

ORGANIC COVER CROP CASE STUDIES



PrairiErth Farm

Dave Bishop, Hans & Katie Bishop

Farm location	Logan and Tazewell Counties, IL
Certified organic acres	450
Total acres	450
Year of initial organic certification	2004 (Ecocert)
Primary cash crops	Corn grain, soybeans, winter wheat, vegetables
Years planting cover crops	20+
Frequently used cover crops	Winter rye, red clover, daikon radish
Livestock on farm	Beef cattle, poultry, pigs
Soil type	Silt loam

Brief Farm History

Dave Bishop, of PrairiErth Farm, farmed conventionally from 1979 until 1988. In response to drought in the 1980s, the Bishops increased their focus on crop diversity and experienced cover crops reduced their need for fertilizers and herbicides. **Though organic certification was not their original goal, their changes in farm management shifted closer to organic over time. Eventually, in 2004, the organic price premium made certification financially practical.**

Bishop believes their long transition into organic allowed them to be more successful than if they had switched “cold turkey.” They currently farm 450 acres, all certified organic, with about 250 acres in row crops, 70 acres in pasture, 30 acres in mixed vegetables, and the balance in USDA Conservation Reserve Program (CRP.) Field crops and livestock are managed primarily by Dave Bishop while the vegetable operation is managed by Dave’s son and daughter-in-law, Hans and Katie Bishop.



Dave recalls from his childhood many local farms growing corn grain followed by oats or hay. Soybeans were not widely grown. Virtually every farm had livestock and corn fields were usually grazed after harvest by hogs or cattle throughout the winter.

He recalls many farms did not adopt a corn and soybean rotation until the mid to late 1970s, after USDA Secretary of Agriculture, Earl Butz, made his famous “get big or get out” speech in 1973.

He noticed it was around this period the farming landscape changed. As livestock disappeared from farms, it became common practice for all “good farmers” to moldboard plow every square inch of their cropland, typically plowing in the fall and leaving farmland at high risk for winter and spring erosion. Soybean acres became increasingly common, replacing oats and hay. The resulting erosion rivaled the Dust Bowl of the 1930s. Township road crews often had to remove several feet of topsoil from country roads after a big rain.

Dave remembers when no-till was originally introduced in the late 1970s, it was widely ridiculed. People said “everyone knows that won’t work” and there was strong social pressure against it in farming communities. The prevailing belief was “you’ll lose the farm fooling around like that.” In fact, there were some pretty spectacular

failures early on. However, like any innovation, improved tools and techniques were developed to make no-till more successful.



Red clover frost seeded into winter wheat

In light of historical influences changing the agricultural landscape in the past half century, PrairiErth Farm has a passion to restore the land and local farming communities. Dave believes cover crops and increasing crop diversity are key elements in restoring the land, and local food systems are key to food access and restoring economic prosperity for rural main streets. In addition to increasing plant species diversity, increasing livestock diversity in the overall farm system has been a central focus for the Bishops. Dave believes different livestock species make the grazing system work better, allowing cover crops to become a truly profitable farm enterprise, while simultaneously accruing their soil health benefits.



Cover Crop Use & Goals

The farm's primary goals in using cover crops are soil building and nutrient retention, as well as increasing farm profitability through grazing. The farm is located 100 feet from a stream feeding a public water supply. Dave is cognizant of the importance of retaining soil and nutrients on the farm, both for their own profitability, as well as to reduce surface water pollution. Additionally, the farm values cover crops as an income generator with respect to their feed and grazing value.

Crop Management

TYPICAL ROTATION

The Bishops have various crop rotations for the grain and mixed vegetable production areas of their operation. A common grain rotation is corn, winter rye, which is sometimes planted in a mix with radish and can be grazed after corn harvest, soybeans, winter wheat, which is frost seeded with red clover and can be grazed by cattle after wheat grain harvest, then back to corn. Within vegetable rotations, they commonly use oats and peas, buckwheat, mustards, sorghum sudangrass, cereal rye, and radishes as cover crops.

FIELD OPERATIONS

The farm uses some mechanical tillage and cultivation, but aims to keep tillage operations shallow, ideally not more than 2-3 inches deep. This reduces

soil disturbance, while reducing the number of weed seeds pulled up from deeper in the soil profile. The farm uses several cover crop termination methods including a rotary tiller, which is time consuming, but can create a good seed bed in one pass, a high-speed disc borrowed from a neighbor, and a disc field cultivator, which can be hard to control for depth.



Grazing medium red clover after wheat

NUTRIENT INPUTS AND TIMING

Soil fertility is provided largely by grazing animals and cover cropping. Bishop notes that cover crops have the same needs as other crops; proper planting timing, temperature and water are essential for successful establishment and growth. If these requirements aren't addressed, the cover crop may struggle to achieve its full potential. Bishop has had particularly good success with red clover frost seeded into winter wheat. The clover, along with manure added



through grazing, generates over 160 units of nitrogen in around 15 months, assuming the red clover is seeded in February, grazed about 75 days after wheat harvest and terminated the following May.

SEEDING AND ESTABLISHMENT

Seeding equipment varies by crop and application timing. Red clover is typically planted with an airflow seeder, at the same time mineral amendments are applied to the wheat. Cereal rye is aerially applied into corn grain just prior to harvest if there is sufficient soil moisture, or seeded into corn stubble after harvest. With a post harvest seeding, Bishop acknowledges the cover crop will have a reduced growing window before frost, limiting the field's potential for fall or winter grazing, if the cover hasn't achieved sufficient growth. Bishop has both a no-till drill and a regular drill that can be used as conditions require and also has good



Cereal rye flown into standing corn

relationships with neighbors allowing for equipment sharing.

Advice to New Cover Croppers

Bishop uses several sources for cover crop information, including following trials from universities and seed companies, attending field days, and talking with other farmers. Bishop suggests any farmer starting with cover crops should find other people who are growing covers, network, and visit their farms, if possible.

Finding a mentor farmer or group experienced with cover crops can be very valuable. He also recommends taking advantage of the many free resources available from universities, agribusinesses, and farmer groups, like the IDEA Farm Network or another group of farmers working with cover crops. He also advises to start small, but to at least start and do something.

Dave shares, "Think of cover cropping as an investment in your farm business rather than an expense. It's a lot easier to talk to your banker about a new profitable enterprise rather than create another expense. Find ways to make cover cropping profitable, in both the short term, like the next year, as well as the long term. The simplest way to make cover crops profitable is by grazing. Renting or borrowing equipment before you buy is another



good strategy. Make sure something works on your farm, in your system, before you make a capital expense. Instead, invest your money in seed. Ask yourself 'How will this enhance my operation? In my operation, what is the most profitable use of cover crops?' If you don't want to mess with livestock yourself, look at the Graziers Exchange for someone who might want to partner with you."

Additional Farm Background

- "Diverse mix of livestock, crops helps this organic farm thrive" MOSES Organic Broadcaster, July-August 2016. <https://mosesorganic.org/diversity-farm-profile/>
- "I'm new to organic. How do I eliminate weeds in my soybean field? There are a lot of weeds!" MOSES Organic Broadcaster, September 2018. <https://mosesorganic.org/wp-content/uploads/2018/09/Broadcaster-Sept.2018.pdf>

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Dave Bishop, PrairiErth Farm

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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/>



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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.

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