Soil health tour demonstrates possibilities, connects farmers

BARNESVILLE — Farmers and conservation workers from northwestern Minnesota explored soil-health realities and possibilities this summer during a three-day, four-stop bus tour that ranged from a Red River Valley soybean field to Menoken Farm's experimental test plots in central North Dakota.

"So many people never want to share what works and what doesn't work, and I don't feel that everybody should have to make the same mistakes," said Ryan Hough, who, with his brother Michael, hosted a July 29 stop in Clay County. "That's hindering progress."

The Houghs farm about 1,800 acres,

Minnesota NRCS website: **www.mn.nrcs.usda.gov**

Top: *NRCS Soil Health Specialist Stephanie McLain discussed how residue benefits the soil during a July 29 soil health tour stop at Ryan and Michael Hough's rural Barnesville farm.* ***Bottom, from left:*** *"You can make what you have work," Ryan Hough said, describing modifications made to existing machinery used in a no-till operation. Producer Todd Andresen examined a soybean plant. From left: Traverse SWCD technician Devon Thompson and technical manager Bruce Johnson photographed parts of a modified corn planter with West Otter Tail SWCD soil health specialist Bill Werk.* **Photo Credits:** Ann Wessel, BWSR

no-till all but two fields used for spring calving, and incorporate cover crops and rotational grazing into their 600-head beef operation. When they switched to no-till 10 years ago, Hough said the biggest challenge was the social aspect.

"We were sort of teased and laughed about," he told the group.

The Houghs shared their successes (because infiltration and soil structure improved, after a rain they're back in the field sooner than the neighbors) setbacks (a corn crop suffered when weather delayed cover-crop termination), and savings (late-season grazing on cover crops has cut feed costs).

"The second year, we could see a difference in our soils already, and it has only gotten better. It just continues to get better (in terms of) water infiltration, the amount of residue on our soil surface. The weed pressure has gotten better over the years," Hough said.

The Becker Soil & Water Conservation District (SWCD) organized the tour, which introduced 20 producers and 19 SWCD staff members to experts — experienced farmers plus three USDA Natural Resources Conservation Service (NRCS) staff members — and to each other.

"I think that value of having another producer that you can talk to has to do with the fact that they're in the trenches just like you are, putting that crop in the ground and doing everything that you can do to bring it to a successful harvest," said Stephanie

The Becker SWCD and Minnesota NRCS staff hosted the soil health tour, which included four farm stops in Minnesota and North Dakota. Twenty producers and 19 SWCD staff members from northwestern Minnesota attended.

McLain, NRCS state soil health specialist.

"We have a lot of technical experience, and we have a lot of resources," McLain said. "Another farmer can look a farmer in the eye and know … the risk that's sitting in front of them."

Becker SWCD Manager Bryan Malone said a big concern among northwestern Minnesota producers, especially in the heavy clay soils of the Red River Valley, is that — unless it's tilled — the soil won't warm up enough and dry out in time for spring planting.

"With the right amount of microbial activity in the soil, that soil stays warmer and basically has the same effect," Malone said.

What the Houghs and others have experienced is that, after about five years, their soil warmed up just as fast from microbial activity. Additionally, the Houghs have used a stripper header on the combine to leave no-tilled residue standing (vs. flattened), which allows more sunlight to reach the soil surface.

During the two-hour tour stop, the Houghs and McLain

FUNDING: The soil health tour was funded by grants from the Minnesota Office of Soil Health, and the Technical Training and Certification Program (funded 50-50 by state Clean Water Funds and federal dollars available through a contribution agreement with NRCS) plus contributions from the 16 SWCDs within the Red River Valley Conservation Service Area.

answered questions about the stripper header and the modified corn planter on display, and walked into the adjacent soybean field where they examined the plants and the soil.

McLain's takeaway message: Even your soil can change.

"Even your soil can change and regenerate soil function. A lot of people think that this isn't going to work here, or this isn't going to happen here. But even your soil has the capacity to change," McLain said after the tour.

Tyler Trieglaff farms on sandier ground near Frazee, where his initial three-year cover-crop trial coincided with a drought. This year, he planted cover crops again. After the tour, he said he was considering how full-season cover crops might replace corn silage on the 750-acre, 75 cow-calf operation he runs with his father.

The Trieglaffs incorporated rotational grazing 13 years ago. Grazing cover crops could allow them to expand the herd without buying more land.

"No-till farming is something I'm trying to include," Trieglaff said. "But there's not a lot of it in this area."

The North Dakota tour stops at Black Leg Ranch and Menoken Farm showcased big-picture, cutting-edge research and the principles behind the practices.

"Those principles will always hold true no matter where you're at," Hough said.

Maximizing soil cover. Minimizing soil disturbance. Maximizing plant diversity. Keeping a living root in the soil as long as possible. Integrating livestock.

"Everybody's operation is different. What works here may not work there," Hough said. "But there is going to be something in somebody's operation from 500 miles away that will work fantastic in yours, maybe (with modifications). … But exposing yourself to a totally different mindset and a different culture of agriculture really can be an eye-opener if you're willing and open to listening to others."

Five questions with farmer Ryan Hough

Excerpts from a post-tour conversation about implementing soil-health practices are condensed and edited for clarity.

Hough told the group about another surprise he discovered: No-tilling protected sandy fields once covered by glacial Lake Agassiz from developing a crust. "When we have residue there to break the fall of that raindrop, that water is not hitting the soil surface, but instead it's running off of the residue," he said during the July 29 soil health tour stop at his farm.

What's your best advice for someone just getting started with soil-health practices?

Just try something. And start on a smaller scale if you're nervous, because it is a big change.

Oftentimes that can seem daunting, but it doesn't have to be. Keep things simple. Don't try to do three different tillage methods. It's almost easier to have one way of doing it and get good at that.

On the cover crops side, you don't have to have a 15-species mix that costs $75 an acre to plant. You can do one or two or three. And keep it much cheaper — $20 an acre, or even less if you do something as simple as rye, peas and oats or barley.

Do you have any advice for starting the transition from conventional tillage to no-till?

The best results we've seen were fields that came out of alfalfa production into corn, because you already had four years of (undisturbed) soil and a chance for that soil structure to develop.

Have you discovered anything unexpected that's worked well for you?

We didn't invent this stuff. We got our ideas from others, and oftentimes we throw a couple different ideas together to make something fit our situation. With the livestock integration, we knew it was going to be a benefit, but we didn't realize how many unseen financial benefits there would be. And it's continuously benefiting us, from the feed-savings standpoint, the animal-health standpoint, the manure management — especially the winter feed cost being much lower. Nobody writes you a check for that winter feed savings. It's just money that didn't leave your pocket.

Are you spending less time in the field?

It's just different passes across the field. Instead of doing (two tillage passes), we are doing a cover-crop seeding in the fall after harvest.

Oftentimes we're also doing a herbicide pass if we have a field that's maybe a little weedier than we would like. But with our sprayer, we're covering 90 feet or 120 feet at a time, versus a chisel plow where you're (covering) 30 or 35 feet.

How long did it take to get to the point where you were getting into the field sooner than the neighbors after a rain?

It took probably four to five years before we started to see the soil structure develop to the point where it would carry us much sooner after rain events. Part of that is also water infiltration. We're able to get that water to percolate down into the soil much better and then dry out enough to carry us much quicker.

One other thing is that you don't want to be making ruts in a no-till field because you don't have that tillage pass option to straighten them out. If you're running around trying to straighten out wheel track ruts, those spots will show up for years to come. So we will wait.