



## Helping People Help the Land

NRCS provides America's farmers and ranchers with financial and technical assistance to voluntarily put conservation on the ground, not only helping the environment but agricultural operations, too.

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# NRCS and the Benefits of Agroforestry



The USDA Natural Resources Conservation Service (NRCS) assists landowners to address resource concerns on private land to improve our soil, water, air, plants, animals. Agroforestry can benefit our natural resources as a unique land management approach blending agriculture and forestry to enhance productivity, profitability and environmental stewardship. Wisconsin NRCS offers technical assistance and financial assistance through the Conservation Stewardship Program and the Environmental Quality Incentives Program to implement agroforestry practices and enhancements on private lands. The following are core conservation practices associated with agroforestry. These practices may be used individually or in combination in different parts of the landscape depending on landowner goals.

## Agroforestry Practices:



### Alley Cropping

Alley cropping consists of planting rows of trees and/or shrubs to create alleys within which agricultural or horticultural crops are produced. The trees may include valuable hardwood veneer or lumber species; fruit, nut or other specialty crop trees/shrubs; or desirable softwood species for wood fiber production. Alley cropping also has the potential to boost crop yields. Designs are farm specific and created to work with equipment and practices already in use. The goal is to provide ecosystem benefits, while maintaining a regular, but eventually more diverse and stable, income stream. In many systems, farmers continue to farm whatever annual crops they grow for up to 20 years without significant yield reduction. After that 20-year window, the alley is converted to pasture for livestock or is hayed. Forest products, such as mushrooms or ginseng, could also be grown under site-specific management.



### Cropland Conversion to Trees and Shrubs or to Grass-Based Agriculture

This practice can be a long-term water quality solution to improve nutrient losses and reduce yearly cost inputs. Conversion of cropland to grass-based agriculture uses mixtures of perennial grasses, forbs, and/or legume species, established on cropland where annually-seeded cash crops have been grown. The conversion of cropland where annually-seeded cash crops have been grown to trees and shrubs provides long-term erosion control and water quality improvement. Tree and/or shrub species are selected for their ability to hold soil in place and the planting arrangement controls runoff and traps sediment.



## Enhanced Field Borders

This practice reduces wind erosion; increases carbon storage; provides wildlife food, cover, shelter and connectivity. This practice enlarges existing field borders to a width of at least 30 feet, depending on the management goal, and establish a single species or mixture of species that provide a dense ground cover and rooting system along the edge(s) of a field.



## Planting Food-Producing Trees and Shrubs

This practice promotes planting food-producing trees and shrubs to existing plants for wildlife or human consumption within windbreaks, lands where alley cropping or multi-story cropping is practiced, silvopasture, and/or riparian forest buffers.



## Riparian Forest Buffers

A riparian forest buffer is an area adjacent to a stream, lake or wetland that contains a combination of trees, shrubs, and/or other perennial plants and is managed differently from the surrounding landscape, primarily to provide conservation benefits. This practice can also be managed to include trees and shrubs that produce a harvestable crop. Buffers are used in agricultural, row crop, range, suburban and urban settings. Benefits include filtering nutrients, pesticides and pathogens from agricultural land runoff; filtering sediment; providing shade, shelter and food for fish and other aquatic organisms; producing income from farmland that is frequently flooded or has poor yields; providing space for recreation; diversifying landowner income and much more.



## Silvopasture

Silvopasture is the deliberate integration of trees and grazing livestock operations on the same land. These systems are intensively managed for both forest products and forage, providing both short- and long-term income sources. This practice is not simply putting cows or other grazing livestock into forests. Well-managed silvopastures employ agronomic principles, typically including introduced or native pasture grasses, fertilization and nitrogen-fixing legumes and managed grazing systems that are sustainable and optimize forage use. The annual grazing income provides cash flow while the tree crop matures, and the silvopasture design allows easy access when trees or tree products are harvested. While these systems can require multiple management activities, the benefits of providing shade and microclimates, adding diversity to diet, and decreasing medical interventions, can make it worthwhile.



## Windbreak Shelterbelt Establishment and Renovation

Windbreaks are linear plantings of trees and shrubs designed to provide economic, environmental and community benefits. The primary purpose of most windbreaks is to slow the wind which creates a more beneficial condition for soils, crops, livestock, wildlife, pollinators and people. Windbreaks, sometimes called shelterbelts, can also function in ways not related to wind reduction. Non-wind related purposes include visual screens, wildlife habitat, vegetative field borders and as another crop source. Increasingly, windbreaks can provide additional sources of income and products, such as timber and specialty crops, that can be used in the farm operation.



## Additional Agroforestry Applications

Alley cropping, silvopasture, windbreaks and riparian forest buffers are considered agroforestry by themselves. Other examples include using wastewater to produce a short rotation woody crop, plantings to help floodplain areas, buffers to reduce noise and support pollinators, windbreaks to mitigate odor from livestock operations, living snow fences to manage drifting snow along roads, practices to provide energy conservation and production, and plantings that provide conservation benefits while also producing harvestable fruits and nuts, herbal and medicinal components, items of cultural significance, and other non-timber products.

## Agroforestry Resources

To learn more about the technical and financial assistance NRCS provides to private landowners, and also more about agroforestry, visit <https://www.nrcs.usda.gov/wps/portal/nrcs/main/wi/technical/landuse/forestry/>.

