



IOWA



# PROFILES IN soil health

**Levi Lyle**  
Keota, Iowa  
750 acres  
Crops: corn, soybeans, small grains  
Planting: organic no-till  
Covers: cereal rye, winter peas, cowpeas

unlock the  
**SECRETS**  
IN THE  
**SOIL**

## Roller Crimper Key in Organic No-Till System.

*by Jason Johnson, July 2017*

Keota farmer Levi Lyle never thought he would be a go-to person for eastern Iowa farmers to rent a roller crimper. But with his interest in eliminating the use of herbicides on portions of his family's cropland, he now has two crimpers that he uses and rents to farmers from Waterloo to Bloomfield.

Lyle is transitioning about 66 of their 750 cropland acres to organic production. He and his father, Trent, began crop-sharing a few years ago. Without the use of chemical herbicides, Lyle began using cover crops in recent years to help suppress weeds, instead of disturbing the soil with a field cultivator.

After reading the book *Organic No-Till Farming* by Jeff Moyer, Lyle said he felt motivated to reduce the use of

chemicals and tillage when he moved back to the family farm about five years ago. "Roller crimping is an essential part of making Moyer's ideas work," said Lyle. "To be organic no-till, you've got perennial weeds that begin to creep in. By growing cover crops and rolling them down, you start to deal with that pressure."

Roller crimpers include two key components – a blunt edge and Chevron pattern. The blunt edge snaps the stem without cutting it. Severing the stem would essentially be mowing the cover crop, allowing it to potentially grow back. The Chevron pattern includes four pressure points that provide the right weight distribution for matting down the cover crop without kicking up soil.

The key to terminating rye with a roller crimper is waiting until anthesis, or pollen shed, which doesn't typically occur until late May. If the rye isn't to this stage, it's not going to die.

Lyle purchased his first crimper in 2016 from a manufacturer in Pennsylvania, since no local

companies built them. With roller crimper demand increasing, he worked with local Keota agricultural equipment manufacturer Vittetoe, Inc. to develop one locally.

Lyle says both conventional and organic farmers are using roller crimpers. The differences in timing of cover crop termination and planting dates between the two systems opens a window of opportunity to make the crimpers available to all types of farmers.

Conventional farmers typically crimp the earliest – in the Spring, prior to planting – since they don't need cover crops to grow as tall to form a weed-suppressing mat. Some organic farmers crimp and plant simultaneously in early June, while others plant into standing cover crops and then roll them when soybeans are up to the V3 stage (3-5 inches). This type of operation typically occurs in mid-June, or 15-20 days after planting soybeans.

Lyle is in his first year transitioning to certified organic production. He started by planting soybeans in 15-inch rows, and rolled 6-foot tall cereal rye simultaneously on June 1. "In three years, this will be certified organic ground, and the soybeans are a big part of that rotation," he said. "This ground will be in a 3-year rotation, with soybeans every third year."

Cereal rye is an effective cover crop in Lyle's system because it produces great amounts of biomass and can be crimped easily. "It lays down and serves as a mat thick enough to inhibit weed growth, providing an excellent herbicide alternative," said Lyle. "Cereal rye is also great for soil health and nitrogen uptake."

## Transitioning to Organic

Lyle is receiving financial and planning assistance through the Environment Quality Incentives Program (EQIP) Organic Initiative. USDA's Natural Resources Conservation Service (NRCS), which administers the Organic Initiative, is helping Lyle implement a



**With help from his daughter Olivia,** Keota farmer Levi Lyle roller crimps cereal rye and plants no-till soybeans.

conservation plan and practices that address resource concerns on his land. These new practices include:

- » A conservation crop rotation that includes a small grain, corn and soybeans.
- » Cover crops
- » Field border

There are personal and environmental reasons why Lyle is beginning to transition to organic. "Since I moved back to the farm five years ago, I've been thinking about the farm differently (than when I was growing up)," he said. "Small farms are shrinking in number. There is more pressure on our ecosystems and our waterways. We need to find ways to reduce the strain on the environment."

Lyle says reducing chemical use and keeping the soil in place through no-till and cover crops are his way of

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benefitting the environment. "Cover crops are helping the soil profile. We haven't been cover cropping long, but some farmers around here who have been using them for more than 20 years have completely eliminated erosion on their hillsides," he said.

Lyle wants his young children involved in the family farming operation. With four kids, ranging from 2 to 9 years old, he doesn't feel comfortable with them around when he is using chemicals or is covered with surfactants that are on the seeds. "The kids can't be with me when I'm doing that," he said. "Transitioning to organic, the kids can be part of it."

During planting this year, Lyle's oldest child Olivia helped him count seed bags as he poured seeds in the bean drill. She also rode with him in the tractor while he roller crimped the cereal rye and planted the soybeans. "I like riding with my dad in the tractor," she said. "I would like to be a farmer when I grow up."

Lyle also involves his kids in his small plots of sour cherry trees and aronia berry bushes. "The kids can help me pick the fruit and then I take them with me when we sell it fresh at the farmer's markets and to grocery stores," he said.



**Three weeks after crimping and planting**, soybeans begin to grow through the terminated cereal rye mat.

"The more time my kids can be on the farm, the more time I get to spend with them," said Lyle. "I want them to have a future where they are on the farm, and the only way to do that is by involving them now."

With organic crops, Lyle sees an opportunity to create more profitability on his farm. However, he says that's not his primary reason. "I see very few farmers transitioning to organic solely for profits," said Lyle. "A lot of times it's for health and nutritional reasons – the additional profit margin is just an added benefit."

## Researching Cover Crops with Corn

Lyle is beginning to look at ways to successfully grow organic no-till corn with cover crops. Since grains like cereal rye can cause yield drag concerns for corn growers, Lyle is researching how nitrogen-rich legumes like Austrian winter peas could supplement or replace a NPK side dressing. He planted winter peas last fall on a one-acre test plot, and after roller crimping the winter peas in early June, Lyle planted corn into the plot in mid-June. "I'll be watching to see if the peas will provide enough of a weed-suppressing mat to reduce or eliminate herbicides," he said. "The winter peas could put as much as 150 units of nitrogen in the ground."

Lyle shared his ideas and experiences with other local farmers at a NRCS field day in June. He is also a member of Practical Farmers of Iowa – a farmer-led organization that uses information sharing and field days to bring about new ideas to benefit its members and the environment.

To learn more about USDA conservation planning and programs available in Iowa, visit your local NRCS office or go to [www.ia.nrcs.usda.gov](http://www.ia.nrcs.usda.gov). To read more about Levi Lyle, his website is [aronialife.com](http://aronialife.com).

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