

Silvopasture Establishment

Virginia Conservation Practice Job Sheet

381

Definition

An application establishing a combination of trees or shrubs and compatible forages on the same acreage.

Criteria Applicable to All Purposes

Tree and forage species must be adapted to the site and compatible with planned livestock and management.

No plants on the Federal or state noxious weeds list shall be planted.

Where trees will be added to existing pasture, site preparation should be based on existing vegetation and soil conditions. Trees will be planted at the recommended tree density.

For existing forests remove a sufficient number of trees and/or prune existing trees to allow adequate light penetration for forage establishment.

Establishment of forage species will be in accordance with Virginia Conservation Practice Standard *Forage and Biomass Planting* (Code 512).

If pesticides are used, follow label recommendations. Refer to Virginia Conservation Practice Standard *Integrated Pest Management Standard* (Code 595) for guidance on pest prevention, avoidance, monitoring and suppression strategies.

Only viable, high quality, and adapted planting stock or seed will be used.

The planting shall be done at a time and manner to insure survival and growth of selected species.

Tree/shrub spacing needs to exceed width of equipment to be used in management.



Tree Establishment in Forages

Where trees will be added to existing pasture, site preparation should be based on existing vegetation, soil conditions and the type of tree species to be planted. Refer to Virginia Conservation Practice Standard *Tree/Shrub Site Preparation* (Code 490).

Plant trees at the recommended tree density in accordance with Virginia Conservation Practice Standard *Tree/Shrub Establishment* (Code 612) and information outlined in this job sheet based on silvopasture goals. Document planting density and recommended spacing in the table at the end of this job sheet.

Trees are usually established in single, double or triple row sets. Density of trees established should be between 200 and 350 trees per acre.

Consideration should be given to the size of forage management equipment when determining row spacing.

Refer to the Forest Site Preparation and Tree Planting job sheets for more specific information. Trees should be planted at the

recommended spacing and density shown in the table at the end of this document.

Livestock grazing shall be deferred until the average height of the trees' terminal bud exceeds the browsing height of the livestock and the trees are of sufficient size to resist breakage. Forages may be machine harvested during this period.

Establishing Forages in Trees

For existing forests being converted to silvopasture, thin and/or prune existing trees to reduce canopy cover sufficient for forage establishment and adequate growth.

Generally, canopy cover of 25-50 percent for warm season grasses, and about 35-60 percent for cool season grasses, is recommended. However, forage and tree species can cause this recommendation to vary.

The lower end of the canopy range should be targeted while forage is establishing. Stands at the higher end of the canopy range may indicate that it is time to thin.

To maintain optimum tree and forage production, thinning adjustments may be necessary due to variability of growth rates among tree and forage species.

Refer to Virginia Conservation Practice Standard *Forage and Biomass Planting (Code 512)* and Job Sheet for more specific information on forage establishment. Tree/shrub spacing needs to exceed width of equipment to be used for forage management.

Reducing Tree Stock Density

- Seedling stands (Age 1-8) should be reduced to a stand density of 250 – 350 trees per acre.
- Sapling stands (Age 8-15) should be reduced to a stand density of 100- 200 trees per acre.
- Maturing stands (Age 15-25) should be reduced to a stand density of 60-100 trees per acre.
- Mature stands (Age 25+)

- If post harvest mean tree diameter is less than or equal to 10", plan a tree harvest that results in a post-harvested stand density of 100 trees or less per acre.
- If a post harvest mean tree diameter is greater than 10", plan a tree harvest that results in a post-harvested stand basal area between 50 and 60 ft² per acre.

