

# PRAIRIE STRIPS: THE ROADMAN FARM

## Case Study 01 • The Tallgrass Prairie Center



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### THE ROADMAN HERITAGE

The 400-acre Roadman family farm in Grundy County, Iowa is currently owned by the fourth and fifth generation of Roadmans. Despite nearly 160 years of ownership, the Roadman family has not actively farmed the land since the 1920s. Larry Roadman, who lives in Portland, ME, and fifth-generation son Keene (Portland, OR) now continues the family's tradition of absentee land stewardship. And like earlier Roadman generations, they bring a strong conservation ethic to the care and management of their land.

Characterized by flat to gently rolling terrain, clay-loam soil and an average CSR of over 81, the land is well suited

to commodity crop production. With guidance from their long-term farm manager at Hertz Farm Management, the Roadmans have chosen to rotate corn and beans on about half of the farm, while seed corn and beans are produced on another 120 acres. A crop-share arrangement with the Kyle Dudden family - who live and farm nearby – has been in place since the mid 1990s. Under this lease, the Roadmans receive 75% of all crop income and pay for 100% of inputs. While day-to-day decisions are made by Hertz and the Duddens, long-term, “big picture” decisions about the use and management of the land are made by Larry and his sons.



### FARM STEWARDSHIP

Larry grew up in upstate New York, spending summers on the Iowa farm with grandparents Earl and Irma. They cared deeply about conservation, and Larry absorbed this land ethic. Earl and Irma's most notable contribution to the stewardship and protection of their land was the donation of 10 acres for a roadside park along then Highway 20. (The park is currently managed by Grundy County.)

By the early 1990s, with Hertz Farm Management now on board helping manage and modernize the farm, the Roadman family transitioned away from livestock production. Using the Conservation Reserve Program (CRP), pastures were converted to tree plantings and a riparian buffer. The former expands habitat adjacent to the park, the latter provides additional habitat and protects

North Fork of Black Hawk Creek. An annual CRP payment of \$79.20/acre helps offset the loss of pasture rent.

As Larry consolidated ownership of the farm, he and sons Keene and Christian looked for additional ways to elevate conservation while strengthening the farm operation. With Hertz at their side, the Roadmans began to establish relationships with the USDA, Iowa State University, and the Tallgrass Prairie Center (TPC) at the University of Northern Iowa to research conservation practices. In 2016, a saturated buffer was installed to divert excess nitrates in the tile drainage into lateral tiles under the riparian buffer where root systems absorb the nutrients. Data at the Roadman site show significant water quality improvements.



According to a study conducted by Iowa State University at the Neal Smith National Wildlife Refuge, converting 10% of a row-cropped field to perennial prairie can reduce sediment loss by 95%, phosphorus by 90%, and nitrogen loss by nearly 85%.

## PRAIRIE STRIPS

With the saturated buffer research underway, Christian’s curiosity was piqued by an article about prairie strips. By strategically placing narrow strips of prairie along contours in crop fields, runoff and erosion are reduced, nutrients retained and wildlife habitat created. But strips take crop ground out of production. So what about the economics? And how do the strips impact farming operations?

These were among the questions the Roadmans brought to Morgan Troendle at Hertz. They also involved their operator, Kyle Dudden, in the discussions. To find the answers, Morgan reached out to the STRIPS team at Iowa State and the Tallgrass Prairie Center, who together with the Grundy County Natural Resources Conservation Service (NRCS) office, established a research and demonstration site at the farm.

The 11 acres chosen for the Roadman Family’s first strips targeted the most erosion-prone, least productive areas of the farm. The layout was designed to fit the Dudden’s farm equipment. The strips were enrolled in CRP’s CP-42 and planted with a 60:40 forb-to-grass seed mix designed to provide long-term pollinator resources and good erosion control.

An additional 15 acres of strips were installed in 2020 and 2021. Enrolled in CP-43, these plantings have been placed in some of the Roadmans’ most productive ground at the edge of the fields. The strips will serve to isolate seed corn and seed beans.

## ECONOMICS

The decision to implement any conservation practice involves consideration of farm financials. While Larry Roadman is passionate about conservation, he does emphasize that, “The farm must pay for itself.” The annual CRP payment of \$297.82 per acre didn’t end up significantly affecting the ten-year average profit per tillable acre of the entire field. Even the best forty acres of farm ground can have lower-yield producing and sensitive areas.

