

Tree/Shrub Establishment – Seedlings/Cuttings

WV Conservation Practice Job Sheet Code 612



Definition

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

Purpose

Establish woody plants to—

- Maintain or improve desirable plant diversity, productivity, and health by establishing woody plants.
- Create or improve habitat for desired wildlife species compatible with ecological characteristics of the site.
- Control erosion.
- Improve water quality. Reduce excess nutrients and other pollutants in runoff and groundwater.
- Sequester and store carbon.
- Restore or maintain native plant communities.
- Develop renewable energy systems.
- Conserve energy.
- Provide for beneficial organisms and pollinators.

Considerations

Consider utilizing plant materials that have been selected and tested in the Plant Materials Program or in similar tree/shrub improvement programs.

Consider using diverse tree and shrub species combinations which best meet the needs of desired wildlife and pollinator species.

**INFORMATION ON THIS JOB SHEET IS CONSIDERED TO BE PART OF THE
CONTRACT AND/OR CONSERVATION PLAN**

When selecting plant materials, consider whether the species, variety, or cultivar possesses aggressive traits, and whether it poses a potential threat to the existing or desired plant community.

Consider the potential impacts of extreme weather events (e.g., drought, flooding, wind, late spring frosts) when selecting plant species and sites for planting.

When using trees and shrubs for carbon sequestration and storage, consider using modeling tools to predict carbon sequestration rates and amounts of stored carbon.

Tree/shrub arrangement and spacing should allow for and anticipate the need for future access lanes for purposes of stand management and fire control.

When underplanting, trees and shrubs should be planted sufficiently in advance of overstory removal to ensure full establishment where feasible.

Consider establishing species with growth rates and at densities that make them competitive with weeds and undesirable plants.

Consider using species that provide subsistence and cultural values, (e.g., as used by Tribes).

Consider designing plantings to enhance visual quality in farmsteads, recreation areas, and along public rights-of-way, by applying foliage color, season and color of flowering, mature plant height, edge-feathering, and other landscaping techniques.

A 60% survival rate of planted materials after two years is considered satisfactory if trees/shrubs are well distributed over the planted area. The planted areas will be evaluated to determine whether to replant failed areas or if natural regeneration will meet the objectives of the client.

Consider associated insect, pest, and disease problems when selecting tree and shrub species (i.e. cedar-apple rust, emerald ash borer, hemlock woolly adelgid, etc.)

Consider shade tolerance when selecting tree and shrub species to plant.

Operation and Maintenance

Mow the area periodically if needed to maintain the health of the plant community. Do not conduct maintenance practices and activities during the primary reproductive period of wildlife (**March 15 - July 15**). Exceptions can be considered to maintain the health of the vegetative community if such exceptions do not conflict with agency requirements.

Control access by vehicles and/or equipment during or after tree/shrub establishment to protect new plants and minimize erosion, compaction and other site impacts.

Inspect the site at an appropriate time following planting, seeding, and/or natural regeneration to determine whether the survival rate for tree and shrubs meets practice and client objectives. Replant or provide supplemental planting when survival is not adequate.

Inspect the trees and shrubs periodically, and protect them from adverse impacts of insects, diseases, competing vegetation, fire, livestock, wildlife, non-functioning tree shelters and/or weed barriers, etc.

If needed, control competing vegetation until the desired trees/shrubs are established. Control plant species on the Federal or State invasive species and noxious weed lists.

If needed, apply nutrients to maintain vigor of desirable trees/shrubs.

