

Tree/Shrub Establishment

Virginia Conservation Practice Job Sheet

612



Hardwood Trees planted to establish a Forested Riparian Buffer in a pasture for water quality improvements and wildlife habitat. Tubes and brush mats were used to increase survival of the bare rooted planting stock.

Definition. Tree and Shrub Establishment is establishing woody plants by planting, seeding, natural regeneration or cuttings.

Purpose. The purposes of the practice include.

- Forest products
- Beautification
- Erosion control
- Energy conservation
- Chemical and/or nutrient sinks
- Wildlife habitat improvement
- Air quality improvements
- Wetland improvements

Where used. This practice is applicable on any area of land where woody plants are suited and are needed to fulfill one of the above purposes. Site adaptation is a major consideration for success in establishing trees and shrubs. Careful consideration should also be given to the suitability of the selected species for the planned purpose and available space for growth.

Establishment methods.

Natural Regeneration may occur successfully when the following site conditions are favorable.

- 1) The desired tree species must be present and are old enough to produce seed,
- 2) sufficient numbers of healthy, viable seed must be produced and survive to germinate,
- 3) the seed must be carried to and distributed on a site favorable for germination, and
- 4) conditions must remain favorable until the seed germinates and establishes itself. The results of natural regeneration are often erratic and fail without proper planning, or without an "element of luck from Mother Nature." Proper soil condition is the foundation for the success of natural regeneration. Eroded soil conditions, low organic matter, and extremely wet or dry sites will most likely result in undesirable invasive species tolerant of poor soil conditions. Natural regeneration is not recommended if these conditions or other site specific limiting factors are present.

Direct Seeding is most often used with "lightweight" seeds, i.e. loblolly and white pine that in nature are dispersed by wind. However, heavier seeds, i.e. acorns, hickories, and black walnuts that are often dispersed by gravity, birds, and animals, can be direct seeded in spots. Light seeds can be sown with specialized equipment such as spot seeder, cyclone seeder, or by helicopter. Heavier seed like oaks, hickories and black walnuts can simply be placed by hand. While direct seeding can be relatively fast and low cost, creating a good seedbed and maintaining satisfactory conditions for seed germination

and early tree growth are critical. Without proper attention to details, direct seeding is more uncertain than planting. Direct seeding is seldom used in Virginia.

Planting can be accomplished with a high degree of certainty and is a popular method of tree/shrub establishment in Virginia. The method has been used extensively on harvested tracts and for converting idle fields and opening to trees, shrubs and wildlife plants.

Planting allows landowners flexibility to choose suitable species and to more effectively design areas for timber production, wildlife habitat, landscaping, erosion control and water quality improvements, Christmas tree production or combinations of these objectives. Seedlings are commonly planted by hand with various tools (shovel, planting bar, or hoe-dad) on small areas, wet or rolling sites, or tracts with stumps or rocks. A range of success has been identified with the various types of hardwood planting techniques. The most consistent success has been through the use of the system of tree shelter, stake, and grass mat. On other sites such as large, relatively level areas, those free of large stumps and rocks, or abandoned agricultural fields, various models of mechanical planting machines are used. Machine planting may be faster than hand methods, and of higher quality on many sites.

Cuttings are usually used in small areas where suitable native stock can be found and harvested for planting. Cottonwood, willow alder and sycamore are commonly used for this method of establishment. Cuttings are commonly used on eroding stream banks and steep slopes for long term erosion control.

Care for Bare Rooted Seedlings. The time between purchase and planting bare-rooted trees is a more critical issue. Plant bare-rooted planting stock as soon as possible. When purchasing bare-rooted trees, inspect the roots to ensure that they are moist and have numerous lengths of fine root hairs (healthy). Care should be taken to ensure that the roots are kept moist in the period between purchase and planting. Prune broken or damaged roots but save as much of the root structure as you can.

Conservation Management System. Tree/shrub establishment may be a component on most conservation management systems that address the soil, water, air, plant, and animal needs, including wildlife, and is compatible with the owner's objectives to protect, establish or enhance a resource concern.

Specifications. Practice specifications will be developed individually for each site with the landowner. Specifications will comply with standard 612, VA NRCS Forestry Technical Note #3, VA DOF tree planting guidelines and the Virginia Plant Establishment Guide. All decisions concerning location, plant materials and other specific technical decisions will be documented on this job sheet or other acceptable method.

Operation and Maintenance. O&M will consist of insuring an adequate site preparation, stand survival and replacement if needed, fertilizer recommendations to maintain plant vigor, protection from unwanted fire, grazing, renovation and management activities, pest control and maintaining access. Refer to VA Conservation Practice Standard *Forest Stand Improvement (Code 666)* and VA Conservation Practice Standard *Tree/Shrub Pruning (Code 660)* for long term management.

Reference. The Virginia Department of Forestry website: <http://www.dof.virginia.gov/index.html>

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Landowner _____ Farm # _____
 Tract(s) # _____ Assisted by _____

Purpose Forest Products Wildlife Beautification Buffer Other _____

Planting Stock Natural Regeneration (If yes, show seed source on sketch below.)
 Bare Rooted Seedling
 Direct Seeding
 Cuttings (Usually for bioengineering projects.)

Field	Existing land use	Site Prep (type) *	Planned species	Planting spacing	#Trees /ac.	Planned Planting dates
EX 1	Cut over	Prescribed Burn	Loblolly Pine	12X12	302	March 07

Recommendations for establishment shall meet the criteria set forth in the NRCS VA Technical Note Forestry #3.

