

## Introduction

Prairie conservation strips are gaining recognition as a valuable tool for promoting ecological sustainability in agricultural landscapes. In Iowa, a state known for its extensive agricultural production, the implementation of prairie strips offers promising opportunities to address environmental challenges while supporting farming communities. This poster aims to highlight the experiences and insights of farm owners, managers, and operators who have planted prairie on their farms.



## Prairie Conservation as Heritage: The Roadman Farm

The Roadman family farm, spanning 400 acres in Grundy County, Iowa, has been under the ownership of the Roadmans for nearly 160 years. Despite not actively farming since the 1920s, Larry Roadman and his son Keene continue the family's legacy of land stewardship. Rooted in a strong conservation ethic passed down through generations, they prioritize the care and management of their property.

With its gentle terrain, clay-loam soil, and high Corn Suitability Rating (CSR) of over 81, the land is ideal for commodity crop production. Guided by Hertz Farm Management, the Roadmans employ a crop rotation system, focusing on corn and beans on half of the farm, while dedicating another 120 acres to seed corn and beans. Since the mid-1990s, they have maintained a crop-share lease arrangement with the nearby Dudden family, receiving 75% of crop income and covering input costs.

The Roadmans' commitment to conservation is deeply influenced by their heritage. Larry Roadman's grandparents, Earl and Irma, played a significant role in land stewardship by generously donating 10 acres for a roadside park along Highway 20, now managed by Grundy County. This dedication to preserving the environment has resonated with Larry, who spent summers on the farm with his grandparents, absorbing their land ethic.

Over time, the Roadmans transitioned away from livestock production and embraced conservation practices with the support of Hertz Farm Management. Through the Conservation Reserve Program (CRP), they converted pastures into tree plantings and riparian buffers. These efforts not only expanded habitat near the park but also safeguarded the North Fork of Black Hawk Creek.



Driven by a desire to further elevate conservation and enhance farm operations, the Roadmans fostered collaborations with esteemed institutions such as the USDA, Iowa State University, and the Tallgrass Prairie Center. These partnerships enabled research on conservation practices tailored to their farm. Notably, the installation of a saturated buffer in 2016 significantly improved water quality by redirecting excess nitrates into the riparian buffer, where they are absorbed by plant roots.

In pursuit of their conservation goals, the Roadmans explored the implementation of prairie strips, strategically placing narrow strips of prairie along contours within crop fields. These strips reduce runoff and erosion while creating wildlife habitat. Working closely with Hertz and research entities such as the STRIPS team at Iowa State and the Tallgrass Prairie Center, the Roadmans established a research and demonstration site on their farm. Initially covering 11 acres in erosion-prone areas, an additional 15 acres were added at the field edges to isolate seed corn and seed beans.

The Roadman family's enduring commitment to conservation-oriented land stewardship is a testament to their heritage and values. Through collaborations, innovation, and the integration of sustainable practices, they embody a model of responsible land management, preserving their family's legacy while trying to conserve the farm for future generations.

## Making Prairie Practical: The Luze Farm

Randy Luze and Mollie Aronowitz, certified land managers with the People's Company, aim to scale up reliable, cost-effective conservation practices in Iowa's agricultural landscape. They engage with absentee landowners who increasingly prioritize sustainable agriculture, discussing farming practices that enhance water quality, soil health, and climate resilience.

Randy and Mollie manage 1,700 acres near Dysart, Iowa, with 80% dedicated to seed corn and seed bean production. The remainder consists of conventional corn and beans. They also manage 400 acres owned by the Purdy family, committed to soil health and erosion reduction.

Randy experimented with cover crops but faced challenges implementing them on a large scale. He considered installing contour terraces, but the discovery of Iowa State's prairie strips research impressed him with their success in reducing nutrient loss at a lower cost. Partnering with the Tallgrass Prairie Center, Randy installed 10 acres of prairie strips in 2015, including seven strips in a conventional corn/bean field on the Luze farm and three strips on the Purdy's seed corn/bean field.

The prairie strips were designed on the contour and seeded with three mixes: economy, diversity, and pollinator. Both farms enrolled the strips in a 10-year CP-15A continuous-CRP contract. Randy and Mollie continue to monitor the mature prairie strips to provide informed answers to client inquiries.

Randy observed reduced erosion, nutrient loss, and improved soil structure beneath the prairie strips. The strips effectively prevented stormwater runoff on the Purdy farm. The presence of pollinators, monarchs, and increased diversity delighted the Purdy family and neighboring hunters.

Proper planning facilitated trouble-free farming around the strips. Spray management involved controlling overspray at curved contours and occasionally treating the edges of straighter strips. Ongoing efforts for weed and tree control were required, with skid loader attachments used to remove seedlings.



To expand prairie strip implementation, modifying existing equipment or exploring better seed carriers is crucial. Addressing challenges related to mid-contract burns and involving absentee landowners are essential for wider adoption. Cooperation from NRCS offices in providing knowledge, accommodating designs, and ensuring CRP eligibility is key to promoting adoption.

Randy and Mollie's experience with prairie strips on their farmland highlights the feasibility of this conservation practice. Reduced erosion, improved soil health, and enhanced biodiversity encourage wider adoption of prairie strips in Iowa's agricultural landscape.