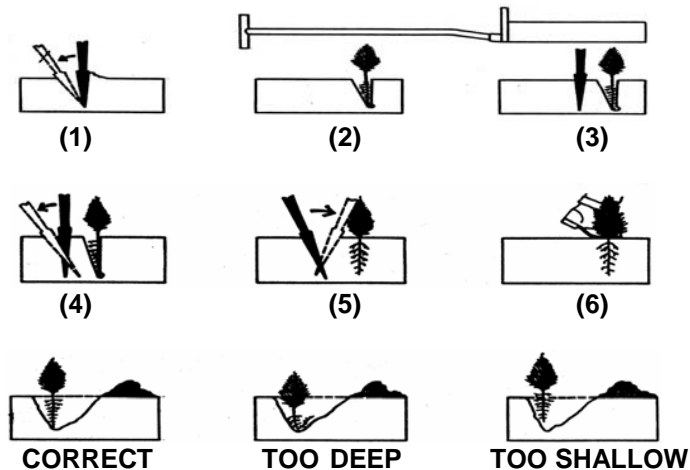
Control competing vegetation during the first 2-3 years by mowing, cultivating, mulching, herbicides, and/or plant mats.

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 WV 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 $\frac{1}{2}$ inch 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 (Code 612)– WV Job Sheet – Seedlings/Cuttings

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

Purpose of Tree/Shrub Establishment:

Site Conditions Prior to Planting:

NOTE: A precondition for tree/shrub establishment is an appropriately prepared planting site. Tree/shrub site preparation is needed if competition from, grass, weeds and/or woody materials will interfere with plant establishment and growth. Refer to CPS Tree/Shrub site Preparation (Code 490), as applicable.

Is Tree/Shrub Site Preparation (Code 490) needed? Yes No
 If yes, see WV Conservation Practice Standard (CPS) Tree/Shrub Site Preparation (Code 490).

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:** Bareroot or Cutting (include size, caliper and age as applicable)

³ **Method:** Mattock, Planting Dibble, Hoedad, Planting Bar, Tile Spade, Post Hole Digger, Tractor/Auger, Tree Planting Machine, Other (enter custom text)

⁴ **Protection Method:** Tree Shelters, Plastic Mesh Guards, Wire Cages, Fence, Repellants, Tree Mats, Other (enter custom text)

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			

Tree/Shrub Establishment (Code 612) – WV Job Sheet – Seedlings/Cuttings

If needed, an aerial view or a side view of the practice can be shown below. Other relevant information, complementary practices and measures, and additional specifications may be included.

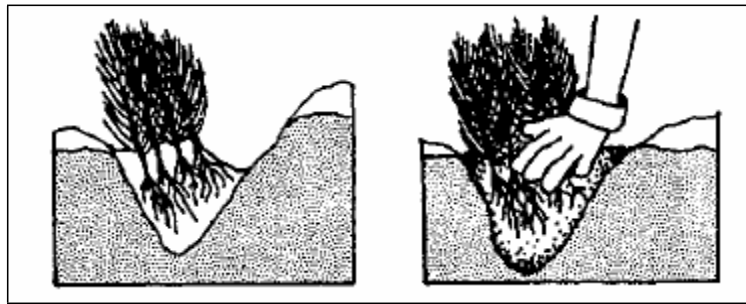
Refer to the conservation plan map for location information

Additional Specifications and Notes: (i.e. cultural practices and soil amendments, etc.)

