

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD  
SILVOPASTURE ESTABLISHMENT**

(Ac)

**CODE 381**

**DEFINITION**

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

**PURPOSE**

- Provide forage for livestock and the production of wood products.
- Increase carbon sequestration.
- Improve water quality.
- Reduce erosion.
- Enhance wildlife habitat.
- Reduce fire hazard.
- Provide shade for livestock.

**CONDITIONS WHERE PRACTICE APPLIES**

Situations where silvopasture establishment applies includes: 1) pasture where trees or shrubs can be added; 2) forest plantations where forages can be added; 3) land on which neither the desired trees nor forages exist in sufficient quantity to meet the land user's objectives.

**CRITERIA**

***General Criteria Applicable to All Purposes***

Woody plants must be adapted to the site and compatible with planned livestock management. A number of woody species contain natural chemicals that may be harmful to livestock. These species should be avoided or appropriate management activities instituted to minimize exposure and contact.

Forage species must be adapted to the site and

compatible with the planned management of the site. Choose species that have shade tolerance and/or high net forage production. Establishment of forage species will be in accordance with PASTURE AND HAYLAND PLANTING (512).

When using inorganic or organic fertilizer, follow NUTRIENT MANAGEMENT (590).

Where trees will be added to existing pasture, site preparation should be based on existing vegetation and soil conditions. See TREE/SHRUB SITE PREPARATION (490).

Trees will be planted at the recommended tree density. See TREE/SHRUB ESTABLISHMENT (612).

When using pesticides follow label recommendations and PEST MANAGEMENT (595).

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 will be compatible with the width of equipment to be used in management.

Existing forest sites shall not be used for silvopasture establishment except for plantations dominated by black walnut, pecan or pine.

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

***Additional Criteria to Provide Forage for Livestock and the Production of Forest Products***

The forage species must be identified as suitable for the targeted livestock.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resource Conservation Service or download the standard from the electronic Field Office Technical Guide for Missouri.

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Livestock grazing shall be deferred until the average height of the tree's terminal bud exceeds the browsing height of the livestock or of sufficient stem size to resist breakage or until suitable use exclusion measures for the protection of the woody plants are established. A forage crop may be mechanically harvested during this period.

Plant trees/shrubs at appropriate densities to allow acceptable forage production and wood products.

Choose tree or shrub species that have potential to produce forest products.

### ***Additional Criteria to Increase Carbon Sequestration***

For optimal carbon sequestration, select plants that have high rates of photosynthesis and are well adapted to the site to assure strong health and vigor.

Plant and manage the appropriate stocking rate for the site to maximize biomass production.

### ***Additional Criteria to Improve Water Quality***

Favor trees, shrubs and forages that have growth characteristics conducive to high nutrient uptake.

Incorporate adequate conservation buffers if a water source (stream, pond, etc.) is present.

### ***Additional Criteria to Reduce Erosion***

Place linear woody plantings on or near the contour when water erosion is a concern.

Control water erosion and/or runoff from melting snow by supporting practices.

### ***Additional Criteria to Enhance Wildlife Habitat***

Establish or maintain forage and woody species that will provide forage, browse, seed, cover or nesting habitat for the desired wildlife species.

Follow UPLAND WILDLIFE HABITAT MANAGEMENT (645) or WETLAND WILDLIFE HABITAT MANAGEMENT (644) for further wildlife guidance on species selection and design.

### **Additional Criteria to Provide Shade for Livestock**

Trees should be uniformly spaced for even shade distribution.

### **CONSIDERATIONS**

Failure to maintain adequate forage for livestock may result in excessive tree damage and/or loss.

Rows of woody plants should be in an east-west orientation where feasible and practical to allow maximum sunlight onto grass strips.

If grazing does not maintain reduced fuel loads, prescribed burning should be considered, providing the woody plants are fire adapted and will not be damaged.

Wildlife needs should be considered when selecting tree, shrub, and forage species.

Species diversity, including use of native species, should be considered.

### **PLANS AND SPECIFICATIONS**

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes and narrative statements in the conservation plan, or other acceptable documentation.

### **OPERATION AND MAINTENANCE**

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance):

Location and distribution of facilities for water, minerals or supplemental feed shall be such that livestock are not encouraged to over-utilize any area of silvopasture activity.

Restrict access by livestock when soils are at or above field capacity (saturated soil conditions).

Forage and forest management will follow PRESCRIBED GRAZING (528) and FOREST STAND IMPROVEMENT (666) standards.

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 (590) for guidance.

Inspect trees and shrubs periodically and protect from adverse impacts including insects, diseases, livestock grazing, or competing vegetation.

Protect trees or shrubs from wildfire and damage from livestock and wildlife.

Maintain a 25-50 % canopy cover for optimal forage production and livestock use. Once canopy cover exceeds 50%, the system may cease to function as a silvopasture system and begin to approach a forest system.

Replanting will be required when plant survival or canopy cover levels are inadequate to meet practice and client objectives.

Tree pruning may be needed to adjust light levels, improve wood products, or provide adequate space for machinery. Follow TREE/SHRUB PRUNING (660).

*Existing plantations.* Reduce overstory stocking levels to at least 50%. See FOREST STAND IMPROVEMENT (666) for guidance.

Trees should be as uniformly spaced as possible for even shade distribution.

## REFERENCES

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