ORGANIC COVER CROP CASE STUDIES

Jared Siverling

Farm location	Bloomer, WI
Certified organic acres	450 certified, 150 acres in transition
Total acres	500
Year of initial organic certification	2019 (Nature's International Certification Services)
Primary cash crops	Corn, cereal rye, soybeans, hay (grass, clover, alfalfa mix)
Years planting cover crops	20+
Frequently used cover crops	Cereal rye, field peas, oats, spring barley, buckwheat, radish
Livestock on farm	Around 50 head of beef, half steers, half cows and calves.
Soil type	Sandy loam

Brief Farm History

Though Jared Siverling's farm has only been certified organic since 2019, he has been learning from his father, who is a long time regenerative farmer and has been growing cover crops, using non-GMO seed and emphasizing soil health, for decades. **Since the land they currently farm was purchased by the Siverlings in the late 1990s, soil organic matter has improved from less than 1% to 2-3%.** The two major changes in management practices Siverling attributes to these increases are becoming organic certified and eliminating the use of synthetic fertilizers.

Cover Crop Use & Goals

The farm has been using cover crops and other regenerative practices since the early 2000s. As a guiding principle, Siverling aims to use fewer inputs and less cultivation, while keeping something green and growing in his fields year-round.

He wants to increase the production of root exudates and plant biomass to feed soil biology and enhance nutrient cycling, with the goal of increasing soil organic matter. Covers help Siverling fill in the gaps between cash crops to reach this goal of year-round cover. He also uses cover crops to reduce erosion and capture soil nutrients. For maximizing nutrient capture benefits, such as N, P, K, and micronutrient scavenging, he prioritizes using a diverse species mix over a single species.

With increasing heavy spring rains, he is looking for alternatives to cereal rye preceding corn since the timing of rye termination with tillage can be difficult. He has found multi-species mixes planted in the fall and spring planted covers can be good alternatives, as plant growth on the mixes and spring-seeded covers isn't as aggressive as with straight, fall-seeded cereal rye, resulting in easier termination. **A mix of cereal rye and peas planted in the fall has been working particularly well recently. When broadcasted together in the fall, they have both germinated well; the peas provide quick biomass cover and reduce the rye biomass simplifying termination in the spring.**

Siverling says his motivation for using cover crops is financial, agronomic and environmental:

- Financial, because every nutrient that he can plant is something he doesn't have to buy.
- Agronomic, because covers make nutrients plant-accessible.
- Environmental, because tillage without green plants growing, "robs from tomorrow" in terms of soil organic matter levels.

He believes cover crops are a key component to increasing soil organic matter. He explains, "You can't buy enough compost or manure to make up for the organic matter contribution of well timed cover crop use. Cover crops are an investment in the land."

For Siverling, having cattle has helped make using cover crops even more feasible. He jokes that "having something to eat your mistakes goes a long way." In addition, the combined forage value of cover crops and the fertility benefits of manure help make the cover crop rotation work well economically on his farm.

Crop Management

TYPICAL ROTATION

Siverling's typical four-year rotation is: corn to cereal rye to soybeans back to cereal rye with frost seeded clover grown for a year of hay. Siverling is also experimenting with a rotation consisting of one year of corn followed by one year of soil building using a harvested full-season cover crop mix. In this system, a year of corn is followed with a spring planted no-till mix of forage peas, buckwheat, spring barley, oats, radish, and red clover. Covers are harvested in

early August and the forage is used for feed. The clover is allowed to regrow and provides winter soil protection until the corn crop is planted the following spring.

The only land that is not typically cover cropped is corn that is going into hay. Due to Siverling's northern location, cereal rye has been the default option, but in recent years he has started experimenting with a wide variety of cover crop species including field peas, oats, barley, buckwheat, and radish.

Siverling currently raises around 50 beef cattle and is hoping to double the herd in coming years. He has a goal of increasing to 250 acres in pasture, half of his current acres, that would be part of a three year rotation preceding corn.

Corn with rye

FIELD OPERATIONS

Previously, the farm utilized heavy tillage for many years. In the last decade, tillage has been reduced by 50-70% and is still used when necessary. In the corn rotation, Siverling makes two passes with discs: a high speed disk to terminate covers and a light disk to manage the first weed flush. In addition, a rotary hoe and cultivator are typically used twice each during the growing season. **Siverling finds a well functioning rotary hoe is an essential tool, allowing corn or beans to gain the essential height difference to shade out in-row weeds.**

NUTRIENT INPUTS AND TIMING

For soil fertility management, Siverling has previously applied lime, but now that his soil pH is around 7, he uses gypsum to provide calcium and sulfur. The gypsum is applied with manure and is often broadcast spread and incorporated along with a legume seeding. If fields are going into corn the following year, he applies amendments in the fall to avoid timing issues in the event of a wet spring. Preceding most other crops, he usually applies amendments in the spring.

SEEDING AND ESTABLISHMENT

Siverling uses a number of cover crop seeding methods. He has tried aerial seeding and had good luck with germination, even with a late planting. Cereal rye is often broadcast with a spinner. He was impressed with a rented no-till drill and has plans to purchase this equipment in the near future. Typically, all of Siverling's cover crops are planted in the fall after

small grains, soybean, or corn harvest, the exception being ground going into hay production and clover, which is frost seeded into rye in March or April, and continues as a cover crop after the rye is harvested.

Advice to New Cover Croppers

Siverling suggests: "Start small. Experiment with a small area and figure out what works for you, with your equipment. Fall planted rye is usually an easy place to start--planted after corn and then terminated before soybeans. Spring planted oats are also a good bet. Medium red clover is more expensive seed, but it's easy to grow and include in a rotation."

Looking to the Future

Looking to the future, Siverling hopes to incorporate more edible beans and cover crop seed production into his operation. He is experimenting with growing mixed species stands of cover crop and harvesting as multi-species mixed seed. He's also working toward a 10-year goal of bringing all of his fields into the grazing rotation, so they receive the benefits of livestock on the land.

Long term, he desires something closer to a closed loop system with the goal that few purchased inputs are required and the only products being sold off the farm are meat and maybe corn and soybeans. This system would require the bulk of his animals to be pasture fed, and the most profitable crops are crimped or low tillage. Siverling envisions that by building soil health he will get to the point that he doesn't need many inputs.

PUBLISHED JANUARY 2022

AUTHORS
Anne Pfeiffer, Jared Siverling, Erin Silva, and Danielle Kusner

PHOTOS COURTESY
Dave Bishop, PrairiErth Farm

FOR MORE INFORMATION
Contact Erin Silva at emsilva@wisc.edu and 608-890-1503

OGRAIN

The Organic Grain Resource and Information Network (OGRAIN) offers an educational framework for developing organic grain production in the Upper Midwest. Whether you farm 10 acres or 10,000, are an experienced organic grower or just considering the transition to organic, OGRAIN provides learning opportunities to improve your organic row crop and small grain operation.
https://ograin.cals.wisc.edu/

UW Organic Collaborative
UNIVERSITY OF WISCONSIN–MADISON

The UW Organic Collaborative is a group of faculty, staff, and partners who are committed to increasing the health and resilience of the organic industry, from the farm to consumers' kitchen tables, in Wisconsin and throughout the country, through world-class research, academic opportunity, and impactful outreach.
https://uworganic.wisc.edu/