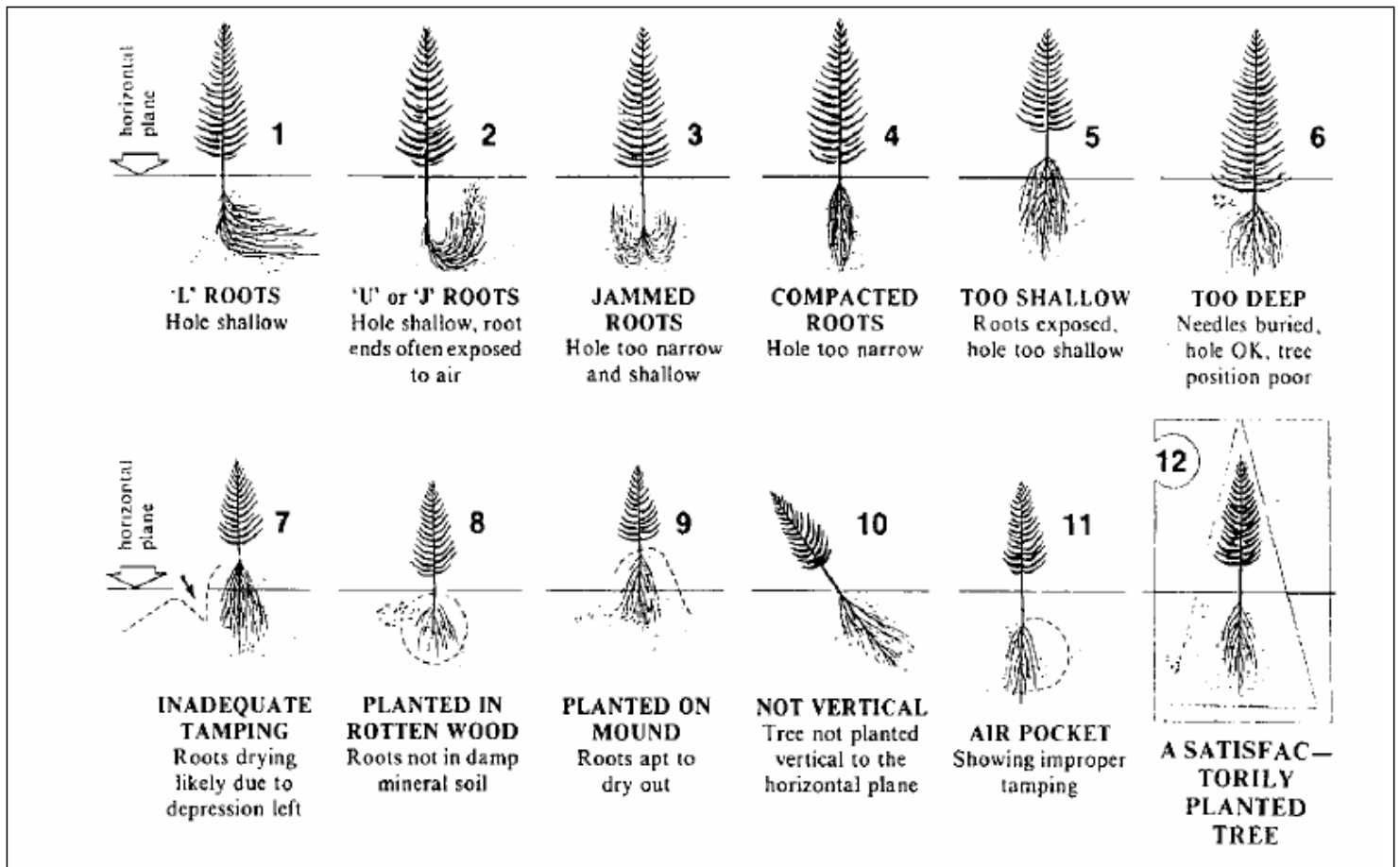
<p>Planting Times</p> <p>Trees/shrubs can be planted in the fall from the time growth stops until the soil is frozen; or in the spring after the soil has thawed until bud break. Avoid fall planting in clay soils due to frost heaving.</p> <p>Additional requirements:</p>
<p>Site Preparation See WV Job Sheet Tree/Shrub Site Preparation (Code 490)</p> <p>Additional requirements:</p>
<p>Care, Handling , Size Requirements for Planting Stock</p> <p>To optimize survival, plant seedlings immediately upon their arrival from the nursery. If this is not possible, the bundles can be stored for two days in a cool (34 -38° F), dark place. Do not unpack the bundles! Water the bundles periodically to ensure the roots are well moistened. It is critical that the roots never be allowed to dry out; exposure to the air for even a few minutes can kill your seedlings. If controlled storage is not available and 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". See drawing on the following page. 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. Live cuttings that will not be immediately planted shall be promptly placed in controlled storage conditions (34-38° F) and protected until planting time. Check planting stock at the time of planting to see if it is free of disease, insects, and mechanical injury and have a well-developed root system. All conifers must have dormant buds. Seedlings shall not be less than ¼ inch in caliper at 1 inch above the root collar. For cuttings, avoid using material less than ¾" in diameter. Tops of dormant-season collected cuttings may be dipped into latex paint, paraffin or sealing wax to prevent desiccation and mark the up-end. Rooted planting stock must not exceed a 2:1 shoot-to-root ratio and have a minimum of a 1:1 root shoot ratio. General size guidelines are as follows: Hardwoods - seedlings should have a minimum height of 6-12 inches and a minimum root length of 10 inches. Conifers - seedlings should have a minimum height of 6-12 inches and a minimum root length of 8 inches</p> <p>Additional requirements:</p>
<p>Planting Methods</p> <p>Roots of bareroot stock shall be kept moist during planting operations. Any directions received with the seedlings regarding care of the seedlings while planting shall be followed. If no directions accompany the seedlings, roots of bareroot stock shall be kept moist during planting operations by placing the seedlings in a water-soil (mud) slurry, peat moss, super-absorbent (e.g., polyacrylamide) slurry or other equivalent material. Rooting medium kept moist at all times by periodic watering. Pre-treat stored cuttings by soaking just before planting. Stock shall not be planted when the soil is frozen or dry. Rooted stock will be planted in a vertical position with the root collars approximately ½-inch below the soil surface. Insert cuttings to the depth required to reach adequate soil moisture. The planting trench or hole must be deep and wide enough to permit roots to spread out and down without J-rooting or L-rooting. After planting of rooted stock or cuttings, pack soil around each plant firmly to eliminate air pockets.</p> <p>Additional requirements:</p>
