

Tree/Shrub Establishment

WV Conservation Practice Job Sheet

Code 612



Definition

Establishing woody plants by planting, seedlings, cuttings, or direct seeding and natural regeneration.

Purpose

To establish woody plants for forest products, wildlife habitat, long-term erosion control and improvement of water quality, treat waste, reduction of air pollution, sequestration of carbon, energy conservation, and enhance aesthetics.

Considerations

The following should be considered for tree and shrub establishment:

- purpose of the planting
- associated insect, pest, and disease problems (i.e. cedar-apple rust, etc.)
- shade tolerance
- soil type and drainage class
- the use of locally adapted seed, seedlings or cuttings
- foliage color, season and color of flowering, and mature plant height
- When underplanting, trees and shrubs should be planted sufficiently in advance of overstory removal to ensure full establishment.
- Tolerance to things such as pesticide, nutrient, residual chemicals and mine drainage
- Anticipation of the need for future access lanes or maintenance equipment for purposes of stand management.
- Selection of species which best meet wildlife needs.

Where feasible, natural regeneration should be utilized. If desired, supplemental planting of tree/shrub plantings may be added. An adequate nearby or adjacent seed source must be present when using natural regeneration.

Native plant materials should be used whenever possible. Species considered locally invasive or noxious should not be used.

Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival.

Site preparation should be sufficient for establishment and growth of selected species. Site preparation is needed if competition from grass, weeds, and/or woody materials will interfere with plant establishment and growth. See WV Conservation Practice Standard Forest Site Preparation, code 490, and Brush Management, code 314, and associated job sheets.

Control competing vegetation during the first 2 or 3 years by mowing, cultivating, mulching, herbicides, or plant mats.

Each site will be evaluated to determine if mulching, supplemental water or other cultural treatments will be needed to assure adequate survival and growth.

Comply with applicable federal, state, local laws and regulations during the installation, operation and maintenance of this practice.

Operation and Maintenance

The practice area should be inspected in the first few months and at least annually including after storm/fire events.

Replace dead and dying stock in newly established plantings. The practice area must be protected from grazing as well as, fire, insects, diseases, competing vegetation and wildlife. Noxious weeds will be controlled.

Where practical, management activities will be performed outside the primary nesting season (March 15 - July 15). An exception may be for mowing or cultivation to control vegetative competition.

Supplemental water as well as periodic applications of nutrients may be needed to maintain plant health and vigor.

Trees and/or shrubs can eventually become crowded slowing their growth, survival and composition of understory species. As the plants mature, periodic harvesting of some of the overstory trees and shrubs becomes an important activity for maintaining plant health and productivity.

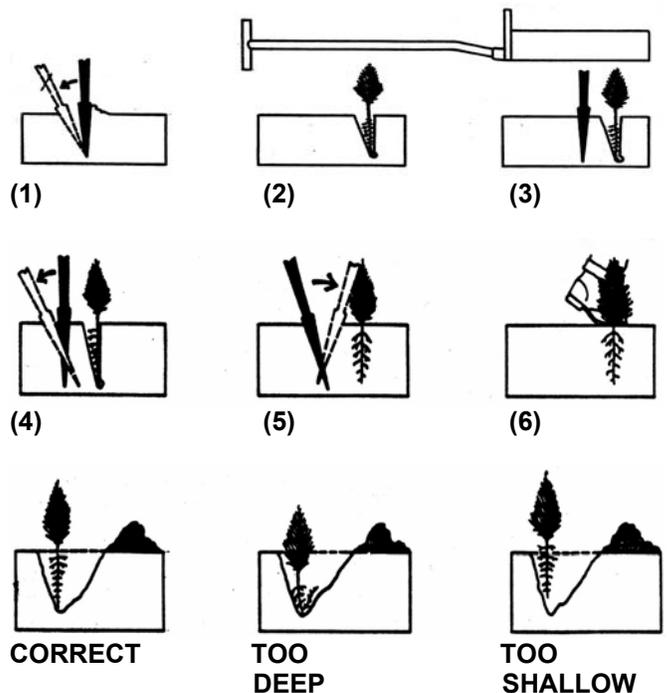
Pruning, thinning, and/or removal of dead or diseased plants should be performed and timed as to not interfere with the lifecycle of the plants or the intended purpose of the planting.

Specifications

Site-specific requirements are listed on the following pages of this job sheet. Specifications are prepared in accordance with the WV NRCS Field Office Technical Guide. See the WV conservation practice standard for Tree/Shrub Establishment, code 612, for specific requirements. Clients should work closely with NRCS personnel and WV Division of Forestry personnel when utilizing this practice.

