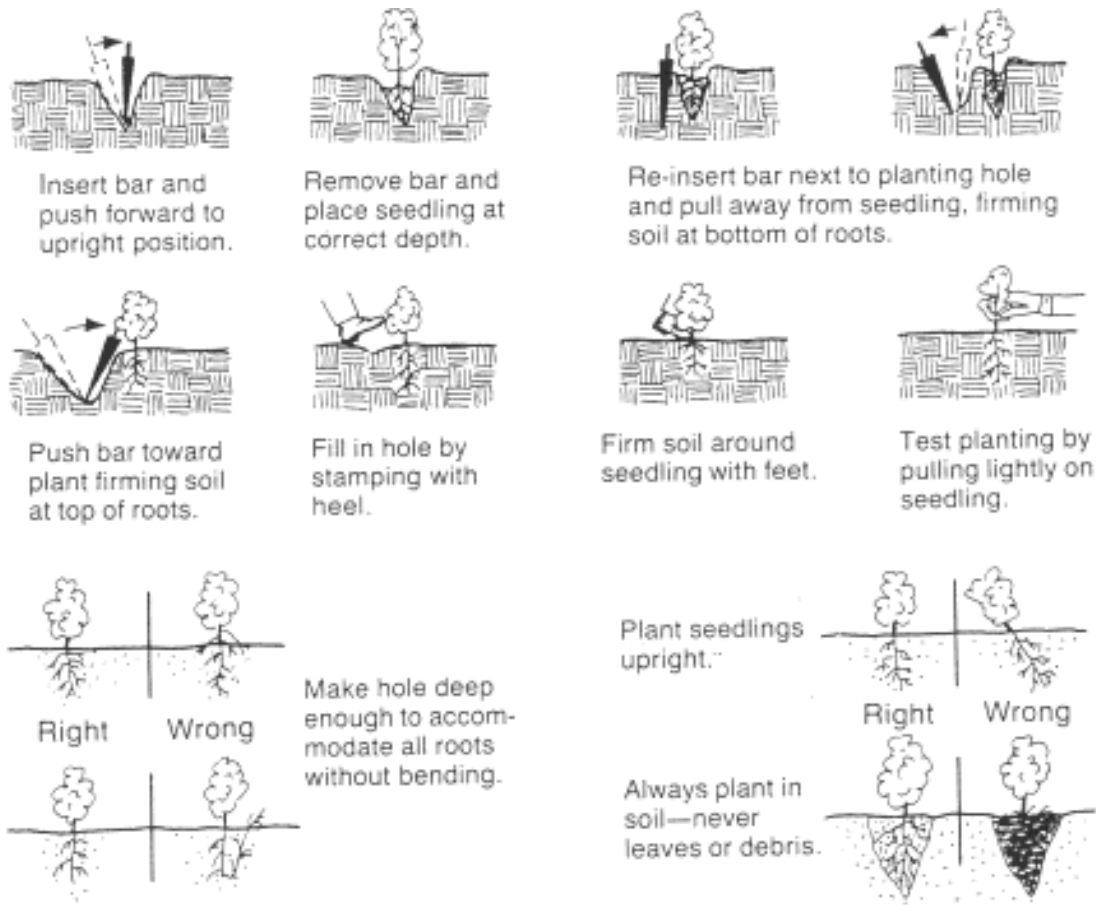


Figure 5-17 Planting bare-root seedlings.

On large sites where slopes are not prohibitive, bare-root seedlings can be efficiently planted in furrows using a tractor-drawn vegetable transplanter.

- b. Planting balled-and-burlapped or container-grown trees. November through March is the preferred planting time for deciduous trees and evergreens. Avoid summer planting.

Keep the soil around the roots moist until planting. Branches should be bound with soft rope to prevent damage during transport.

Each planting hole must be deep and wide enough to allow proper placement of the root ball. Ideally, the hole should be twice the size of the root ball. When digging the hole, keep topsoil separate from subsoil. If the subsoil is high in clay, allow extra room (one-half again the height of the root ball). Backfill the hole with enough topsoil or peat moss to position the base of the tree at the same level as in the nursery (Figure 5-17).

