Agroforestry Case Studies: Silvopasture at Early Boots Farm

Ann Y. Robinson

Mid-American Agroforestry Working Group

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Abstract
This case study of Early Boots Farm near Sauk Centre, Minn., shows how Tyler Carlson incorporates trees into pasture settings to raise lowline angus cattle. This agroforestry practice is called silvopasture. The case study outlines lessons that Carlson has learned and benefits from this practice.

Disciplines
Agriculture | Forest Sciences
About the farm

Tyler Carlson started farming in 2011 on land purchased by family in the 1960s. To manage his farm, Carlson:

- has planted thousands of red oak and red and white pine saplings into 20 acres of old crop fields. The trees will shade pasture to improve feed value and shelter a growing herd of lowline angus beef cattle;
- is trying a rotational grazing system known as ultra high stock density grazing, within a framework of holistic planned grazing;
- received cost-share assistance from USDA’s Environmental Quality Incentives Program to establish fencing for rotational grazing and help pay for trees and planting assistance;
- gained valuable information and mentorship from University of Minnesota Extension and the Farm Beginnings© training course sponsored by the Land Stewardship Project;
- is involved in research on the benefits of agroforestry for producing food, managing risks and increasing landscape resiliency.

“What I’m doing is based on a bunch of ecological science that suggests you can effect greater production and have a more resilient landscape. Theoretically, you can have the cake and eat it, too!” — Tyler Carlson, Early Boots Farm

Farm management practices

At Early Boots Farm, beginning farmer Tyler Carlson and wife Kate Droske are using an agroforestry practice known as silvopasture to raise gourmet, grass-fed and finished beef near Sauk Centre, Minnesota.

Silvopasture management is fairly complex, says Carlson. However, the benefits of incorporating trees into pasture settings have been reported from around the world.

Cool-season grasses, which dominate his pastures, go into a late summer slump from high heat. If shade is added to pastures, it can keep plants cooler and in prime growing condition later in the summer. Shaded pastures produce longer than in wide-open settings and productivity should rebound earlier in the fall. Reducing heat stress also creates higher feed value for livestock.

Besides optimizing the pasture microclimate for food value, livestock benefit from having shade in the summer, and in the winter, a windbreak and shelter from wind and cold.

In the beginning, though, the cattle do not have access to the young trees. For several years, electric fencing will be used to fence off the alleys until the trees grow large enough to withstand some rubbing and browse.

Carlson is trying a system known as Ultra High Stocking Density or “mob grazing” where cattle are moved often. He’s feeding approximately 30,000 pounds of animals per acre per day, with a target of 4-6 moves. He is also working toward organic certification.
Marketing & economics

At this time, Carlson is mostly marketing his beef to friends and family. As his herd grows, he expects to branch out his marketing efforts to sell to food cooperatives and restaurants in the Twin Cities Metro and other cities in the region.

Carlson developed a business plan to launch his grass-fed beef operation as part of a Farm Beginnings© training course. The course incorporates many aspects of Holistic Resource Management (HRM), including its financial planning and management approaches. To graduate from Farm Beginnings, participants must develop a business plan that can be taken to lenders, with help from peers and Land Stewardship Project staff. Based on that plan, Carlson anticipates his operation should bring in enough to support itself in 4-5 years. At that point, he plans to work full-time on the farm.

So far, Carlson's main expenses have been his cattle and “a lot of expensive hay” during the drought in 2012. He has an old tractor and mower that were owned by his family.

Sources of funding assistance have included the Environmental Quality Incentives Program (EQIP) through the USDA Natural Resources Conservation Service, which helped cover the cost of trees, tree planting and rotational grazing practices, and help from the University of Minnesota Extension to design the system.

He hopes to eventually market the mature trees as timber, but that may take 60 years—a gift to grandchildren or future owners. In the meantime, he will plan to sell thinnings (maybe in 15 years) for paper pulp, fence posts or other uses.

Lessons learned

• Plant trees that are as large as you can afford. Larger trees are more resilient and stand up better to rubbing and browsing by cattle and deer.
• Plan the width between tree rows based on the width of your mower or other equipment you'll want to use to manage the space.
• Get your pasture and soils in good shape before you plant trees. After the trees are planted it's more difficult to work on the soil in the area.
• Integrate trees, fields, water with an eye to connecting habitats corridors for pollinators, other insects and wildlife. Carlson is planning his landscape design to help defragment a fragmented agricultural landscape, intentionally planting trees to connect areas of cover. His planning considerations also include managing edge effects to create viable areas of refuge, especially for birds.
• We need more good examples of these type of systems for the Midwest to help us learn what works — and what doesn't work as well.

Goals of the farm

• Produce food in ways that sustains agriculture and regenerates the land.
• Manage risks by placing diversity back on the landscape. Bringing in perennial cropping systems is a way to mitigate various environmental conditions, including drought and heat, windstorms and other extremes.
• Get into farming with low-capital startup costs. A grass-fed beef operation was a relatively low-cost way to get started farming family land.

CONTACT MAAWG

The Mid-American Agroforestry Working Group (MAAWG) sponsors networking and educational activities to advance regional agroforestry interests. To learn more about this farm, or find other case studies, visit www.midamericanagroforestry.net/agroforestry-case-studies. You can also follow @agrof_maawg on Twitter or contact us at maawg.agrof@gmail.com

Case study by Ann Y. Robinson, June 2013. Layout by Leopold Center for Sustainable Agriculture.