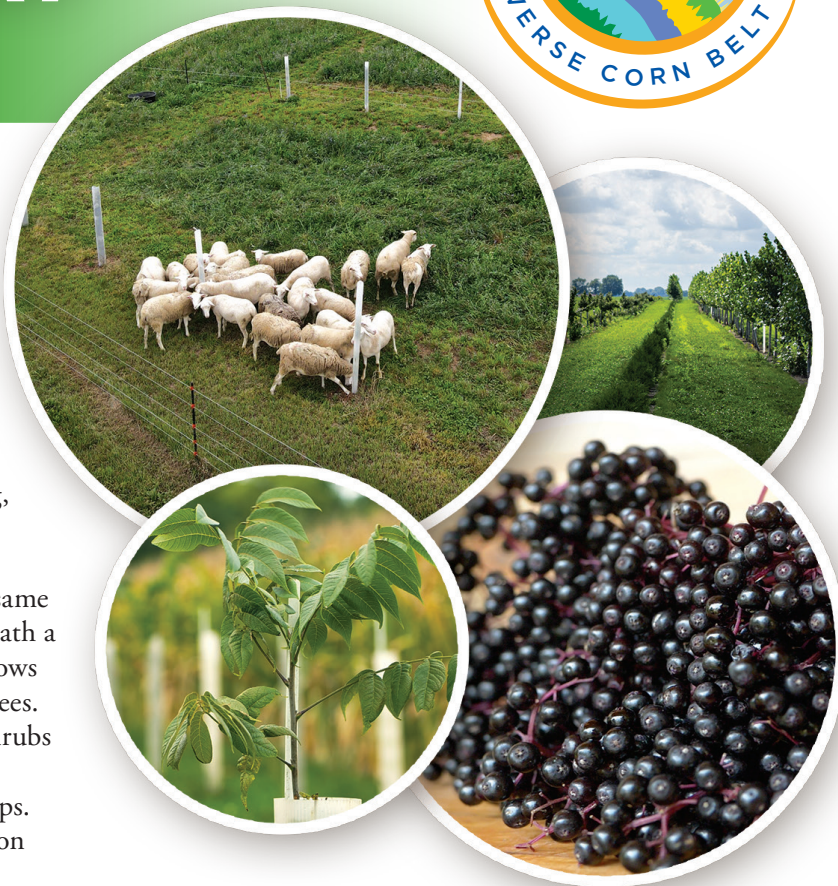


DIVERSIFYING THE CORN BELT: **AGROFORESTRY**



INTRODUCTION

Agroforestry practices integrate shrubs and trees into farmland to support productive and sustainable land use. Practices common across the Corn Belt include riparian forest buffers—wooded areas along streams and rivers that are adjacent to farmland—and windbreaks—trees and shrubs planted along field edges that protect soil and wind-sensitive crops. Less common agroforestry practices, such as silvopasture, forest farming, and alley cropping, combine woody plants with livestock or herbaceous crops. Silvopasture is a grazing system that combines trees, forages, and livestock production on the same piece of land. Forest farming involves growing crops beneath a managed canopy of trees. Alley cropping systems create rows of agricultural crops planted between lines of shrubs or trees. These systems can be simple—planting berry-producing shrubs or nut trees between row crops—or complex—producing multiple products from shrubs, trees, and commodity crops. Because agroforestry systems require intentional integration of multiple crops or livestock with woody plants, most monoculture orchards, tree farms, and woodlots are not considered agroforestry.



BENEFITS OF AGROFORESTRY

Agroforestry provides environmental benefits by:

- *increasing habitat for mammals, birds, pollinators, & other insects*
- *protecting soil from wind and water erosion*
- *protecting water quality in streams and rivers*
- *sequestering carbon in the soil and plant biomass*

Economic benefits include:

- *an additional or alternate source of income when the woody plants are harvested*
- *potential to decrease pest and disease pressure of crops & livestock*
- *heat stress is addressed by providing shade for livestock*
- *reducing risk by protecting structures, crops, and livestock from extreme weather*
- *creating a visually attractive landscape, which provides social benefits*

Certain kinds of agroforestry are well-suited for land that is hilly and highly erodible, so that land's productivity can be improved.



HOW AGROFORESTRY COMPLEMENTS CORN-SOYBEAN SYSTEMS

Windbreaks and riparian forest buffers fit easily into current corn-soybean systems, especially when used as an edge-of-field practice. Windbreaks can create more favorable microclimates through wind reduction, better water infiltration, and pesticide drift protection. Riparian forest buffers provide similar benefits. They also act as filters for agricultural water-pollutants and reducing soil erosion adjacent to waterways. Alley cropping integrates annual crops between rows of nut trees, fruit trees, and/or hardwoods. However, depending on the spacing between and within rows and the species of tree planted, trees with 5-20 years of growth may produce too much shade for full sun crops like corn and soybeans.