“It’s [the farm] got to pay for itself. Meaning, the dollars have got to be there to spend from the farm. One of the things I like about the prairie strips is I get pictures of birds. I get honey. What I want to say is, ‘wait a minute, what kind of profit are you talking about?’... All I know is that we don’t have to write a check.”

Larry Roadman

## OUTCOMES

The Roadman family is buoyed by what the prairie strips have added to the farming operation.

Keene:

*“There’s been a lot of anecdotal evidence about the benefits of strips, and we’re now starting to get scientific evidence. We like knowing our farm has been a part of that.”*

Larry is enthusiastic about partnerships:

*“That’s been one of the best things. TPC, ISU, Hertz, county, state, federal. These partnerships – good partnerships – keep the work moving forward.”*

Morgan likes the flexibility of prairie strips, which can be installed without substantially altering crop production:

*“The rules are favorable for implementation and how a farm actually works. The fact that strips can be driven on is a great example.”*

Kyle has noticed additional wildlife:

*“The deer and pheasants have been good for neighboring hunters. Any impact to corn yield has to be outweighed by the long-term goal of conservation.”*

## ASSISTANCE FOR PRAIRIE STRIPS

Most installation costs are eligible for up to 50% cost share through the USDA’s Conservation Reserve Program. CRP annual rental payments can be 85-90% of cash rental rates. In the case of Roadman Farm, it is \$297/ac/year for 10 years. See your County Office for details.

# FARM FACTS

Location – Grundy County, IA

Owners – Betsy Roadman, Portland, ME; Christian Roadman, Portland, ME; Keene Roadman, Portland, OR

Farm Operator – Kyle Dudden, Reinbeck, IA

Professional Farm Manager – Hertz Farm Management, Inc., Cedar Falls, IA

Total Acres – 400

Crops – Corn, soybeans, seed corn, seed beans

Acres in Conservation – 48.77


Conservation Practices – Prairie strips, tree planting, CRP cool-season riparian buffer, saturated buffer, public park

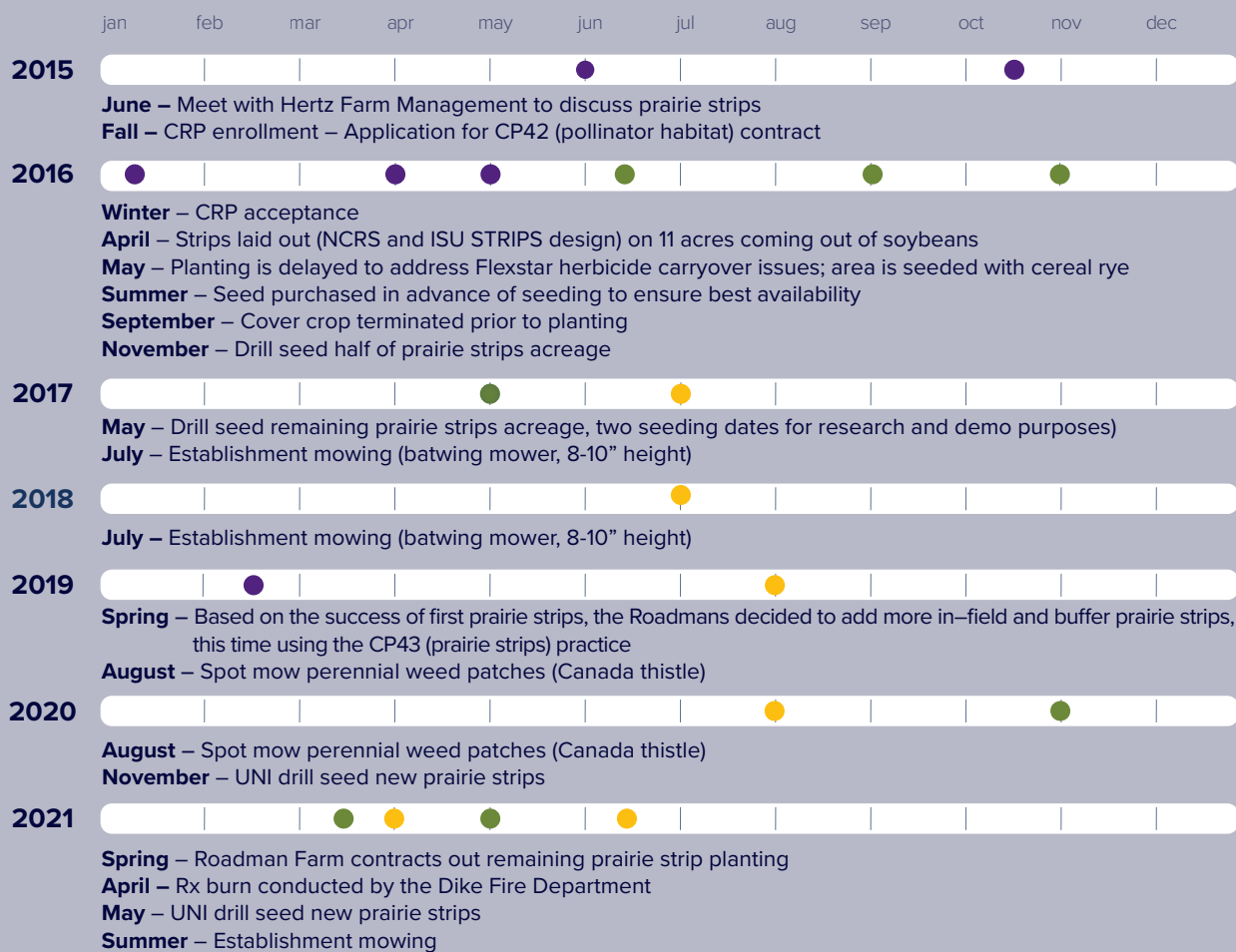
## Strips Establishment and Maintenance Timeline - Roadman Farm

