

Soil health central to farm's future



With NRCS assistance, a Clay County farm family tried cover crops and no-till; despite setbacks, those and other soil health practices now shape plans as they strive to increase profits, decrease inputs



Natural Resources Conservation Service website: www.nrcs.usda.gov

Video: [NRCS District Conservationist Sharon Lean discusses her work with the Aakres](#)

HAWLEY — Jon Aakre examined a shovelful of topsoil wriggling with worms and webbed with small roots — signs the soil health practices he’s implementing on his Clay County farm are improving water infiltration and reducing soil compaction.

With his wife, Jana, and son, Jayson, Aakre raises 500 acres of corn, soybeans, sunflowers, wheat and alfalfa. Their 735-acre century farm in northwestern Minnesota includes a 165-acre pasture where a neighbor rotationally grazes bison, and 60 acres enrolled in the federal Conservation Reserve Program (CRP).

Environmental Quality Incentives Program (EQIP) assistance from the USDA’s Natural Resources Conservation Service (NRCS) cut the risk of trying cover crops and no-till — practices the Aakres expanded to nearly 390 acres, and continued after the contracts expired in 2020.

A percolation test, which measures how fast the soil absorbs water, convinced Aakre to try cover crops, starting with 40 acres coming out of a CRP contract in 2014.

Aakre had expected that field to be less productive the first few years it returned to crop production. But after 25 years in perennial cover, the roots, worms and microorganisms had created a porous, healthy soil — erasing signs of compaction from farm equipment.

In the percolation test, the soil absorbed the water within 20 seconds.

“My jaw dropped,” Jon said.

He wondered what else he could do to increase water infiltration and retention.

“Six years out of 10, water is our limiting factor,” Jayson said. “Our yield reaches its peak or is limited to whatever it is because of rainfall. It’s water that limits us.”

Clockwise from top left: NRCS District Conservationist Sharon Lean, center, and Jayson Aakre crumbled a topsoil sample from a sunflower field as Jon Aakre looked on. The Aakres have worked with Lean to fine-tune cover crop seed mixes. Into sunflowers, they have seeded oats, radishes, berseem clover, red clover and turnips. Worm holes and bits of roots indicate good soil health in a corn field. Jayson prepared to heft a shovelful of dirt from a corn field, where soil health practices have helped to lessen compaction.

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From left: Previous years' cover crops grow in corn, sunflower and wheat fields on the Aakres' Clay County farm. **Contributed Photos**

The Aakres worked with Moorhead-based NRCS District Conservationist Sharon Lean on their first cover crop EQIP contract. Lean has since helped to fine-tune their cover crop seed mixes.

Into corn, they've seeded winter rye, forage radishes, berseem clover, crimson clover and turnips. In soybeans: winter triticale, winter wheat and winter peas. In wheat: oats, forage radishes, balansa clover, crimson clover and turnips. In sunflowers: oats, radishes, berseem clover, red clover and turnips.

The Aakres also have worked with NRCS EQIP assistance on nutrient and pest management, plus prescribed grazing for the bison.

"EQIP is helping to enable and encourage these projects. We're not making money off EQIP. There may be one year we had \$10 profit over cover crop costs and one year it cost us \$20. But it's giving us some exposure, some expertise and some ideas," Jon said.

It generally takes three to five years to see the full benefits of cover crops and no-till. After their first, five-year enrollment, the Aakres expanded those practices from 40 acres to 390 acres.

"We were convinced of no-till by that point. The cover crop we were still learning, but the no-till, we were all in on

that," Jayson said. "(Farmers) think we need our aggressive tillage in the fall or we'll never get dry in the spring, but your tillage is why the water levels go down."

From what he's seen and researched, Jon said he believes no-till can work anywhere, even on heavier ground.

"The reason for resistance is they still have it in their mindset that they have to have a clean seed bed in order for soil to heat up. But the principle is once you get your soil healthy, the biology will heat up your soil and you actually will get out to your field a week before everybody else," Lean said.

Jon encourages those who try cover crops to start with a small, less-productive field. He advises being patient, and being prepared to make adjustments from year to year.

"There's ample evidence that it can work for anyone, but it may not look like it early in the spring, or in that first year even," Jon said. "The first cover crop and no-till field we did was just a quarter mile off the highway. We used to kind of joke with the neighbors it was just far enough so that people weren't driving by there to see our mistakes."

This season, the Aakres had to replant no-tilled soybeans killed by a late-spring freeze.

"This year is not the year for us to tell you that everything is perfect with no-till, because our neighbors have soybeans that are all ahead of ours this year," Jayson said. "But we're not quitting no-tilling. We're ahead five years out of 10. We're behind one year out of 10. We're going to keep on."

Jayson paraphrased something he heard in a podcast: Farmers don't have one bad corn crop and then decide they're never growing corn again. Cover crops require the same effort, year after year, as cash crops because one year it's going to work great, the next year it won't.

The Aakres are considering long-term benefits as they plan for Jayson to one day take over the operation.

"When you have gully-washers two years out of 10, that's 20 years out of 100. It takes generations to get that soil back to as productive as it was before that happened," Jon said.

Even in years with lower yields, the Aakres have come out ahead by implementing soil health practices — including strip-tilling, a practice they started on their own. They're spending less time and money in the field. Reducing fertilizer, pesticide and fuel inputs has saved money. On strip-tilled corn alone, the Aakres have cut fertilizer rates by 30%.

"Once you get the soil healthy, it (takes) less fertilizer. You use less pesticide. You start seeing, when you compare the costs (with) whatever you used to do and then when your soil's healthy, you use less, you actually see larger profit," Lean said.

All of the Aakres' cropland is either strip-tilled or no-tilled. They aim to plant cover crops on at least 75% of that land. With last year's drought conditions, they scaled back and seeded cover crops into about 50%.

After this season's late-summer harvest, they planted cover crops on wheat stubble. With unexpected August rains, it was flourishing by late fall. In a 72-acre sunflower field, they saw an exceptional second flush of volunteer wheat and hardier elements of last year's cover crop.

Next, they're looking into grazing bison or cattle on cover crops.

"It's sustained and taken care of us so I feel like we should take care of the land," Jana said.



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