Silvopasture integrates trees into grass-based grazing systems, using the unique qualities of trees to create more favorable living conditions for livestock and provide additional fodder sources, such as fruit, nuts or leaves. In forest farming, existing canopies of trees provide a sheltering overstory for shade-loving crops like mushrooms and forest botanicals. Annual crops like corn and soybeans are not used in silvopasture or forest farming systems. However, these agroforestry practices can be effective for a field not used in an annual rotation. These areas may be highly erodible, hilly, less productive, a shape that is difficult for equipment to navigate, or set aside for diversification. Producers with a corn-soybean system who also own woodland may find value in establishing silvopasture, forest farming, or alley cropping, especially if the woodland is of marginal quality or underutilized.



EQUIPMENT AND INFRASTRUCTURE

Equipment required for agroforestry depends on system type, products grown and harvested, and individual goals of the landowner and producer. For example, if trees are not already present in an area, tree-planting equipment will be necessary, whether owned or rented. If trees are harvested, equipment for that harvest will need to be owned or rented. When possible, tree spacing should align with existing farm equipment, field layout, and resources.



LABOR REQUIREMENTS

Planting trees or shrubs has major labor requirements, whether a one-time event or done in stages. Ongoing management and labor for maintaining the system varies, based on the specific system and the intensity with which it is managed.

Cost-share programs exist for establishing all five agroforestry practices through federal programs, such as the USDA Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP), and USDA Farm Service Agency (FSA) Conservation Reserve Program (CRP).

MARKET CONSIDERATIONS

There is no such thing as an “agroforestry crop.” Instead, there are products grown in an agroforestry system. There are a wide range of products with existing markets that can grow in or be protected by an agroforestry system. For example, cereal grains such as corn, wheat, and rye are grown in alley cropping systems. These crops also can be grown adjacent to windbreaks or riparian forest buffers for crop protection. Markets also exist for orchard-based crops, livestock products, and forest products, such as timber and firewood. However, some specialized products, such as nuts, fruits, or berries, necessitate identifying and developing markets.

CHALLENGES FOR AGROFORESTRY IN THE MIDWEST

While agroforestry offers significant benefits, several challenges can limit its broader adoption on agricultural lands. These challenges tend to be highly producer- and practice-specific, but some common barriers include gaps in information and research, economic considerations, and social factors. All of these challenges need tailored solutions. Research is needed to better understand how agroforestry systems impact the broader landscape. Long-term documentation can identify ecological dynamics and optimize agroforestry best management practices. Additionally, more information is needed to assess how climate change will affect agroforestry systems and how these systems can contribute to climate change mitigation. Economically, a comprehensive valuation of agroforestry's ecosystem services is lacking, making it difficult to fully capture its benefits beyond traditional production metrics. A lack of processing facilities and supply chain access in the Midwestern United States creates challenges for harvesting and processing tree crops and wood products produced in agroforestry systems. Socially, challenges include limited access to technical support and education, insufficient knowledge about agroforestry's integration with existing production systems, and a scarcity of information on the economic advantages of these practices. Addressing these interconnected challenges through targeted research, outreach, and policy support is critical to expanding successful adoption of agroforestry on working agricultural lands.

OPPORTUNITIES FOR AGROFORESTRY IN THE MIDWEST

Agroforestry offers a powerful and adaptable approach to land management that complements and enhances working agricultural lands. By integrating trees and shrubs into crop and livestock systems, agroforestry supports long-term soil health, improves water retention, reduces erosion, and increases biodiversity, services that are critical under mounting weather variability and resource pressures. Practices such as alley cropping, silvopasture, riparian buffers, windbreaks, and forest farming can be tailored to fit a variety of production systems, helping producers improve land efficiency and ecological performance without displacing core agricultural activities. These systems also open new opportunities for income diversification through production of timber, fruits, nuts, and other non-timber forest products, providing additional revenue and risk mitigation.

On productive agricultural lands, agroforestry enhances resilience and sustainability of farming operations while supporting broader environmental goals. Tree-based systems can create favorable microclimates for crops and livestock, reduce input needs through natural pest control and improved nutrient cycling, and contribute to greenhouse gas mitigation through carbon sequestration. In regions facing increasing climate stress, agroforestry functions as a climate-smart strategy that supports both short-term productivity and long-term land stewardship. Supported by USDA conservation programs and backed by growing research, agroforestry is a practical and scientifically supported option for producers looking to strengthen their operations and invest in the future of their land.



ADDITIONAL INFORMATION

USDA National Agroforestry Center: <https://www.fs.usda.gov/nac/index.shtml>

Savanna Institute: <https://www.savannainstitute.org/>

AUTHORS

Kristin Floress, Research Social Scientist, Northern Research Station, *USDA Forest Service*

MJ Oviatt, Illinois Agroforestry Educator, *Savanna Institute*

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