

Sand County Foundation Conservation Brief

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Improve farm water quality and biodiversity with prairie strips



Prairie strips can retain soil, nutrients, and rainfall on farmland with diverse habitat for pollinators and grassland birds.

Prairie strips are strategically placed strips of native perennial vegetation (grasses and forbs) within farm fields to retain rainfall while capturing soil and nutrient runoff.

Research at Iowa State University (ISU) began in 2007 with a watershed-scale field experiment called STRIPS (Science-based Trials of Row-crops Integrated with Prairie Strips) to evaluate whether prairie strips can deliver ecosystem benefits at a scale greater than the land area that they occupy¹. The research identified that relative to other structural practices, prairie strips provide a lower-cost conservation option for farmers seeking to reduce sediment and nutrient losses with minimal impact on crop production, while also improving soil quality, water quality, site hydrology and biodiversity.

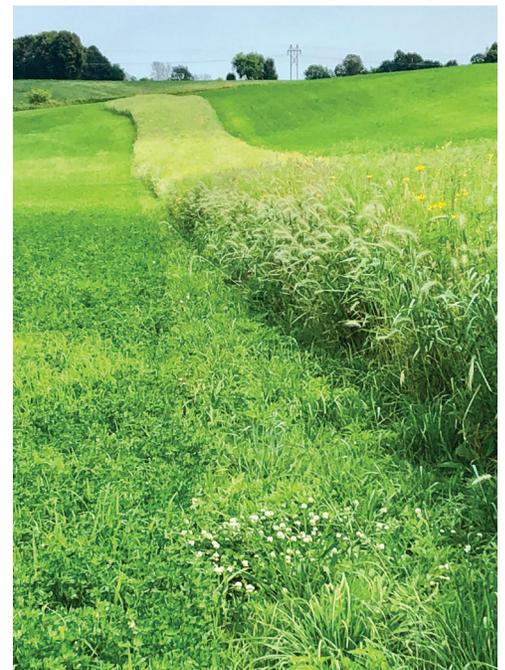
Sand County Foundation (SCF) works with landowners on voluntary adoption of conservation practices. That work includes expanding the success of ISU's STRIPS project onto Wisconsin farms. SCF's prairie strip efforts began in 2017 with the implementation of six demonstration sites funded through the North Central Region Sustainable Agriculture Research & Education (SARE) program.

Together with the University of Wisconsin, ISU, and American Farmland Trust, SCF is advancing the efforts into other Midwestern states. Our goal is to validate the capability of the practice to reduce erosion and improve water quality, while identifying benefits and potential barriers to farmer adoption.

Design and management: The layout of a prairie strip is customized to fit the cropping pattern and farm machinery, but positioned to be relatively consistent with the field contour while minimizing the potential to be considered an obstacle during field management. Ideally, the prairie strips should be at least 15 feet wide, covering approximately 10% of the cropland area, though width varies based on the number installed, field topography and runoff potential.

Even the native seed mix is selected with the farmer's objectives in mind. Planting a diverse seed mix with a 1:1 ratio of forb to grass species will improve the capacity to capture water, resist weeds and provide pollinator habitat.

It may take three years to fully transform a prairie strip into a prairie habitat. They require mowing for weed control in the first two years, but in subsequent years the maturing native vegetation will crowd out weeds with minimal maintenance. Herbicide spot treatment or prescribed burning may also be necessary.



Q & A:

Can prairie strips be used in place of a vegetated waterway?

Prairie strips are placed on the contour, varying the width based on potential surface water runoff. Although they can potentially redistribute the surface water runoff along the slope gradient, reducing the concentrated flow, the topography of each field is unique and will need to be examined on a case-by-case basis with a conservation advisor.

Will prairie strips attract pests?

Prairie strips can increase the biodiversity of farmland and increase the presence of beneficial insects, birds, and pollinators such as bees and monarch butterflies. Insect studies have identified an increase in insect predator species that control corn and soybean insect pests when pollinator habitat is present nearby.



We are currently looking to partner with more farmers to establish additional prairie strip demonstration sites in other regions.

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For more information visit:

Sand County Foundation
www.sandcountyfoundation.org/PrairieStrips

Iowa State University's STRIPS project
www.prairiestrips.org

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Sand County Foundation inspires and enables a growing number of private landowners to ethically manage natural resources in their care, so future generations have clean and abundant water, healthy soil to support agriculture and forestry, plentiful habitat for wildlife and opportunities for outdoor recreation. www.sandcountyfoundation.org

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¹Schulte et al., 2017. Proceedings of the National Academy of Sciences 114:50(11247-11252), <https://www.pnas.org/content/114/42/11247>

²Hladik et al., 2017. Agriculture, Ecosystems and Environment. 241(160-167), <https://doi.org/10.1016/j.agee.2017.03.015>