



PROFILES IN soil health



Ross Weymiller
New Albin, Iowa
Crops: corn, soybeans
Planting: no-till, vertical till
Covers: cereal rye



Finding Ways to Make Manure, Cover Crops Work.

Ross Weymiller and his family are working with soil and water conservation leaders in Allamakee County in far northeastern Iowa to find the best methods for growing cover crops and utilizing manure fertilizer on crop fields, while minimally disturbing the soil with no-till.

Ross Weymiller farms with his father, David, and his brother, Frank. They have a 6,100-head hog operation and farm about 1,200 cropland acres near New Albin.

District Conservationist LuAnn Rolling with USDA's Natural Resources Conservation Service (NRCS) in Allamakee County says one of the challenges for cover crop implementation is overcoming the mindset



The Weymillers injected hog manure on this field, then drilled in the cereal rye cover crop right after.

that cover crops cannot be used on acres with applied manure – either because manure drowns the seed or due to the timing of the manure application.

Rolling says cover crops provide water quality benefits when used in conjunction with manure. “Cover crops can scavenge nutrients and provide cover and ground surface protection during the



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fall and early spring when warm season crops like corn and soybeans are not growing,” she said.

Allamakee Soil and Water Conservation District (SWCD) Project Coordinator Sara Berges is working with a handful of farmers, on a project funded through the Leopold Center for Sustainable Agriculture, to find what method, timing, and cover crop species work best. “We want to see as much cover crop growth in the fall as possible,” said Berges, “and we want farmers to use a winter hardy cover crop like cereal rye that will survive and continue to provide benefits in the spring before planting.”

Weymiller Cover Crop-Manure Trials

The Weymillers chopped silage the first week of September 2017, and planted cover crops on portions of their rich, sandy, river bottom ground to help improve soil health. They also planted a few acres on their highly erosive ridges. Weymiller used the following four methods of cover crop planting with manure injection on 5- to 20-acre plots, totaling 40 acres:

1. Drilled in cereal rye seed, then injected manure.
2. Injected manure, then drilled in cereal rye seed.
3. Injected manure, vertical tilled, drilled cereal rye seed.
4. Mixed cereal rye seed with liquid manure, injected manure and seed together.

Of the four methods, only the manure/seed mix resulted in a substandard cover crop stand. “The seeds either floated to the top and came out first, or sunk to the bottom of the tank and came out last,” said Ross Weymiller. “It would work if you could somehow disperse the seed equally inside the tank.”

In summarizing his cover crop/manure trial, Weymiller said:

- » It was easiest and most timely to drill in the rye seed right behind the manure injection.



Sara Berges and Ross Weymiller look at cover crop growth on the last day of November.

- » There was no need for tillage, especially because there is little residue after chopping silage.
- » Injecting manure into a growing cover crop temporarily tears up the stand. However, in his experience, Weymiller says winter hardy cover crops like cereal rye come back fine in the spring.

Project to Fund Additional Trials

Allamakee SWCD and a group of their conservation partners were recently awarded funding from USDA through the Innovative Conservation Agriculture Project to provide financial and planning assistance to producers in Allamakee and Clayton County to support the implementation of cover crops and no-till in conjunction with manure application. Through this Regional Conservation Partnership Project (RCPP), farmers can receive up to \$6,000 per contract for cover crops and up to \$1,500 per contract for no-till.

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