If the plant is in a container, carefully remove it, taking the soil surrounding the roots with it. This may require cutting the container. Loosen the twine and burlap at the top of balled-and-burlapped plants and check to make sure that no other wrapping is present before planting.

Before replacing subsoil, mix it with one-third peat moss or well-rotted manure. Backfill the hole, firming the soil as it is replaced, and leave a depression around the trunk within the excavated area to hold water. Cover the base of the trunk to the same level as before it was removed (Figure 5-17). Water thoroughly and rewater as necessary to keep the roots moist.

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. Wrap the trunks of young trees to protect them from sunburn and pests.

Fertilize trees in late fall or early spring, before leaves emerge. Using a punchbar, crowbar, or auger, make holes 18 inches deep and about 2 ft apart around the drip line of each tree. Distribute the fertilizer evenly among the holes to bring it in contact with tree roots, and close the hole.

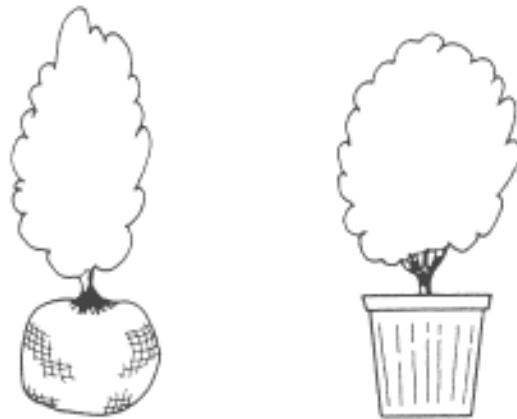
3. Shrubs

- a. Selecting shrubs. 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. Selections should be based on a specific site and purpose.

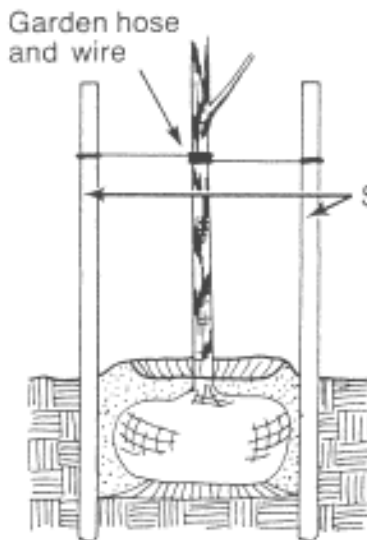
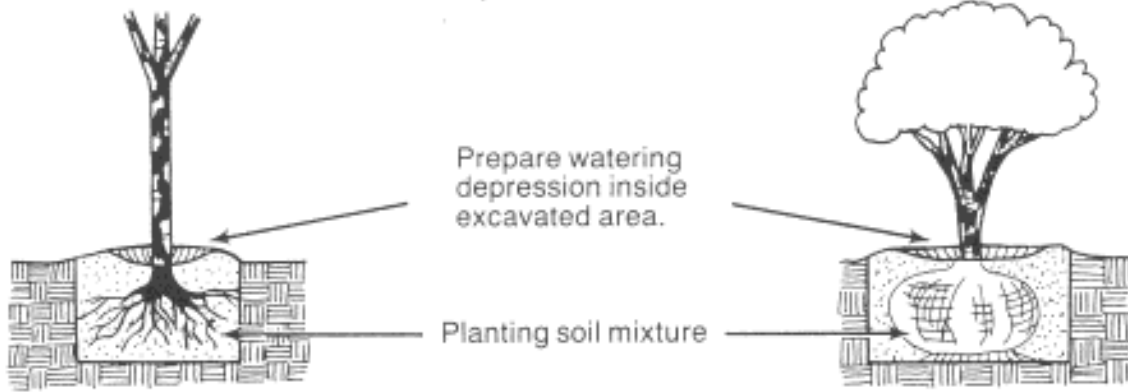
Many different species and varieties of shrubs are available that grow well in Mississippi. For specific uses consult local nurserymen or the State Extension Horticulturist.