Two Types of Thinning Systems:

When converting an existing forest stand to a silvopasture, two types of systems are recommended, Even Distribution System (Selection Thinning) and Alley System (Row Thinning). (Fig. 1)

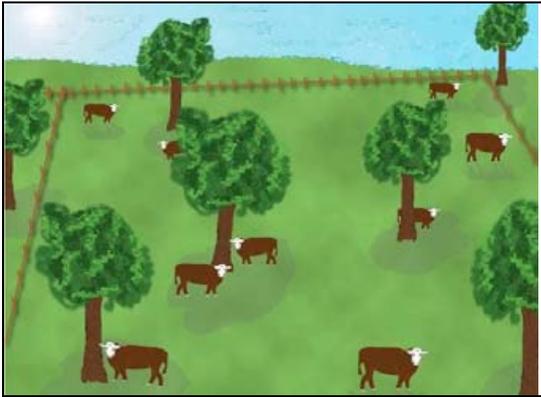
1) Even Distribution System (*Selection Thinning*)

The even distribution system utilizes a more intensive tree selection method when thinning the stand. Travel corridors are cut within the stand, at every fifth row or 50 feet apart and trees are removed selectively within the stocked corridor, leaving trees with good form. This system results in a more natural appearance with trees evenly spaced across the landscape. For a first thinning, selection thinning is often difficult because of limited machinery access among small closely spaced trees.

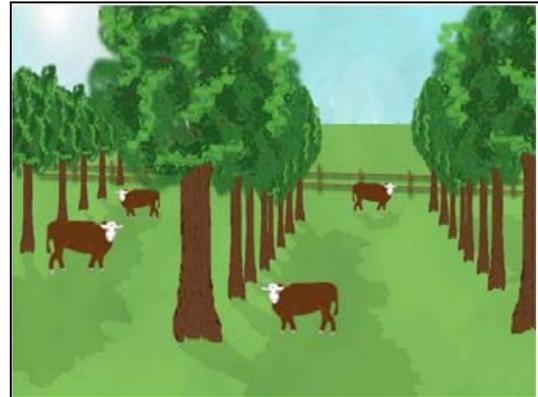
2) Alley System (*Row Thinning*)

The alley system utilizes row thinning, with some tree selection within the remaining rows. Specific trees do not have to be marked for removal, so the thinning operation proceeds rapidly once the pattern of row removal is established. This system is more advantageous to traditional farming equipment. If the landowner's emphasis is more towards forage production and less towards timber and wildlife this system should be considered.

For more guidance in planning tree row spacing, alley width, site preparation and managing tree density over time refer to the USDA-NRCS Agroforestry Notes 18 and 22 located on the eFOTG.



Selection Thinning



Row Thinning

Figure 1. Tree thinning examples.

General Information		
Client/Operating Unit:		Farm #:
County:	Field Office:	Tract #:
Amount of Practice to be Applied (acres):		

Goals, Objectives, and/or Specific Purpose
<p>Specify the goal, objective or purpose for applying this practice. If multiple purposes select any that specifically apply.</p> <p> <input type="checkbox"/> Provide forage for livestock and the production of wood products. <input type="checkbox"/> Increase carbon sequestration. <input type="checkbox"/> Improve water quality. <input type="checkbox"/> Reduce erosion. <input type="checkbox"/> Enhance wildlife habitat. <input type="checkbox"/> Reduce fire hazard. <input type="checkbox"/> Provide shade for livestock. <input type="checkbox"/> Develop renewable energy systems </p>

Existing Plant Structure in Areas Targeted for Silvopasture Establishment						
Field #	Existing Vegetation (Forage, trees, or shrubs)	Size of Area (acres)	Average Tree/Shrub Spacing	Trees/ Shrubs Per Acre	Existing % Canopy Cover	Existing Products Harvested ¹

¹Existing products harvested, if any: forage, wood products, etc.

Target Established Silvopasture Plant Structure						
Field #	Vegetation (Forage, trees, or shrubs)	Size of Area Covered by Plant (acres)	Average Tree/Shrub Spacing	Trees/ Shrubs Per Acre	Maximum % Canopy Cover	Target Products Harvested ¹
¹ Target products to be harvested, if any: forage, wood products, etc.						