 Preparation

 Prairie Seeding

Mesic pollinator seed mix - 60:40 forbs to grass, 49 seeds/square foot, 9.4 pure live seed (PLS) lbs/acre

 Management



## COSTS OF ESTABLISHING PRAIRIE STRIPS

Roadman Farm financials provided by Hertz Farm Management

| Installation costs            | Actual Costs — Roadman Farm      | Estimated Costs — Roadman Farm         |
|-------------------------------|----------------------------------|--|
| Tillage                       | None required on soybean stubble | \$9.00-\$20.00/acre <sup>4</sup>       |
| Herbicide                     | Covered in crop-share agreement  | \$16.00-\$45.00/acre <sup>4</sup>      |
| Cover Crop Seed               | Covered in crop-share agreement  | \$5.00-\$50.00 <sup>1</sup>            |
| Cover Crop Seeding            | Covered in crop-share agreement  | \$10.00-\$30.00/acre <sup>4</sup>      |
| Native Seed                   | \$462.24                         | \$312.00-\$1,000+/acre <sup>2</sup>    |
| Native Seed Drilling          | TPC drilled most strips          | \$43.00-\$62.00 <sup>5</sup>           |
| Establishment Mowings (2x)    | Covered in crop-share agreement  | \$10.00-50.00/acre <sup>4</sup>        |
| Spot Mowings (2x)             | Covered in crop-share agreement  | \$50.00-140.00/hr <sup>4</sup>         |
| Prescribed Burn               | \$50                             | \$50.00-\$94.00/acre <sup>5</sup>      |
| Opportunity Costs (cash rent) |                                  | Cash rent, \$268-\$374/ac <sup>3</sup> |

<sup>1</sup>USDA SARE, "Creating a Baseline for Cover Crop Costs and Returns," 2019.

<sup>2</sup>Tallgrass Prairie Seed Calculator, University of Northern Iowa, <http://tallgrassprairieseedcalculator.com/>

<sup>3</sup>Cash Rental Rates for Iowa 2023 Survey, Iowa State University.

<sup>4</sup>2023 Custom Rate Survey, Iowa State University.

<sup>5</sup>2022 Prairie Services Custom Rate Survey, Tallgrass Prairie Center.

We use actual costs for the Roadman Farm, as well as estimated costs using published sources (see footnotes). Costs can vary considerably due to contractor and machinery availability, site conditions (size, shape, crops), geographic location, and timing. At Roadman Farm, the TPC drill-seeded the prairie strips at no cost in exchange for using the strips as a nearby research and demonstration site. Other costs, such as mowing, fall under the Roadman's crop-share agreement. Please note that prescribed burns are especially variable in cost. While burning is a best management practice, mowing and haying prairie is a legitimate alternative.

## 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<sup>5</sup>.

<sup>5</sup>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. doi: <https://doi.org/10.1111/rec.13013>

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## PRAIRIE STRIPS CASE STUDIES

For more information, contact Andy Olson  
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