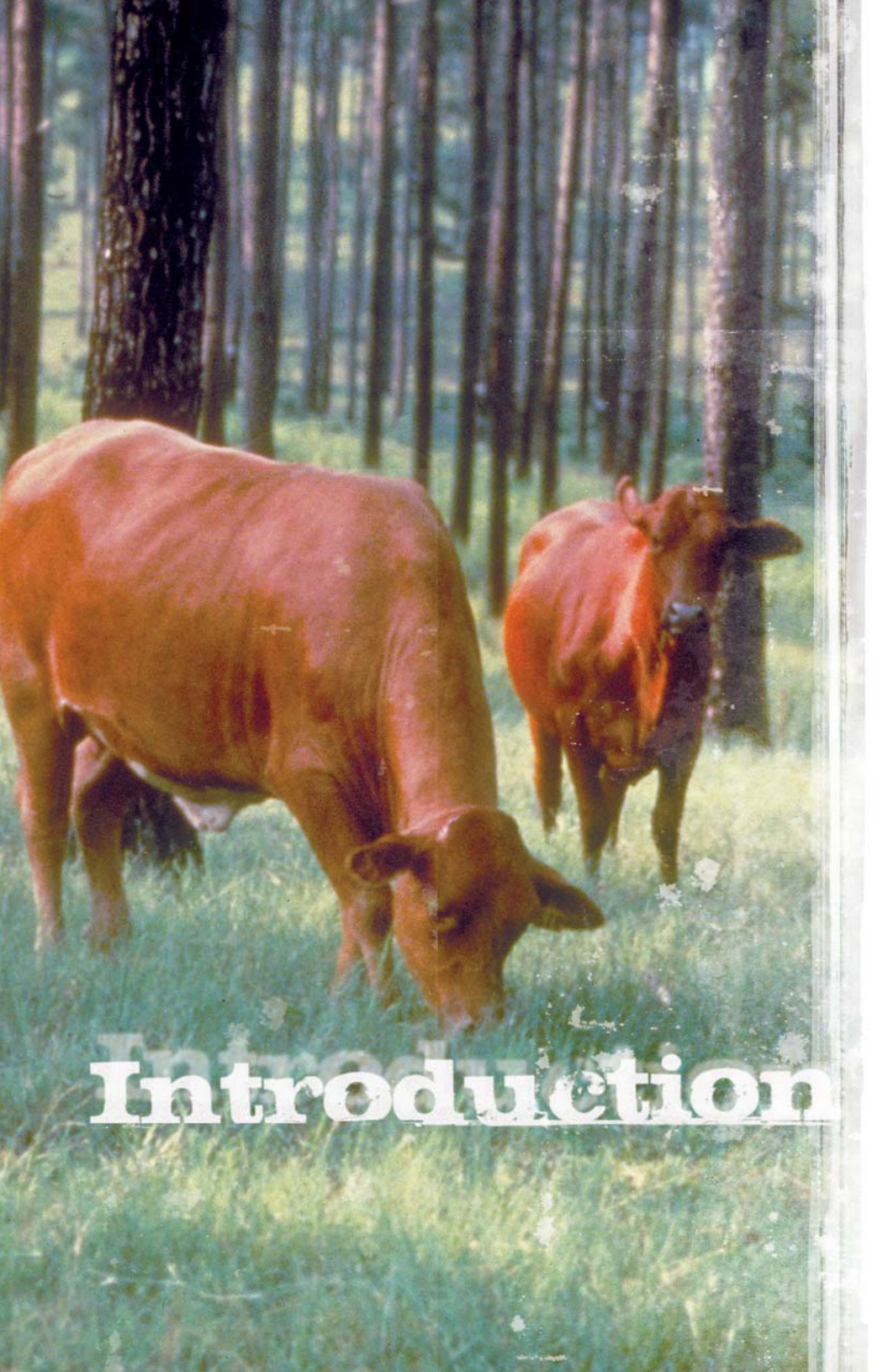


Introduction

Silvopasture is an agroforestry practice that integrates livestock, forage production, and forestry on the same land management unit. Silvopasture systems are deliberately designed and managed to produce a high-value timber product (such as sawtimber) in the long term while providing short-term annual economic benefit from a livestock component through the management of forage or an annual crop component.

Well-managed silvopasture systems may also:

- Improve overall economic performance of a farm enterprise through diversification and maintaining biodiversity
- Maintain or increase tree growth
- Improve cool-season grass production
- Allow warm-season grass production with careful canopy management
- Provide shade for livestock
- Produce pine straw for landscaping and mulch
- Aid in erosion control
- Increase wildlife populations
- Improve water quality and water holding capacity
- Increase opportunities for recreation
- Enhance aesthetics and property values
- Provide habitat for turkey and quail

Is silvopasture for you?

