

ORGANIC COVER CROP CASE STUDIES



Eric Madsen

Farm location	Audubon, IA
Certified organic acres	240 certified, 80 acres in transition
Total acres	440
Year of initial organic certification	2015 (MOSA)
Primary cash crops	Corn, soybean, oats, hay
Years planting cover crops	15
Frequently used cover crops	Annual alfalfa, medium red clover, winter wheat, forage peas
Livestock on farm	None
Soil type	Highly variable. Moderately rolling terrain, some eroded hillside. Clay on hills, silty clay loam in fertile bottoms.

Brief Farm History

Since being introduced to the idea of cover crops through Practical Farmers of Iowa (PFI), Eric Madsen's farm has used cover crops following small grains for 15 years. The operation was in a conventional corn-soybean rotation until 2015, at which time he began transitioning to organic. Madsen currently has 240 acres certified organic, 80 acres in transition, 120 acres conventional, and plans to transition to 100% organic eventually.

Cover Crop Use & Goals

Eric has added covers after corn and soybeans for the last three years. When he originally started using cover crops, his primary goal was erosion reduction. **Today, his goals include improved soil tilth and maximizing nutrient cycling and nutrient retention.**



Crop Management

TYPICAL ROTATION

Madsen's typical rotation is corn, soybeans, corn, oats, hay, though he stresses the importance of being open to variation in response to field conditions. Ahead of corn, Madsen prefers to plant alfalfa or an overwintering cover crop that can grow into mid-April or early May. Corn is then planted in late May or early June.

FIELD OPERATIONS

Madsen aims to do little or no fall tillage, though he may do some light tillage ahead of oats to smooth the ground and prepare for no or low-till spring oat planting. **He has been experimenting with winterkill covers to reduce the need for spring termination and associated tillage, including a frost-sensitive alfalfa.** To achieve shallow, even tillage, a mulch finisher has been a useful tool for his operation.

NUTRIENT INPUTS AND TIMING

Nutrients are applied primarily via composted turkey litter broadcast in the late fall. Litter is typically applied preceding corn and at a low rate preceding oats. Gypsum or SuperCAL SO₄ is applied in the planter with beans and sometimes with corn.

SEEDING AND ESTABLISHMENT

Madsen's primary cover crops are alfalfa, medium red clover, winter

wheat, and peas. He likes to seed non-winter hardy alfalfa with oats and clover, harvesting the oats in July and allowing the remaining cover crops to grow until frost. Oats and peas are typically planted after soybeans, before corn. Cover crops are planted into standing soybeans with a seeder mounted on the cultivator during the last cultivation pass. He has experimented with aerial seeding a clover mix into standing corn, but has not yet found it to be consistently successful.



Alfalfa and corn

Key challenges Madsen has faced in adding cover crops to his system center around consistent establishment and termination. Two particular challenges involve consistently establishing a cover crop with interseeding and achieving adequate spring termination of cover crops, particularly cereal rye, with less predictable weather patterns and heavier rains. Given the high cost of organic seed, these setbacks can



quickly become expensive when the covers don't grow or die as intended. For Madsen, the solution to these challenges is continued on-farm experimentation.

He encourages growers who are new to cover crops to start on a small number of acres and to begin trying things with their own equipment to discover what works on their farm.

Looking to the Future

Madsen considers the benefits of cover crops to be both agronomic and environmental and believes the outcomes are closely tied. His future plans for cover cropping include trials for interseeding into corn and overwintering a legume-brassica mixture. He hopes to eventually have cover crops in all of his row crops to achieve living cover on every acre.

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FOR MORE INFORMATION

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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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