<p>Operation and Maintenance</p> <p>Mow the area periodically, if needed to maintain the health of the plant community. Do not conduct maintenance practices and activities during the primary reproductive period of wildlife (March 15 - July 15). Exceptions can be considered to maintain the health of the vegetative community if such exceptions do not conflict with agency requirements. Control access by vehicles and/or equipment during or after tree/shrub establishment to protect new plants and minimize erosion, compaction and other site impacts. Inspect the site at an appropriate time following planting, seeding, and/or natural regeneration to determine whether the survival rate for tree and shrubs meets practice and client objectives. Replant or provide supplemental planting when survival is not adequate. Inspect the trees and shrubs periodically, and protect them from adverse impacts of insects, diseases, competing vegetation, fire, livestock, wildlife, non-functioning tree shelters and/or weed barriers, etc. If needed, control competing vegetation until the desired trees/shrubs are established. Control plant species on the Federal or State invasive species and noxious weed lists. If needed, apply nutrients to maintain vigor of desirable trees/shrubs. <u>Control competing vegetation during the first 2-3 years by mowing, cultivating, mulching, herbicides, and/or plant mats.</u></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: ATTACH TREE/SHRUB ESTABLISHMENT MAINTENANCE SPECIFICATIONS (If applicable)</p>
<p>Protection Methods</p> <p>If used, tree mats, repellants and shelters should be installed according to manufacturer guidelines. Shelters should be maintained until the diameter of the tree at the top of shelter reaches 1 1/2 - 2 inches. Protect from livestock, fire and other damage. See the WV conservation practice standards, Use Exclusion, 472 and Firebreak, 394. Tree shelter and plastic mesh guards must have an effective height of 5 feet. Wire cages must be at least 4 feet tall and 3 ' in diameter.</p> <p>Additional requirements: ATTACH TREE/SHRUB PROTECTION SPECIFICATIONS (If applicable)</p>

Questions regarding the planting or maintenance of the Tree/Shrub Establishment (code 612) 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.

Planner Certification

This plan meets the requirements of West Virginia NRCS Conservation Practice Standard – Tree/Shrub Establishment (612).

Signature _____ Title _____ Date _____

Certification of Practice Completion

This practice has been completed according to NRCS plans and specifications. (Indicate in Practice Specifications if there were any changes to the planned practice and amount.)

Signature _____ Title _____ Date _____

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