

**NATURAL RESOURCES CONSERVATION SERVICE
PACIFIC ISLANDS AREA**

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 include: 1) pastureland where trees or shrubs can be added; 2) *nonnative* forest land where forages can be added; 3) other lands on which neither the desired trees nor forages exist in sufficient quantity to meet the land user's objectives.

This practice may be applied on any area that is suitable for the desired plants, *except for existing native forest. Existing native forest shall not be used for silvopasture establishment.*

CRITERIA

General Criteria Applicable to All Purposes

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

The silvopasture paddock will become part of an overall grazing plan. Silvopasture Establishment will be implemented in conjunction with a grazing plan in accordance with Prescribed Grazing Standard 528.

Forage species must be adapted to the site and compatible with the planned management of the site. (See Pasture and Hay Planting Standard 512.)

Where trees will be added to existing pasture, site preparation will be based on existing vegetation and soil conditions. (See Tree and Shrub Site Preparation Standard 490.) Trees will be planted at the recommended tree density for the planned management of the site (*consult PIA Forest Ecologist.*)

A forage crop (hay, silage, etc.) may be harvested until planted trees no longer require protection from damage by livestock.

Manage existing tree stands by culling or thinning trees or pruning tree canopies to allow adequate light penetration for forage establishment. Tree stand thinning will be in accordance with Forest Stand Improvement 666. Pruning will be in accordance with Tree/Shrub Pruning 660. Establishment of forage species will be in accordance with Pasture and Hayland Planting Standard 512

or Range Planting Standard 550.

When using pesticides follow label recommendations and Pest Management Standard 595.

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

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

Tree/shrub spacing should exceed the width of equipment to be used in management of the forage resource.

Protection of tree and shrubs from damage by domestic livestock and feral ungulates must be provided. Refer to Fence Standard 382.

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.

Livestock grazing shall be deferred until the average height of terminal buds exceeds the browsing height of the livestock and trees are of sufficient size to resist breakage, or until suitable individual protection measures for woody plants are established. *Many Pacific Islands tree species may require additional grazing deferral considerations; consult PIA Forest Ecologist.*

Plant trees at an appropriate density to allow acceptable forage production and wood products.

Additional Criteria to Increase Carbon Sequestration

For optimal carbon sequestration, select plants that have higher rates of sequestration and are 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.

Additional Criteria to Reduce Erosion

Establish trees, shrubs and other plantings on or near the contour when water erosion is a concern.

If wind erosion is a concern, align tree/shrub rows perpendicular to erosive winds as closely as possible.

Additional Criteria to Enhance Wildlife Habitat

Establish forage species and understory shrubs that will provide forage, browse, seed, cover, or nesting habitat for the wildlife species of concern. For additional guidance refer to Wildlife Upland Habitat Management (645).

CONSIDERATIONS

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

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

Rows should be oriented in an east-west orientation where feasible to allow maximum sunlight onto grass strips. Where water erosion is a hazard, it should be controlled by supporting practices.

Wildlife should be considered when selecting tree or shrub species. Plant species diversity, including use of native species, should be considered. Consider clusters and groups of trees around naturally occurring micro topographical features to maximize edge effect for wildlife. Protect clusters from livestock damage by restricting livestock access with natural barriers (i.e. placed boulders, posts, etc).

Consideration should be given to adverse offsite effects.

Long, narrow, and/or small planting sites have more perimeter length per acre and thus higher fence costs than squarer and/or larger sites.

PLANS AND SPECIFICATIONS

Plans and specifications for applying this practice shall be prepared for each site; recorded using the Pacific Islands Area (PIA) Jobsheet for this practice; and reviewed with the client (landowner or operator).

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):

- 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. Trees or shrubs will also be protected from wildfire and damage from livestock and wildlife.

The Pacific Islands Area Jobsheet for this practice shall be used to prepare and record the operation and maintenance requirements for each site and reviewed with the client (landowner or operator).

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