

Silvopasture: Additional Income from Your Forestland

► Take a minute to think about why you own land. Is it to pass on to your children and grandchildren? For outdoor recreation? Because you enjoy the beauty of nature? Is it part of your farm?

If you answered yes to one or more of these questions, your land ownership motivations are similar to most of Alabama's small-scale private landowners—especially those who own fewer than 100 acres. Such landowners consistently state that their primary reason for owning land is to pass it on to their heirs, with outdoor recreation and scenic beauty often rounding out the top three.

So where is timber production in all this? Surprisingly, it comes in fifth in order of importance for small-scale private landowners. When surveyed, most landowners indicated that they would like to generate some revenue from of their land but believe that the financial benefits are limited.

There are ways, however, that multiple land-management objectives can be combined on the same tract to increase financial returns as well as ecological benefits. One way is through the application of agroforestry techniques—or the intentional combination of crops with trees. As part of a land-management strategy, agroforestry practices have the potential to generate periodic revenue beyond that of traditional forest management while still keeping the land forested. Additional financial and ecological benefits such as native forage establishment, wildlife habitat creation, longleaf pine (*Pinus palustris*) restoration, and pine straw production can also be achieved through proper management of these systems.

The most common form of agroforestry in the southeastern United States is silvopasture, which is the management of property for livestock, forage, and timber on the same parcel of land. It is designed to produce high-quality timber while also providing cash-flow opportunities from livestock and forage production.

Silvopasture Basics

Timber Establishment and Management

Southern pines such as loblolly (*Pinus taeda*), slash (*Pinus elliottii*), and longleaf are well suited for use in silvopasture systems. You can establish pine silvopasture by planting single or double rows of



trees with forage corridors between them on existing pastureland. You can also establish silvopasture in existing forest stands by thinning the forest to a level that will support forage production, through the removal of trees to create corridors or alleyways.

As with traditional forest management, thinning can be used to control the stocking level of trees and provide some income from your silvopasture. As trees grow, their crowns begin to close, increasing competition for resources such as water, light, and nutrients. Crown closure can lead not only to shading of understory forage but also to reduced timber growth. Thinning your timber to 25 to 60 percent canopy cover will keep the desired amount of light reaching the understory for optimum forage production, provide some periodic income, and improve your stand by allowing you to select the best crop trees.

Forage Establishment and Management

Forage includes grasses and legumes that are used as hay or food for livestock. The process of forage establishment in a silvopasture system is similar to accepted practices for open-pasture establishment but differs in that the most productive forages in agroforestry systems must be somewhat shade tolerant. Bahia grass does best in southern and coastal portions of the southeast. Native grasses such as the big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and eastern gamagrass (*Tripsacum dactaloides*) species may be good options for many

landowners. Among legumes, red and white clover (*Trifolium pratense* and *Trifolium repens*) are well suited to silvopasture systems, as are native legumes such as white prairie clover (*Petalostemon candidum*) and showy tick trefoil (*Desmodium canadense*).

Introduction of Livestock

Before livestock is introduced into your silvopasture, you must provide both fencing and watering facilities. Fencing controls animal movement and is critical to a successful silvopasture management area. Plan your fence carefully to maximize grazing options, and consider the placement of water tanks when developing a fence plan. Water tanks in the fence line should be centrally located and serve more than one paddock to promote more uniform grazing of the site and to limit soil compaction around the watering areas.

Your choice of livestock will be based on your objectives but can range from small animals such as poultry, sheep, or goats to large animals such as cattle and horses. Livestock will browse or trample young trees, so delay introducing any livestock until trees are 10 to 15 feet tall. Use haying operations early in the rotation before introducing livestock to promote forage production and produce some early income.

Once the animals have been introduced, they must be controlled through stocking levels and rotational grazing to ensure the efficiency of forage usage. Rotate animals among grazing management units to allow time for grazed paddocks to recover for forage regrowth.

Other Benefits

Besides timber, livestock, and forage production, agroforestry systems have the potential to provide additional financial and environmental services and benefits. One potential benefit is wildlife habitat creation and conservation banking, which involves the purchase and management of large parcels of land for certain wildlife populations whose habitat is being fragmented or lost. Most agroforestry systems can provide a high-quality wildlife habitat for certain key species. For example, an open pine habitat is ideal for species of concern such as the gopher tortoise (*Gopherus polyphemus*) or Northern bobwhite quail (*Colinus virginianus*).

Another benefit of establishing a silvopasture is the potential to restore imperiled longleaf pine forests. When the Europeans settled this country, they used much of the original longleaf forests for grazing free-ranging livestock. It was a fire-maintained forest system, which was ideal for grazing because the growth of grasses and

legumes was promoted by frequent fire. Today, longleaf pine forests are listed as one of the rarest ecosystems in the United States, with less than 5 percent of the original longleaf forest acreage in existence.

As part of the restoration effort, planting agricultural fields in longleaf pine is growing in popularity. Cost-sharing programs often promote low-density plantings (fewer than 600 trees per acre) of longleaf to improve wildlife habitat. These low-density stands may be well suited to agroforestry.

Pine straw production is another benefit of southern pine silvopasture systems. Sold either by the bale or the acre, pine straw has the potential to exceed any other forestry activity in terms of its financial intake. Silvopastures are ideal for pine straw raking, either mechanically or by hand, because of the clean, open understory and wide row spacing. Stands can be raked when the trees are approximately 8 years old, and annual production can range from 80 to more than 200 bales per acre, depending on the tree species and location.

Considering Your Options

Because livestock and timber are affected by different market pressures, the use of silvopasture allows landowners to diversify their risk while realizing diverse income-generating possibilities from the same acreage. Silvopasture may not be for everyone because it requires actively managing livestock and timber on the same acre; therefore, you must consider all of your goals for your property when making any land-management decisions. For many, however, silvopasture is a way of life that allows them the flexibility to meet not only long- and short-term objectives but also lifestyle and financial needs that cannot be obtained using traditional forest-management systems.

An instructional video, *Silvopasture: 30 years of research and innovation*, is now available for more information about implementing silvopasture on your property. Developed through a partnership of Auburn University, the Alabama Cooperative Extension System, and the USDA National Agroforestry Center, this video features practical information on the development and management of southern pine silvopasture.



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