Full-field microeconomic impacts associated with prairie strips

- Implementation of prairie strips costs less than \$100/ha(treated) or less than \$40/A (treated)¹
- Survey sent to 40+ farmers or landowners with prairie strips installed on their land in July 2020
- Focus on how prairie strips affect on-farm and off-farm income in the long-run.

Nutrient management Pest management Soil health

Hypothesis: Prairie strips will have an overall positive economic impact on field/ farm economics depending on cash crop savings, conservation \$, ancillary markets, & subfield application.



Possible Benefits to field/farm

Income related

Cost related

Higher yields (soybeans)

Forage (personal/ sale)

Conservation \$

Overwintering rent (bees)

Hunting leases (~\$20-\$50/acre) Decreased:

- Fertilizers Herbicides Insecticides
- ↑ field access
- \downarrow tillage
- \downarrow equip. repairs

Savings on land rent

¹Tyndall, J. C., Schulte, L. A., Liebman, M., & Helmers, M. (2013). Field-level financial assessment of contour prairie strips for enhancement of environmental quality. *Environmental* Management, 52(3), 736–747. https://doi.org/10.1007/s00267-013-0106-9

Possible Costs to field/farm

Income related

Cost related

Lower yields

All direct costs of prairie strips

Increased:

Herbicides

Insecticides

 \uparrow crop management

 \uparrow soil testing/ monitoring

↑ transaction costs



with Prairie Strips

Since 2007, 42 cooperators in the Midwest have joined the STRIPS project, allowing research on their land.

In the 2018 Farm Bill, prairie strips were funded under the Conservation Reserve Program (CP43).

In the first year of CP43, over 9,000 acres were added - a third of those acres in lowa.¹

A meta-analysis suggested that *economics* and management are the primary concerns for farmers in their decision to adopt BMPs.²

STRIPS Science-Based Trials of Rowcrops Integrated



https://www.nrem.iastate.edu/research/STRIPS/content/what-are-prairie-strips

¹USDA Farm Service Agency. (2020). *Conservation Reserve Program* Monthly Summary – December 2020. ²Ranjan, P., Church, S. P., Floress, K., & Prokopy, L. S. (2019). Synthesizing Conservation Motivations and Barriers: What Have We Learned from Qualitative Studies of Farmers' Behaviors in the United States? Society and Natural Resources, 32(11), 1171–1199. https://doi.org/10.1080/08941920.2019.1648710

Introduction

Since adding prairie strips, most respondents...



Saw an increase in wildlife



Did not spend more time scouting for pests



Did not notice cash crop yield changes



Did not change fertilizer amounts or timing

Did not change chemical pesticide use





Did not spend more money on fuel



What are the main challenges with prairie strips?

Control of invasives in strips

Cost of planting and managing prairie strips is too high

Disappointed in winter bird habitat

Difficult to manage cash crop around prairie strip

Lack of available of technical support

Increased management of cash crop

No measurable economic returns when using prairie strips

Prairie strips has/have or might become a source of weeds

> Time/labor required for planting and maintaining prairie strips



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Results

What are the main benefits of prairie strips? Improve soil health pollinators Nutrient retention and recycling Reduce soil erosion Protect water quality 2 4 6 8 10 12 14 16 18 0

Combat compaction and promote greater moisture infiltration

Provided habitat for wildlife and/or

Results





While operators noted challenges to working with prairie strips, these challenges were not enough to significantly affect their farmlevel economics

These results can help inform new adopters of prairie strips what to expect during the life of the practice



Many farmers have not had to adjust cash crop management due to prairie strips

Discussion & Conclusion



Yield effects from the prairie strips have not been observed