## Estimated Costs

Installation costs	Actual Costs — Roadman Farm	Estimated Costs — Roadman Farm
Tillage	Done by Luze prior to planting field to corn	\$9.00-\$20.00/acre <sup>a</sup>
Herbicide	Covered in crop-share agreement	\$12.00-\$35.00/acre <sup>a</sup>
Cover Crop Seed	Covered in crop-share agreement	\$5.00-\$50.00 <sup>b</sup>
Cover Crop Seeding	Covered in crop-share agreement	\$5.00-\$13.00/acre
Native Seed	\$130.00 (economy) \$290.00 (diversity) \$368.00 (pollinator)	\$200+/acre <sup>c</sup>
Native Seed Drilling	TPC drilled strips	\$25.00-\$42.00 <sup>a</sup>
Establishment Mowings (2x)	Done by Luze	\$10.00-28.00/acre <sup>d</sup>
Spot Mowings (2x)	Done by Luze	\$20.00-100.00/hr <sup>d</sup>
Prescribed Burn	Done by contractor	\$20.00-\$65.00/acre <sup>d</sup>

<sup>a</sup>USDA SARE, "Creating a Baseline for Cover Crop Costs and Returns," 2019. <sup>b</sup>Cash Rental Rates for Iowa 2021 Survey, Iowa State University. <sup>c</sup>Tallgrass Prairie Seed Calculator, University of Northern Iowa, <http://tallgrassprairieseedcalculator.com/>. <sup>d</sup>2021 Custom Rate Survey, Iowa State University.

### A Note on Seed Mixes

The cost of native seed is largely influenced by species composition and availability. In particular, abundance of forb seeds in the mix is typically responsible for most of the price. The pollinator mix used (due to enrollment in CP-42) was relatively expensive because it required approximately 50% more forb seeds than a typical 50:50 grass to forb seed mix that is common for prairie strips. There are many seed mixes marketed for CRP practices at the time of this publication that are significantly lower in price than the listed range of costs. The range of costs provided are based on field tested seed mix designs that result in multifunctional, diverse stands of tallgrass prairie. Use of low-cost seed mixes may not result in outcomes similar to this case study, though more research is needed on cost-minimizing rather than ecosystem service maximizing seed mix designs. For more TPC research regarding the importance of seed mix design, see Meissen et al. 2020. Meissen JC, Glidden AJ, Sherrard ME, Elgersma KJ, Jackson LL. 2020. Seed mix design and first year management influence multifunctionality and cost-effectiveness in prairie reconstruction. *Restoration Ecology*. 28:807–816.



Drone photograph of the Sloan Farm. Courtesy Iowa State University STRIPS.

## A Mozaic of Conservation: The Sloan Farm

Dick Sloan operates a 520-acre farm in Rowley, Iowa, with a focus on incorporating prairie into his farming practices. Despite having a high corn suitability rating, Dick recognizes the importance of protecting native species and believes that productive farms should prioritize environmental sustainability. Growing up on the family farm, Dick learned about diverse production systems and soil conservation. After obtaining a biology degree from Iowa State University, he returned to the farm and gradually transitioned to a simplified operation involving corn, soybeans, and pigs, while reintroducing small grains into the rotation. Dick discovered prairie strips during a visit to the Leopold Center for Sustainable Agriculture in 2011 and decided to implement them on his farm. He worked closely with local conservation offices to secure Conservation Reserve Program (CRP) payments and purchased seed through Pheasants Forever. The prairie strips were carefully planned and planted, and Dick ensured they didn't interfere with farm operations. He employed the Buchanan County Conservation Board for drilling and utilized his own equipment and labor for maintenance tasks. With the assistance of the ISU STRIPS team, Dick successfully established and maintained his prairie strips.

Dick doesn't solely rely on prairie strips to achieve his conservation goals on his farm. Other practices he utilizes include no-till farming, terraces, waterways, and cover crops. He is also implementing a substantial wetland restoration. Working with the Iowa Department of Agriculture and Land Stewardship (IDALS), the wetland will have a seven-acre permanent pool and a buffer of native, perennial vegetation to contain surges from heavy rainfall. The total conservation easement is nearly 30 acres. In addition to his full-time job as a farmer, Dick is a leader in farmer-led research, working with Iowa State University STRIPS, Iowa Learning Farms, the Tallgrass Prairie Center, and Practical Farmers of Iowa (PFI). With PFI, he has been involved with research on cover crops and hosted on-farm field days. He is also involved in the Cedar River Watershed Coalition and served as chairman of the Lime Creek Watershed Council, where he worked within his community to encourage more residents to adopt management practices that would lead to improved water quality.

## Timeline

Year 1: CRP enrollment; Planting; Establishment wowing

Year 2: Establishment wowing (don't let the vegetation get higher than knee high in first growing season)

Year 3-4: Evaluating stand establishment; Additional spot maintenance (mowing and/or spraying)

Year 5: Required Maintenance (for 10-year contract); Prescribed fire is recommended as the best management practice by the TPC

Years 6-9: Continued spot treatment for weed and woody encroachment suppression

Year 10: Re-enrollment



## Conclusion

Prairie conservation strips offer a promising approach to enhance biodiversity, improve soil and water quality, and support sustainable agricultural practices in Iowa. By recognizing the benefits, addressing challenges, and fostering collaboration, the widespread adoption of prairie strips can contribute to a more resilient and ecologically sustainable agricultural landscape in Iowa and beyond. To read more about these case studies and more visit: [tallgrassprairiecenter.org](http://tallgrassprairiecenter.org)



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