



## AGROFORESTRY IN MINNESOTA FACTSHEET SERIES # 5

# Silvopasture

### WHAT IS SILVOPASTURE?

Silvopasture is the intentionally integrate the management of trees, forages, and grazing livestock for a production benefit. Allowing livestock to graze in a natural woodland area without active livestock/forage grazing management is NOT considered agroforestry. Silvopasture can be created using two different approaches.

#### 1. Establish trees into existing pasture.

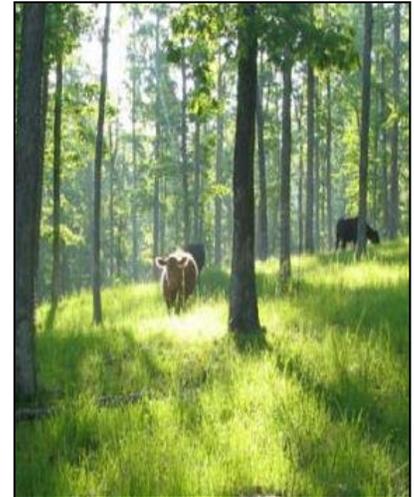
The right choice of tree crop (often matched to soils) allows you to carry on a profitable livestock operation while creating a long-term investment in timber and/or forest products. Young trees allow plenty of light for forage production. Additionally, as the tree component develops, shade and wind protection will enhance livestock performance.

#### 2. Establish forages in the woods.

By establishing select forages in an intensively manipulated forest environment, the area can be jointly managed for grazing and timber production. The key to successful silvopasture will be forage production. Factors influencing this system include having the light necessary for forage growth and response and proper rotational grazing. Adjust soil fertility to enhance forage development. Adjust light by reducing tree density and managing tree spacing. Keep trees appropriate for the site and of high quality. Match forage with grazing objectives and light availability.

### BENEFITS OF SILVOPASTURE

- Pasture grasses and legumes seeded in the area help reduce erosion, provide high quality forage and decrease unwanted trees and brush.



- Grazing in the silvopastoral site helps reduce fertilizer needs by increasing the soil nutrient effectiveness through recycling of certain elements such as Nitrogen, Phosphorus and Potassium.
- Long term income goals can be met using this system as trees are thinned out to increase the tree and forage growth.
- Trees and livestock integrated diversifies farm enterprise.
- Intensive management involve in silvopasutre improves growth of high quality trees.
- Shading reduces stress and improved animal productivity.
- Enhances wildlife habitat.



### LIMITATIONS OF SILVOPASTURE

- Distance and access to water
- Challenges establishing young trees
- Challenges introducing forages to existing woodlands
- Maintaining proper light levels
- Fencing issues

### HOW DO I DESIGN SUCH A SILVOPASTORAL SYSTEM IN MINNESOTA?

Economic and environmental considerations should be explored before starting this system. Land use zoning, tax regulations, plant and tree selection, and potential markets are important points to study. Extension Educators are available to aid in designing a silvopastoral site.

The timber in the plot should be marketable, fast growing and high quality and should eventually provide an income for the landowner. The forage chosen should be palatable, site specific, tolerant to the amount of sunlight it will receive and be responsive to intensive management. In Minnesota, some native grasses that are a good choice are:

Warm season grasses	Cool season grasses
Big Bluestem	Smooth Bromegrass
Switchgrass	Timothy
Indian Grass	Reed Canarygrass

## SILVOPASTURE EXAMPLE IN MINNESOTA: EARLY BOOTS FARM: SAUK CENTRE

The goal of Early Boots Farm is to provide shade for cattle and improve feed quality. The owner, Tyler Carlson, is focused on having tree and forage cultivars that are available in large quantities, hardy, cold and drought- tolerant and trees that will eventually produce high-quality timber.

Early Boots Farm grazes over 80 lowline angus cattle. Carlson uses a grazing system known as Ultra High Density Grazing where he moves the cattle multiple times daily on small areas of land.



*Photo: Land Stewardship Project*

### Design at Early Boots Farm

Double-row alley of red pine and white pine trees planted 10 feet apart with 40-48 feet between trees. Forage includes legumes of white clover, chicory, bird's foot trefoil. Grasses include timothy, tall fescue, meadow brome and perennial ryegrass. A piping system runs on the surface of the pasture that feeds a portable stock tank, which helps with multiple moves of cattle.

What has Carlson learned thus far?

- Match site with species requirements.
- Plan width of trees in design with width of mowing equipment and other farm equipment.
- Get soils and pasture ready before planting trees.

### ADDITIONAL RESOURCES

<http://www.extension.umn.edu/environment/agroforestry/>

<http://nac.unl.edu/publications/agroforestrynotes.htm>

<http://www.centerforagroforestry.org/pubs/>

### NEED MORE INFORMATION?

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### PHOTO SOURCES

Center for Agroforestry - University of Missouri and National Agroforestry Center