Silvopasture is a management option by which landowners can realize diverse income-generating possibilities from the same acreage. A primary goal of a silvopasture system is to produce high-quality timber

in the long term while grazing or browsing livestock on the same acreage in the short term.

Traditionally, forest landowners who have managed southern pines could count on income derived from periodic thinnings of their stands for pulpwood while they waited for these stands to grow into higher-value sawtimber. However, over the last several years, the prices for pulpwood have decreased as many domestic mills have closed or shifted production. If this trend continues, traditionally densely established pine plantations will not be the most cost-effective forest management system as acreage is tied up in lower value trees that are eventually removed anyway.

For silvopasture, the landowner is establishing and producing trees with the goal of harvesting primarily for sawtimber and establishing forage to reduce the need to purchase feed, thus optimizing land use by producing intermediate and long-term benefits. Landowners must be prepared to engage in some management of both tree and forage components over time as silvopasture is not a "plant it and leave it" system.

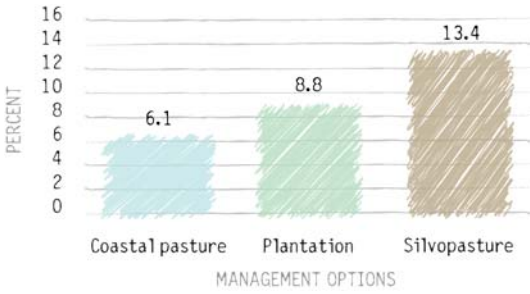
The annual income from grazing and the long-term profits from trees respond to different market pressures and reduce risk when combined in the same operation.

Economic considerations

Integrating trees, forage, and livestock creates a land management system to produce marketable products while maintaining long-term productivity. Economic risk is reduced because the system produces multiple products, most of which have an established market. Production costs are reduced and marketing flexibility is enhanced by distributing management costs between timber and livestock components.

Before a new silvopasture system is established, the landowner should explore thoroughly their economic and environmental considerations along with local land use, zoning, cost-share program, and tax regulations. Forest and agricultural land may have separate zoning and land-use regulations accompanied by different tax assessments. Environmental requirements (e.g., planting trees, stream-side protection, wildlife habitat maintenance) also may vary with land use.

Silvopasture systems can be established on any land capable of simultaneously supporting trees and forage. Silvopasture systems can require a relatively large land base to sustain timber and livestock production continuity. Typically, silvopasture systems have been established on existing pasturelands by planting single or double rows of trees with forage corridors between



Silvopasture has a higher internal rate of return compared to some other management options.

The Natural Resources Conservation Service in some states lists silvopasture as a practice that can be cost-shared under the Environmental Quality Incentive Program.

them. Silvopasture systems have also been established from existing stands of trees by thinning the forest to a desirable level to support forages or by removal of all trees in a designated area to create corridors or alleyways.

Initial establishment costs to consider

Before jumping into silvopasture, there are some cost considerations:

1. Site preparation
   - Clearing the site – either mechanically or with herbicide (cost of equipment + labor + cost of herbicide).
   - Tilling or plowing rows for tree planting.
   - Soil sampling and fertilizer amendments (if necessary).
2. Seedling cost
3. Labor associated with planting
4. Fencing (permanent or temporary; electric high-tensile or portable polywire; solar or traditional)

5. Establishing fire-breaks (if fire will be a management option)

Typically, the cost for establishing a silvopasture system in an existing pasture that does not involve extensive site preparation should be about $100 to $150 per acre.

Long term economic considerations

- Tax value classification of system: Does your system qualify for tax breaks?
- Yearly cost for annual crop/forage establishment (seed, herbicide, labor, equipment, etc.)
- Fence maintenance
- Livestock management expenses
- Watering facilities/structures for livestock
- Fertilizer amendments (for forage and/or trees)
- Labor costs for pruning (see section on pruning)

Planning & establishment considerations

Southern pines—oblolly (Pinus taeda), longleaf (P. palustris), and slash (P. elliotti)—are compatible with forage production and livestock grazing when properly managed.

While a number of hardwood species have been successfully incorporated into silvopasture systems with grazing animals, these species typically take a longer time to establish and reach maturity, thus increasing the rotation period between timber harvests for the landowner.

Current silvopasture systems primarily involve cattle, sheep, and goats. However, other potential choices include horses, turkeys, chickens, ostriches, emu, rhea, or game animals such as bison, deer, elk, and caribou.

Livestock must be intensively managed in silvopasture systems. Timing and duration of grazing, stocking rates, and carrying capacity of the pasture must be carefully monitored to maintain site quality and tree seedling survival by minimizing damage to seedlings by trampling and rubbing, and preventing overgrazing and soil compaction. Depending on the density and growth rate of forage, livestock must be rotated between "pastures" to sustain growth and productivity of forages. A comprehensive grazing management plan —fencing or paddocking, periodic burning, rotational grazing, fertilization, placement of watering and/or supplemental feeding areas—must be implemented to maintain a silvopasture system.