Planting Bar/Dibble Planting Technique

- (1) Insert the dibble straight down into the soil to the full depth of the blade and pull back on the handle to open the planting hole. (DO NOT rock the dibble back and forth as this causes soil in the planting hole to be compacted, inhibiting root growth.
- (2) Remove the dibble and push the seedling roots deep into the planting hole. Pull the seedling back up to the correct planting depth (the root collar should be 1 to 3 inches below the soil surface). Gently shake the seedling to allow the roots to straighten out. DO NOT twist or spin the seedling or leave the roots J-rooted.
- (3) Insert the dibble into the soil several inches in front of the seedling.
- (4) Push the handle forward to close the hole and hold the seedling in place.
- (5) Pull back on the handle to close the planting hole eliminating air pockets around the roots.
- (6) Remove the dibble and close and firm up the opening with your heel. Be careful to avoid damaging the seedling.



Tree/Shrub Establishment – WV Job Sheet

Client:	Farm #:
Field(s):	Tract #:
Designed By:	Location:
Date:	Total Acres:

Purpose of Tree/Shrub Establishment:

Tree/Shrub Establishment Method (Refer to WV Practice Standard (612) Tree/Shrub Establishment for specific requirements)									
Field	Acres	Species ¹	Kind of Stock ²	Method ³	Planting Date	Plants / Acre	Average Spacing	Protection Method ⁴	Total Plants

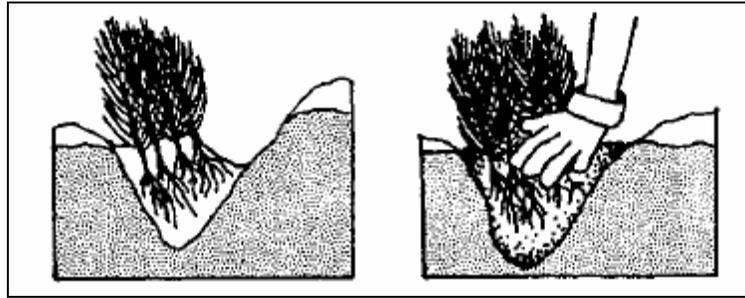
¹ **Species:** If available, attach USDA Plants Database (<http://plants.usda.gov>) Fact Sheet or Plant Guide for each species planned
² **Kind of Stock:** Seed, Bareroot, Container, Cutting (include size, caliper, height, and age as applicable)
³ **Method:** Mattock, Planting Dibble, Hoedad, Planting Bar, Tile Spade, Post Hole Digger, Tractor/Auger, or Tree Planting Machine.
⁴ **Protection Method:** Tree Shelters, Repellants, Tree Mats, Other

SPACING	NUMBER OF SEEDLINGS PER ACRE	SPACING	NUMBER OF SEEDLINGS PER ACRE
6' X 6'	1210	10' X 10'	436
6' X 8'	908	12' X 12'	302
8' X 8'	680	15' X 15'	194
6' X 10'	726	16' X 16'	170
8' X 10'	544	20' X 20'	109
Formula: 43560 divided by (Row spacing X Seedling Spacing) = Plants / Acre			

