

The Cost of Prairie Strips

What are prairie strips?

Prairie strips are a tool for improving the health and function of row crop farm fields. Researchers at Science-based Trials of Row crops Integrated with Prairie Strips (STRIPS) have found that strategically planting native prairie in farmland provides benefits to the land, water, and wildlife well beyond the area of land converted.

How much does prairie planting cost?

Table 1 represents typical costs for a prairie strip planting after soybean. The range of costs is calculated based on average land rent across cropland quality, as measured by its Corn Suitability Rating (CSR). The water runoff from every nine acres of row crops can be treated with just one acre of perennial prairie. So, for every ten acres of farmland, the average total annual cost of converting one acre of cropland to prairie ranges from \$280 to \$390. In other words, converting a tenth of every acre from annual crop to prairie costs between \$28 to \$39 per year.

Some farms may experience higher “opportunity costs” than the average farm (e.g. in terms of foregone rent or revenue), thus annual costs can scale higher in these cases. However, the USDA Farm Service Agency also offers Conservation Reserve Program (CRP) contracts. Under a 15-year CRP contract, farmers could receive a total cost reduction of approximately 75 percent, thus costing about \$8 per year per crop acre treated with prairie. Other sources of financial support are also available (see reverse side).

Table 1. Annualized total costs of prairie strips calculated over a 15-year management period at a 2% discount rate (in 2017 dollars)

	High quality (CSR 83)	Medium quality (CSR 73)	Low quality (CSR 60)
Per acre of prairie	\$353	\$319	\$279
Per protected crop acre	\$35	\$32	\$28
Per protected crop acre with CRP	~ \$8	~ \$8	~ \$8

See following page for detailed cost breakdown.

Why plant prairie strips on farmland?

Prairie strips are of primary importance because they prevent soil erosion and nutrient runoff from farmland. Specifically, converting 10 percent of farmland to prairie can reduce sediment and nutrient transport off the field into waterways by more than 90 percent. Strips also increase plant, pollinator and wildlife diversity and create opportunities for economic diversification on farms.

What else to consider

Before farmers choose one or several best management practices (BMPs) to implement, three factors should be considered: effectiveness of the BMP in performing its intended field-level task (e.g., reducing run-off, increasing biodiversity, retaining nutrients, improving soil health); compatibility of the practice relative to the current operation in terms of equipment and time/labor availability, etc.; and financial feasibility of the practice relative to alternative management options. Prairie strip plantings require minimal land conversion and maintenance, and are among the cheapest BMPs, especially when combined with a CRP contract.

For their size, prairie strips result in dramatic, disproportionately large benefits to the landscape. In other words, a little goes a long way toward soil conservation, nutrient retention, wildlife habitat and the long-term economic productivity and sustainability of farmed landscapes.



How are costs calculated?

Costs fall into two categories: land conversion and maintenance costs, and the opportunity cost of the management decision (Table 2). For prairie strip planting, there are three kinds of land conversion and maintenance costs: site preparation, prairie strip establishment, and maintenance. The range of costs varies depending on multiple factors. Proper site preparation reduces the time and money spent on subsequent management steps. The prior quality of the land also influences these costs. For example, fewer herbicide applications are needed if there are fewer established weeds in the area.

Landowners must also consider the missed opportunity represented when changing a land management regime from the status quo. The annual opportunity cost is the cost of foregone rent or net revenue loss associated with land converted to perennial prairie. Opportunity costs vary depending on factors relating to ownership, soil quality, management practices, and crop and land value, but they scale up incrementally with the amount of land taken out of crop production. They are often calculated using average land rent as a proxy for foregone revenue.

Table 2. Estimated range of costs for a 15-year management plan of 10% prairie strip planting after soybean (in 2017 dollars)			Mean price per acre
Site preparation			
Year 0:			
Tillage	\$0 to \$30/acre		\$15
Herbicide	\$40 to \$80/gal		\$15
Herbicide application	\$5 to \$16/acre		\$8
Establishment			
Year 0:			
Seed	Variable*		Variable
Seed drilling	\$14 to \$25/acre		\$18
Seed packing	\$5 to \$30/acre		\$18
<i>*Highly variable; depends upon goals of planting.</i>			
Management			
Annual:			
General operating costs	1–3% of upfront costs		Variable
AND			
Years 1–15:			
Mowing	\$34 to \$67/acre		\$48
3 times in year 1, annually years 2–15			
Years 2–15:			
Raking/Windrowing/Baling	\$23/acre		Variable
OR			
Years 2–15:			
Burning	\$60 to \$200/acre		Variable
After year 2, every 3 years			
Management costs are about 10–15% of the total cost per year per treated crop acre.			
Opportunity costs			
Annual:			
Land rent	Variable		\$90–370
Opportunity costs are up to 90% of the total cost per year per treated crop acre.			

* CP 25 is a high diversity grass and forb seed mix for rare and declining habitat. 2017 seed prices used are a composite of five regional prairie seed companies. Average CP 25 seed mix cost used here is \$250 per acre.

On most sites, site preparation and establishment are less than 10 percent of the total cost of a prairie strip and ongoing property and management costs are about 15 percent. Opportunity costs represent the greatest proportion—upwards of 75 percent—of the total cost of prairie strip planting.

Learn more about prairie restoration

- STRIPS project website: <http://www.prairiestrips.org>
- Tallgrass Prairie Center website: <https://tallgrassprairiecenter.org>
- This and other publications can be found on the ISU Extension Store: <https://store.extension.iastate.edu>
- Fields with prairie strips are located at the Iowa State University Research and Demonstration farms across the state: <http://farms.ag.iastate.edu/farms>
- Prairie strips research fields are located at the Neal Smith National Wildlife Refuge, Prairie City, Iowa: https://www.fws.gov/refuge/neal_smith

Where to find financial support

- USDA Farm Service Agency offers annual, cost-share, and in some cases incentive, payments through CRP 10 or 15 year contracts: <https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program>
- Environmental Quality Incentives Program may assist with prairies to be harvested or grazed, depending on the county: <https://www.ia.nrcs.usda.gov/programs>
- US Fish and Wildlife Partners Program works with landowners to restore wildlife habitat: <https://www.fws.gov/midwest/partners>
- Resource Enhancement and Protection awards small grants for soil and water protection: <http://www.iowadnr.gov/environment/REAP>
- Pheasants Forever funds habitat projects including native prairie seedings: <http://iowapf.net/NativeGrassProgram.aspx>
- Trees Forever funds pollinator projects: <http://www.treesforever.org>

Adapted from the STRIPS research paper: Tyndall, J. C., L. A. Schulte, M. Liebman, and M. Helmers. "Field-Level Financial Assessment of Contour Prairie Strips for Enhancement of Environmental Quality." *Environmental Management*, 2013.

Acknowledgements

This publication was developed by the STRIPS project in conjunction with Iowa State University Extension and Outreach. A full list of STRIPS partners can be found at www.prairiestrips.org. Funding provided by Iowa State University, Iowa Department of Agriculture and Land Stewardship, Iowa Department of Natural Resources, Leopold Center for Sustainable Agriculture, National Science Foundation, The McKnight Foundation, U.S. Department of Agriculture, U.S. Fish and Wildlife Service, U.S. Forest Service, and Walton Family Foundation.

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