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## Silvopasturing Must Be Balanced With Ecosystem Health

Philip Gruber Staff Writer Oct 23, 2015



BOILING SPRINGS, Pa. — Raising livestock in the woods may be the next frontier for farmers hoping to provide for an ever-growing world population, but it is very difficult to produce food while protecting the forest ecosystem.

Forests “are complicated. They’re dynamic. They don’t pay much,” said Roy Brubaker, the district forester for Michaux State Forest and a board member of the Pennsylvania Association for Sustainable Agriculture.

Brubaker spoke during an Oct. 20 silvopasturing field day at Dickinson College Farm.

Managing a forest for just one economic benefit, like timber production, ignores the forest’s complexity and will degrade the ecosystem as a whole, Brubaker said.

Instead, farmers need to approach forests as a system and seek to maximize biodiversity and ecosystem resilience, he said.

But woodlot owners also need to make money on their land. Timber production alone is not really profitable, Brubaker said.

Grazing livestock in the woods — silvopasturing — can generate some cash, but like all pasturing systems, management is key.

For example, grazing a pristine forest seems irresponsible, though “that is happening,” Brubaker said.

Grazing to clear invasive species seems more logical, he said.

Rather than buying land, it might be more cost-effective to graze a wooded area on a produce farm or in a public park.

“There are profit-making opportunities out there,” Brubaker said.

The simplest step toward system-based management is to fence the livestock out of the woods except for a month in late summer to allow regrowth.

The cattle “don’t need shade until mid-July,” Brubaker said.

A Fulton County farmer he worked with has had success with that method.

The right species also needs to be paired with the location. Sheep are well suited to grazing riparian buffers, Brubaker said.

Sheep can replace mowing on the grassy strips, eliminating habitat for tree-killing voles, but they will not wade in the stream.

“Sheep don’t like to get their feet wet,” Brubaker said.

Grazing is not allowed in buffers funded by USDA’s Conservation Reserve Enhancement Program.

Silvopasturing swine is a challenge because their rooting can harm the ecosystem.

Supporters say the pigs get extra protein from eating salamanders and birds found in the woods, but Brubaker does not want livestock eating sometimes rare native species.

Feral pigs are already causing a lot of damage in Pennsylvania forests, and “we don’t want to contribute to this problem,” Brubaker said.

Still, not everything that looks like damage actually hurts the ecosystem.

Silvopastured livestock compact the soil in the woods. That’s bad if you are trying to maximize timber production but good if you are fighting the hay-scented fern.

That species of fern is a major impediment to tree seedling growth and is very sensitive to compaction, Brubaker said.

Brubaker told of a farmer who grazed his cattle over the winter in a woodlot where timber had recently been harvested.

After several years, oaks were starting to regrow, and highly competitive but undesirable brush had lost its hold.

Brubaker drew heavily from the work of European researcher F.W.M. Vera, who theorized that forest succession occurs in concentric circles — grass on the outside, then a ring of browse-resistant plants, then trees in the center.

Pennsylvania's precolonial forests were home to wood bison and elk, so "a large portion of the landscape would have had to have been in grass," Brubaker said.

Brubaker has seen elm, ash, oak and sassafras seedlings starting under spiky shrubs like American hawthorn and blackhaw viburnum on his farm in Juniata County.

Because every site is different and ecosystems are so complex, it's hard to measure the success of silvopasturing.

"We're going to end up using artificial indicators," singling out variables that don't tell the whole story, Brubaker said.

Dickinson College Farm, USDA Natural Resources Conservation Service, Chester County's Wyebrook Farm and other partners are in the midst of a silvopasture research project.

Working under a Northeast Sustainable Agriculture Research and Education grant, the groups are collecting data that may eventually lead to technical guidance for farmers looking to silvopasture.

"We're looking at what works, what doesn't," said Susan Parry, the state grasslands conservationist with NRCS.

Dickinson's beef cattle graze a small wooded area as part of their rotation. It is easy to see where the cattle cropped the grass on the forest floor, though a lot of overgrown brush is still standing.

New trees have been planted in the pasture next to the woods to attract pollinators and provide shade, said Noah Burchard, a farm apprentice and recent Dickinson graduate.

The young trees have to be protected from the cattle, which like to rub against the trunks and eat the leaves. "We've lost about 10 trees so far" out of 71, Burchard said.

The crew tried portable electric netting, but snow pushed it down.

"That led to the sheep effectively killing a bunch of trees," Burchard said.

Wire fencing worked better with the sheep, but the cattle still pushed it in.

The staff recently added barbed wire to the fencing. “Hopefully that’ll keep the cows out,” Burchard said.

Although Brubaker hopes more people will get into silvopasturing, he does not want the practice to become a set of rigid guidelines.

You cannot “boil it down to a bunch of BMPs,” or best management practices, he said. <\c> 8

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### Philip Gruber

Phil Gruber is a staff writer at *Lancaster Farming*. He can be reached at (717) 721-4427 or [pgruber.eph@lnpnews.com](mailto:pgruber.eph@lnpnews.com). Follow him [@PhilLancFarming](https://twitter.com/PhilLancFarming) on Twitter.