

Silvopasture is an agroforestry application to establish a combination of trees, shrubs, and compatible grasses or legumes on the same acreage to:

- provide forage for livestock and to produce wood products
- increase carbon sequestration
- improve water quality
- reduce erosion
- enhance wildlife habitat
- reduce fire hazard
- provide shade and shelter for livestock

Establishment

Silvopasture can be established:

- in a pasture where trees or shrubs can be added
- in forests where forages can be added
- on land which neither the desired trees nor forages exist in sufficient quantity or quality to meet the land user's objectives.

Considerations

Do not allow grazing of forages 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. Hay or silage can be harvested during this period.



Tree/shrub spacing should accommodate the equipment to be used in management and promote desired forage production.

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

Locate facilities for water, minerals, or supplemental feed to encourage uniform grazing and:

- keep livestock within 800 feet of water
- make paddocks as near to square as possible
- follow landscape lines for paddock boundaries
- make paddocks of similar grazing capacity.

Types of Management Systems

When converting an existing forest stand to a silvopasture, two types of systems are recommended, each with their own advantages and disadvantages.

- Even Distribution System (selection thinning) uses a more intensive tree selection method when thinning the stand. Travel corridors are cut within the stand and trees are thinned selectively in between, leaving the best trees with good form.
- Alley System (row thinning) uses row thinning with some tree selection within the remaining rows.

Forage and Forest Management

NRCS recommendations and guidelines should be followed for forage and forest management. Competing vegetation should be controlled until the trees are established.

Apply nutrients as needed for establishment, forage production, and to maintain plant vigor. Inspect trees and shrubs periodically. Protect trees from adverse impacts including insects, diseases, competing vegetation, fire, and damage from livestock and wildlife.

Livestock Management

- Livestock should be excluded from tree plantings during vulnerable periods. Browsing animals such as sheep or goats may eat the trees and larger grazing animals such as cattle may physically break young trees. Trampling and livestock rubbing on young seedlings may be a problem.
- Rotational grazing promotes desirable woody and herbaceous plant growth and reduces over-grazing and soil compaction.
- Have plenty of feed on hand and provide water, minerals, and supplements away from new trees, locating salt/mineral licks and walkways to encourage uniform livestock grazing.
- Be willing to accept some seedling damage.

Available management tools include:

- tree harvesting, thinning, and pruning
- fertilization to improve both forage and tree production
- planting legumes for nitrogen fixation and forage production
- rotational burning
- fencing (e.g., standard or electric), tubing plastic mesh, repellents and seasonal livestock exclusion to reduce damage to young seedlings
- Over seed warm season perennial grasses with cool season annual grasses.

Establishing Trees and Forage

Minimum criteria for silvopasture establishment from a pasture to a silvopasture – minimum of 100 trees per acre, maximum 400.

Silvopasture establishment from a forest to a silvopasture – 25 per basal area (BA) (sq. ft.) is desired. Must get the stand below 50 BA over 5 years or 2 thinnings.

Consider wildlife when selecting tree or shrub species. Species diversity, including use of native

grasses, shrubs, or forbs in the under story, should meet the needs of the targeted wildlife. This species diversity will also help to avoid loss of function due to species-specific pests. Native warm season grasses can provide both wildlife benefits and high quality forage for livestock.

Grasses

Native: big bluestem, little bluestem, switchgrass, Indiangrass, and eastern gammagrass

Introduced: tall fescue, bahiagrass, Bermuda grass

Legumes

Introduced: clovers

Suitable Livestock

Suitable livestock include cattle, sheep, goats, and horses.

Hazards

Be aware that any pine or stand of pines can develop annosus root rot (ARR), a widespread disease caused by the fungus *Heterobasidion annosum*, formerly called *Fomes annosus*. There are several soil series that are high hazard for the

disease. It is best to consult with a soil scientist or forester for a more detailed description of a particular site.

For high hazard sites, use a no till method when establishing grass in an established tree stand. Heavy disking can damage the tree roots and spread the disease to residual crop trees. When thinning, treat stumps with borax. This prevents the spores of *Heterobasidion annosum* from infecting the stump.

Additional Information

Contact your local county NRCS field office listed in the telephone directory under U.S. Department of Agriculture or on-line: <http://offices.sc.egov.usda.gov>.

Alabama NRCS online: www.al.nrcs.usda.gov/

USDA-NRCS Electronic Field Office Tech Guide: www.nrcs.usda.gov/technical/efotg/

Silvopasture Establishment Standard Code 381: http://efotg.nrcs.usda.gov/references/public/AL/tg381_R1208.pdf

Silvopasture Establishment Job Sheet 381A: <http://efotg.nrcs.usda.gov/references/public/AL/381A.pdf>

National Agroforestry Center: www.unl.edu/nac/index.htm

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(October 2012)



United States Department of Agriculture
Natural Resources Conservation Service
Auburn, Alabama

Establishing Silvopasture in Alabama



Helping People Help The Land