Operation and Maintenance

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- Forage and forest management will follow Prescribed Grazing 528 and Forest Stand Improvement 666 Standards.
- Replanting will be required when plant survival is inadequate to meet practice and client objectives.
- Competing vegetation will be controlled until the trees are established.
- Periodic applications of nutrients may be needed for establishment and to maintain plant vigor. Refer to Nutrient Management Standard 590 for further guidance.
- Inspect trees and shrubs periodically and protect from adverse impacts including insects, diseases or competing vegetation. The trees or shrubs will also be protected from wildfire and damage from livestock and wildlife.

Planner Certification

This Silvopasture plan meets the requirements of NRCS Conservation Practice Standard 381.

Signature

Title

Date

Certification of Practice Completion

The Silvopasture Establishment practice planned in this job sheet has been completed according to NRCS specifications (indicate in Practice Specifications any changes to planned activities and acreage).

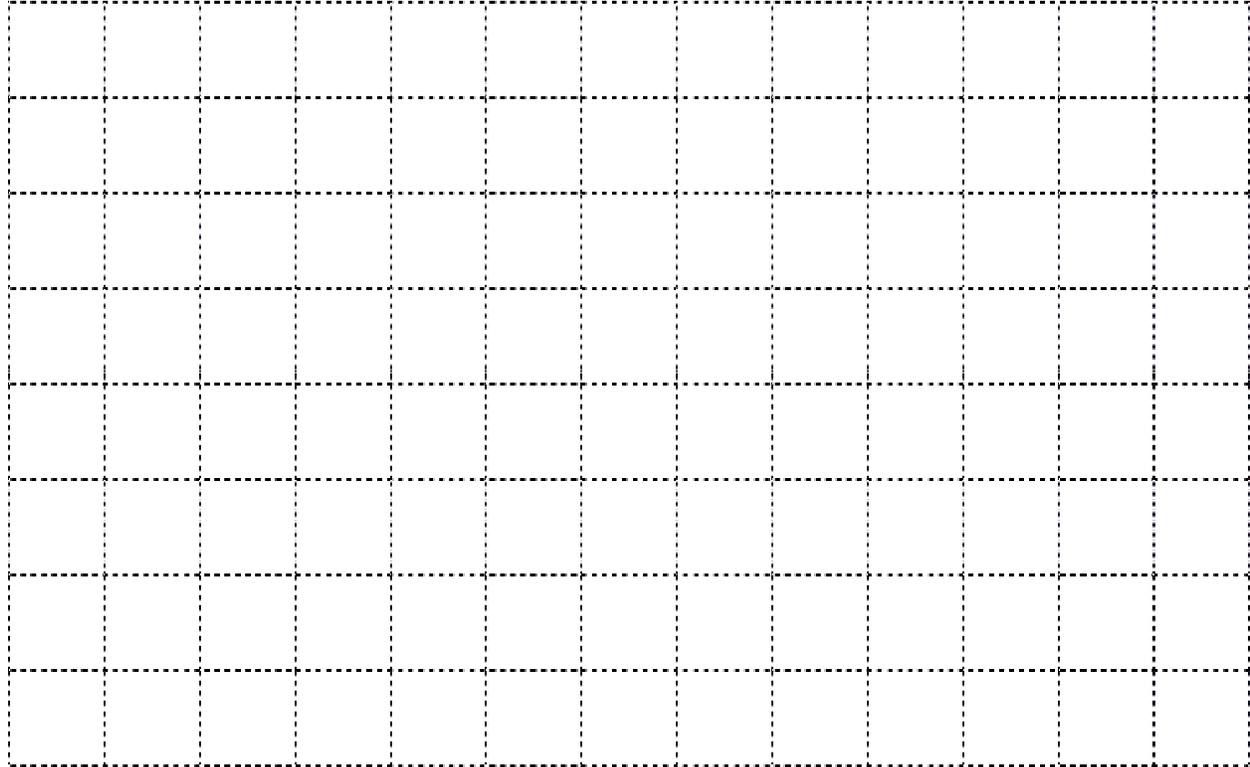
Signature

Title

Date

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.

Scale 1"= _____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")



Additional Specifications and Notes:

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