

ORGANIC COVER CROP CASE STUDIES



Century Farm Organics

David Christensen and Jerry Matzner

Farm location	Clarkfield, MN
Certified organic acres	2000 certified, 150 acres in transition
Total acres	2150
Year of initial organic certification	2008 (ICS - International Certification Services, ND)
Primary cash crops	Corn, soybeans, black beans, wheat, yellow peas
Years planting cover crops	Since 2014
Frequently used cover crops	Oats, daikon radish
Livestock on farm	No (recently eliminated organic dairy that was a part of the farm)
Soil type	A mix of soils, but overall very heavy. Some sand and gravel streaks.

Brief Farm History

Century Farm Organics started in 2014. The owners, David Christensen and Jerry Matzner, farmed together prior to 2014. David Christensen grew up in the Twin Cities, but spent many summers near Clarkfield working for his uncles on the farm. Jerry Matzner grew up on a farm in South Dakota and has been working in agriculture throughout his life. David started transitioning to organic in 2008. Jerry began working with Dave in 2009 and by 2012 they were farming together. Any newly acquired acres are immediately started to transition to organic. Prior to 2008, all fields were conventional corn and soybeans with commercial fertilizer and chemicals. As part of the transition process and throughout the organic crop rotations, Century Farm Organics is a strong proponent of the benefits of cover crops in building organic matter and soil health.



Cover Crop Use & Goals

Century Farm Organics' introduction to cover crops was on prevent-plant acres. Instead of forcing themselves into non-ideal planting scenarios, they benefited from the prevent-plant insurance, with the extra bonus the cover crops provide to soil health. **Their advice to other farmers is to be aware of the potential opportunity, rather than fighting the weather.**

After the introduction to cover cropping through prevent-plant experience, Century Farm Organics continued to plant cover crops for the organic matter and soil health benefits. Century Farm Organics also sees weed control benefits when cover crops follow yellow peas or wheat. These crops are harvested in summer allowing for usually an August planting of a cover crop. We found that these cover crops have reduced weed pressure, especially foxtail pressure, which is a problem on our farm.

Our favorite cover crop is daikon radish for reduction of compaction in heavy soils. We also seed a lot of oats, primarily because we can source them inexpensively and we can get a lush green cover crop that can be tilled back into the soil. We have also used winter and spring wheat, vetch and red clover as other cover crop varieties. We continue to look at and try other cover crop varieties as well to see which ones work the best for us.

Like anything in farming, cover crops present challenges. For Century Farm Organics, timing and the weather have been two big challenges. We constantly are looking at the forecast to try to get cover crops seeded before a rain or at optimal times.

In 2021 we seeded cover crop on 100 acres of organic corn prior to the final cultivation pass. We used a high-boy spreader and then used our cultivator to work the seed into the soil. This worked OK, but not great. The summer of 2021 was extremely dry. We had about 2-3 inches of dry soil on top so the cover crop didn't germinate for almost 2-3 weeks. The taller corn shaded out the germinated cover crop, which stayed dormant until the corn started to dry out. We had a nice, green tint throughout half the corn field by harvest time. We didn't feel the cover crop robbed much moisture, but it did provide some good green manure for our 2022 crop.

Crop Management

TYPICAL ROTATION

The farm rotates through multiple crop systems, depending on the weather. Typically it is a three year rotation consisting of beans, either food grade soybean or black beans, followed by wheat into yellow food grade peas or corn. In some cases, fields go into peas in the second year, instead of wheat, followed by corn in the third year. When Century Farm Organics brings



new acres under management, we try to use wheat or triticale and alfalfa at the beginning of the organic transition process to build up organic matter.

Previously, when the farm included a dairy herd, 300 acres were in alfalfa. With no cattle remaining on the farm, they have moved away from alfalfa, but Century Farm Organics is now considering putting more acres back into alfalfa as he has discussed leasing ground to a local alfalfa grower because alfalfa acres could lengthen and benefit his rotation even more.

FIELD OPERATIONS

The Clarkfield, MN area is known for heavy primary tillage consisting of deep ripping corn ground but Century Farm Organics is trying to move away from this practice because of how destructive it is to soil health and soil microbes. We are experimenting with a combination of two practices to avoid ripping corn fields. First, by planting cover crops, including the tillage radish we feel we can avoid aggressive tillage. In the fall of 2021 we only ran the ripper on a couple small fields and our heavy compacted areas, like headlands. We recently purchased a high speed disc to size corn stalks and mix into the first 3-4 inches of soil, but to not dig as deep like a ripper does. So far we are excited with what we are seeing. We will keep our ripper for headlands, but we sold our chisel plow, which we used to use on soybean ground.

For spring cultivation, Century Farm Organics primarily uses a field cultivator. Once planted, we have many tools we use for weeding, including rotary hoes, tine weeders, finger weeders, cultivators, and a flame weeder.

NUTRIENT INPUTS AND TIMING

Cover crop termination methods are closely tied to fertility application strategies. Century Farm Organics tries to use cover crops that winter kill. Often our cover crops are planted onto ground going into corn, so we will do a tillage pass to incorporate turkey litter, cattle manure, or injected pig manure.



Peas and oats

Advice to New Cover Croppers

We would say, "Try it. Even on a small scale." When starting with cover crops we recommend leaving test strips for



comparison of weed control and yield differences in the following year's cash crop. Also, we encourage farmers to ask questions because the organic community shares info easily. **The two cover crops that we suggest beginning with are oats because it is relatively inexpensive, and tillage radish. Leftover or cleaned screenings of light seed (oats, rye, etc.) can also be an easy, inexpensive way to experiment with it as a cover crop.**

Century Farm Organics reaps their cover crop information from several sources, including MOSES, the Minnesota Organic Conference, Cover Crop Kings, our Viking Seed dealer, Albert Lea Seed House, and other organic farmers.

Looking to the Future

Our goal is to cover crop 25-33% of all acres on the farm. We are still learning and experimenting with how to accomplish this goal. Next on our list is to look at more efficient tools and equipment to seed cover crops, such as interseeding into corn with the last cultivation pass. With anything in farming we continue to learn and adapt. We have learned enough to know that we will continue to use cover crops on our crop ground.

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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.

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