- b. Obtaining shrubs. Shrubs are normally planted as bare-root stock or container-grown plants. Container-grown seedlings, 1 yr old, are usually recommended for their ease of planting and cost.

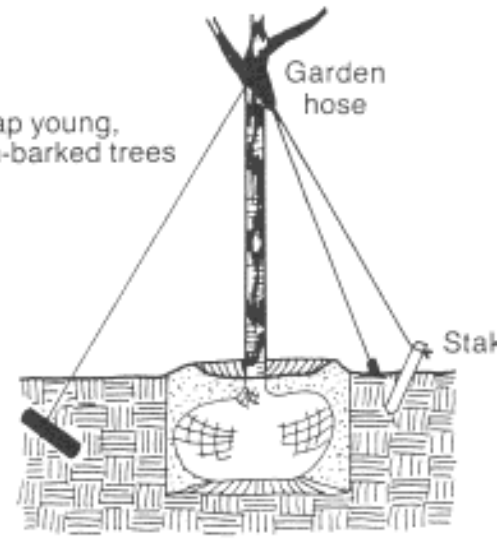
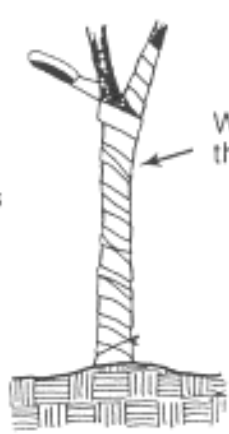
Planting is best done in late fall, winter, or early spring. Follow the general procedures for tree care and planting.



Plant at the same depth as when previously grown. Spread out roots of bare-root specimens.



Trees under 6'



Trees over 6'

Figure 5-18 Planting balled-and-burlapped and container-grown trees

Maintenance requirements depend on the particular shrub. In all cases watering is important in getting plants established. Once established, fertilizing every 3 years is generally sufficient. A heavy layer of mulch around the base of each plant reduces weeds and retains moisture. Mulch may consist of woodchips, sawdust, pine needles, or straw.

4. Vines and Ground Covers

- a. Selecting plants. For most stabilization purposes, fast-growing, evergreen, low-maintenance ground covers are preferable.
- b. When to plant. Ground covers are best planted in fall or early spring.
- c. Site preparation. 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 organic matter in the form of peat, sawdust, or well-rotted manure, and incorporate to 4-6 inches.

Add lime and fertilizer according to soil tests, or add 100 lb/1000 ft² ground agricultural limestone, and 50 lb/1000 ft² or 10-10-10 fertilizer and incorporate into the top 4-6 inches of soil. Add organic matter in an amount up to one-third the total soil volume, either over the whole area (a layer 2 inches deep mixed into the top 6 inches) or in each planting hole if the area is large.

On steep slopes, till the soil in contour rows, or dig single holes for each plant. Blend the needed lime, fertilizer, and organic material with the soil removed from each hole or furrow. Mix fertilizer thoroughly with the soil before planting, and use it sparingly to avoid burning roots.

To eliminate harmful competition from weeds, a pre-emergent herbicide may be useful if weeding is not practical.

- d. Planting. Most ground covers are planted from container-grown nursery stock. Planting density determines how quickly full cover is achieved; a 1-ft spacing is often suggested for rapid cover. Large plants such as junipers can be spaced on 3-ft centers.

Transplanting to the prepared seedbed can be done using a small shovel or a spade. Make a hole large enough to accommodate the roots and soil. Backfill and firm the soil around the plant, water immediately, and keep well watered until established.

- e. Mulching. Competition from volunteer plants inhibits development and maintenance of the ground cover. A thick durable mulch such as shredded bark or woodchips should prevent erosion and reduce weeds. Mulch the entire planting area.

On steep slopes (3:1) or highly erodible soils, install netting or matting prior to planting, and tuck plants into the soil through slits in the net. Plant in a staggered pattern.