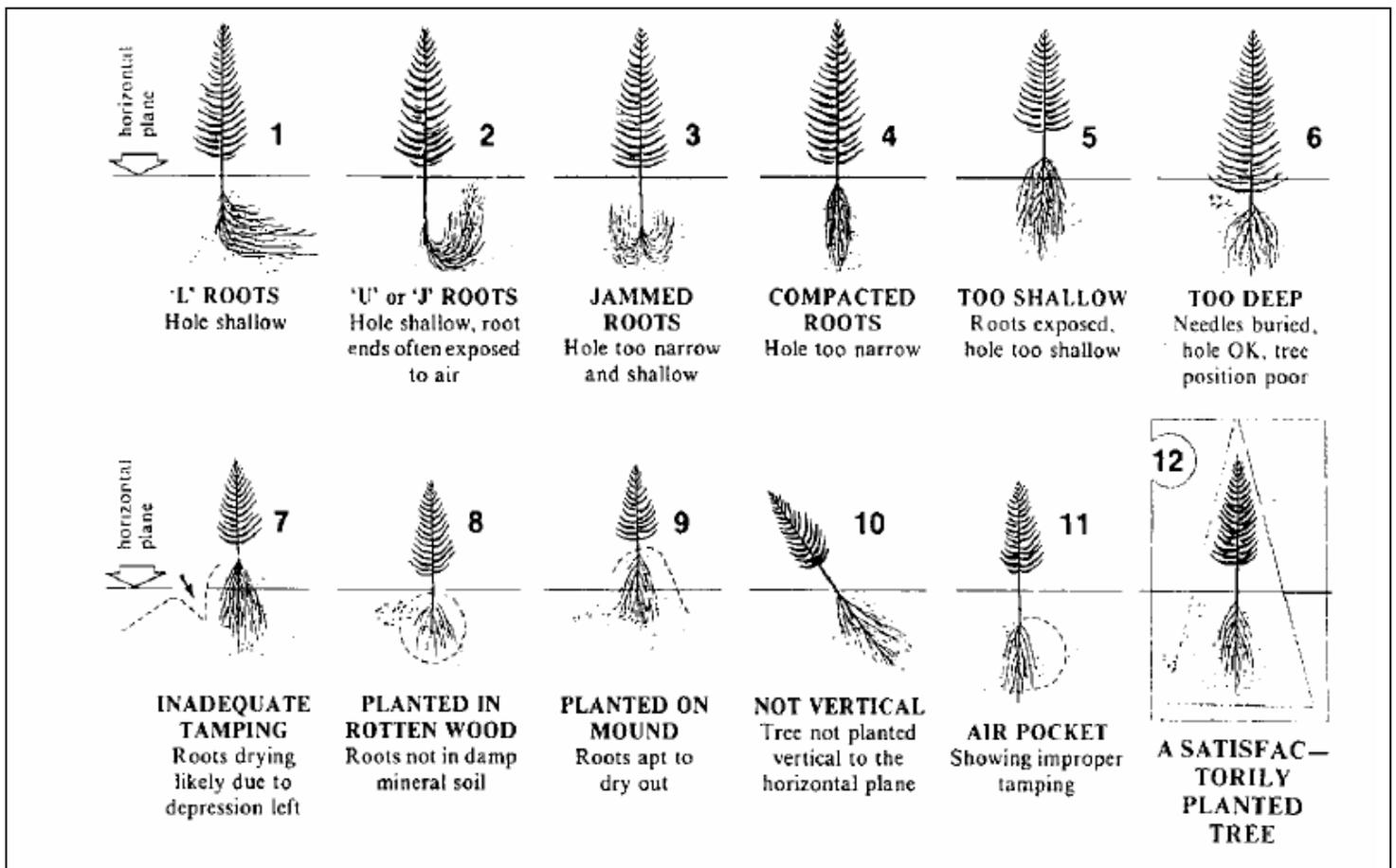
<p>Planting Times</p> <p>Trees/shrubs can be planted in the fall from the time growth stops until the soil is frozen; or in the spring after the soil has thawed until bud break which usually occurs by May 1st. Avoid fall planting in clay soils due to frost heaving.</p> <p>Additional requirements:</p>
<p>Site Preparation See WV Job Sheet Forest Site Preparation (Code 490)</p> <p>Additional requirements:</p>
<p>Care, Handling , Size Requirements for Woody Planting Stock</p> <p>Only viable, high-quality and adapted planting stock or seed should be used. Upon arrival, unwrap bundles, check plants for heating, molding, and dryness. Water seedlings, if necessary, and rewrap. If they are satisfactory, store them in a cool, shady place with roots protected, and plant within two days. If seedlings cannot be planted within two days of receipt, dig a trench about one foot deep and bury the seedling roots in soil. This is called "heeling-in". Pack the soil firmly, water thoroughly, and make certain all roots are covered. Evergreens require extreme care. When heeling in evergreens, split bundles and spread out the seedlings in the trench to make sure the root system of each seedling is protected by soil. Seedlings may also be stored in a cooler (34 - 38 °F) as long as the plants are still dormant. Roots of bareroot stock should be kept moist during planting operations by placing in a water-soil (mud) slurry, peat moss, super-absorbent (e.g., polyacrylamide) slurry or other equivalent material.</p> <p>Additional requirements:</p>
<p>Planting Methods</p> <p>Plant seedlings in a vertical position with root collars at or slightly below the soil surface. Soil openings should be large enough to permit the roots to be spread out in a natural uncurled position. Tamp the soil firmly against the entire root system. Cuttings are inserted in moist soil with at least 2 to 3 buds showing above ground.</p> <p>Additional requirements:</p>
<p>Operation and Maintenance</p> <p>The practice area must be inspected periodically and protected from damage to maintain proper function. Replace dead and dying stock in newly established plantings. The practice area must be protected from destructive grazing as well as, fire and wildlife pests. Noxious weeds should be controlled. Competing vegetation may be controlled by mowing, cultivating, mulching, pesticides, or plant mats.</p> <p>NOTE: NRCS does not make pesticide recommendations. Contact the local office of the West Virginia Division of Forestry or the WVU Cooperative Extension Service for assistance. Clients should request the product name, strength and amount used. All chemicals must be applied in accordance with label specifications.</p> <p>Additional requirements:</p>
<p>Protection Methods</p> <p>Tree mats and shelters should be installed according to manufacturer guidelines. Shelters should be maintained for a minimum of five years or until they disintegrate naturally. Competing vegetation should be removed from around the protected seedlings. Repellents should be applied according to manufacture guidelines.</p> <p>Additional requirements:</p>

Questions regarding the planting or maintenance of the Tree/Shrub Establishment should be directed to:

_____ at _____



One method of long-term tree storage is the “heeling-in” technique. Roots must be packed tightly in the soil and kept moist. The heel-in trench must be shaded and protected from the wind.



Drawings 1 – 11 illustrate various ways that seedlings SHOULD NOT be planted. The ideal planting is shown in drawing 12.