Hardwood seedlings must have a root collar diameter of 3/8" or greater. A 4' tree shelter is recommended. Tree shelter brand will be Tubex, TreePro, or equivalent. Tree shelters must be installed at least 1 inch below the ground surface and tied securely using zip-ties to a 1" by 1" (7/8" minimum) hardwood stake (typically white oak).

The use of "nurse trees" such as loblolly, shortleaf, and white pine as well as red osier dogwood and other shrubs are beneficial for hardwood tree survival when interplanted and should be encouraged in all hardwood plantings.

Are tubes and mats required Yes No (If yes please specify.) _____

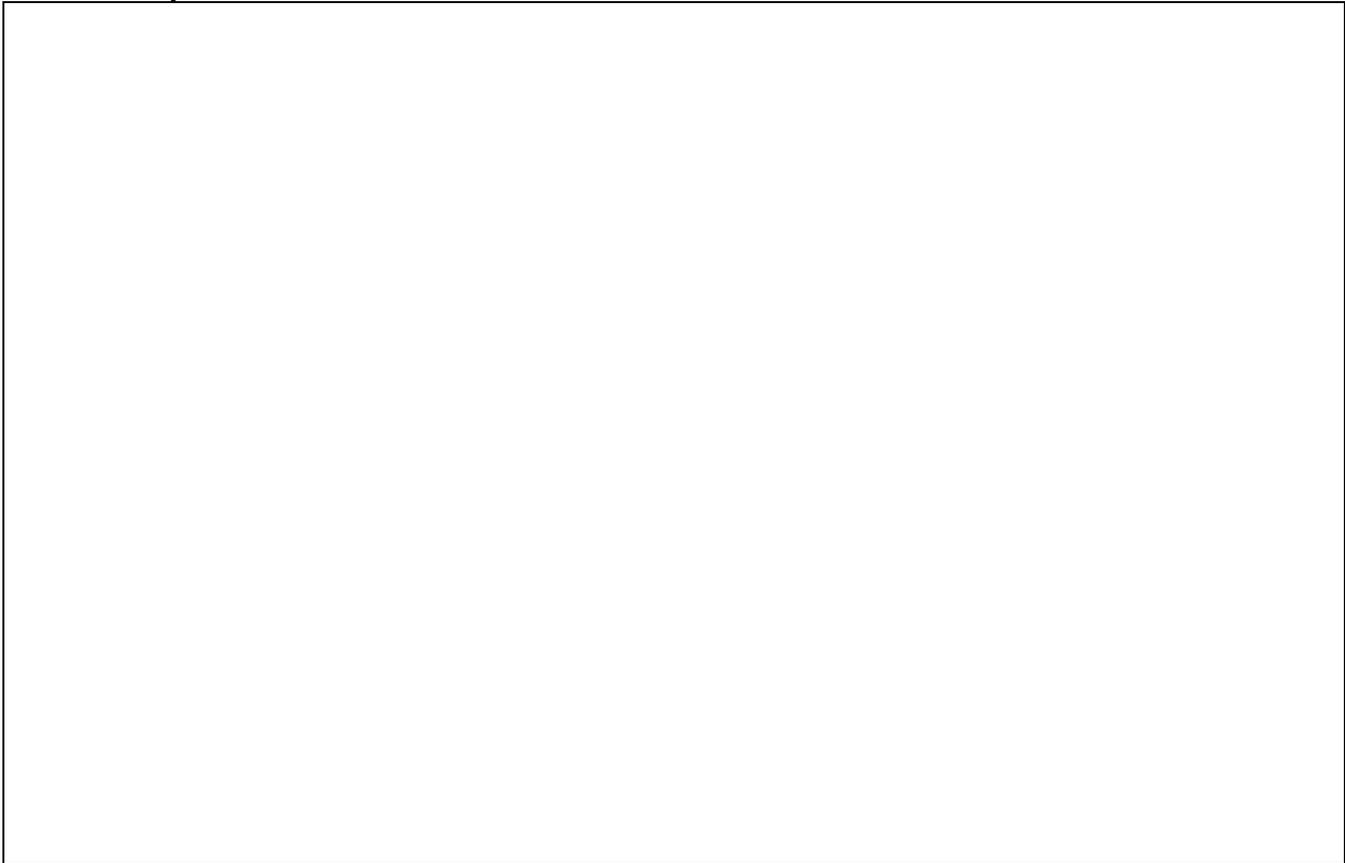
Site preparation (Burn, Mechanical, Chemical) Requirements _____

Protect tree plantings from grazing animals and un-necessary traffic.

*If Prescribed Burn is planned, the burn should be conducted according to a plan prepared by a VA DOF certified burner.

Installation shall be in accordance with the specified drawings, specifications, and special requirements. **No changes are to be made in the drawings or specifications without prior approval from the technical specialist developing the plan.**

Sketch of Layout



Operations and Maintenance Plan 612 Tree/Shrub Establishment

- 1) Prior to and during establishment
 - a. Perform necessary site prep- chemical, mechanical, prescribed burn or agronomic methods may be used.
 - b. Obtain quality planting stock.
 - c. Ensure that trees are planted correctly.
 - d. Monitor the plantings and replace dead plants.
 - e. Control and eliminate invasive species.
 - f. Insure protection from grazing livestock.

- 2) After establishment
 - a. Fertilize periodically (if necessary) to promote vigorous growth and maintain plant vigor.
 - b. Monitor and control pests.
 - c. Remove tubes if applicable
 - d. Protect from grazing.
 - e. Replace dead or missing plants.
 - f. Maintain necessary access to site.