

# Training explores soil health



Conservation workers know the benefits of practices such as no-till. Trainings in Steele, Kanabec, Becker and Murray counties equipped them to better communicate those benefits, which ultimately could help farmers who want to try an alternative to conventional tillage.



Technical Training and Certification Program funding comes from the Clean Water Fund and matching contributions from the USDA's Natural Resources Conservation Service.

MORA — In side-by-side corn fields where tillage was the only variable, 21 conservation workers bent over shovels, rolled dirt into balls and examined soil temperature readings. At three test stations per field, they compared how no-till vs. conventional tillage affects soil health.

It's a familiar concept, but one that can be difficult to explain.

"What we're showing them today are these simple things they can do with their producers to help show them how management impacts how soil functions," said Kristin Brennan, Minnesota Natural Resources Conservation Service assistant state soil scientist and soil health specialist.



The Kanabec County field session was part of four Minnesota NRCS soil health assessment trainings presented in collaboration with the Minnesota Board of Water and Soil Resources plus the Minnesota Office of Soil Health in summer 2019.



National, state and local soil-health experts including past trainees led the hands-on demonstrations.

"It brings a whole raft of different experiences and education and training and viewpoints," Lawrence Svien, BWSR's Rochester-based southern regional training

**Above:** Mike Kucera, the Lincoln, Nebraska-based NRCS agronomist who developed the soil health buckets (**below**) and much of the related training materials, worked with a group in a corn field outside Mora.  
**Photo Credits:** Ann Wessel, BWSR



conservationist, said of the course. “They’re all coming at it in a different way. It’s an example of a national cadre of trained people in soil health.”

More than 100 conservation professionals from four corners of the state attended one of the two-day sessions. Approved as a National Employee Development Center equivalent, the field sessions met soil health training requirements necessary to earn a Conservation Planning Certificate.

Soil health assessment training usually occurs in person over three days, with enrollment capped at 40 per location. NRCS offered four hours of live prerequisite webinar training, which compressed this summer’s in-person sessions to one day in the classroom and one day in the field. That change — plus selecting sites near Blooming Prairie, Mora, Detroit Lakes and Marshall — limited costs and saved trainees travel time.

“This is one small piece of a curriculum, but it’s a critical part of certification,” Brennan said.

The training is required for all levels of certification, from apprentice through master planner. The target audience for June’s trainings included new employees building their knowledge, and late-career professionals expanding their areas of expertise.

“It’s going to re-up that knowledge so that I’m fully aware of the most recent soil-health assessments and how to perform those in the field,” said Tessa Zee, who began her duties as the Sauk River Watershed



*Stan Boltz, a Huron, South Dakota-based NRCS regional soil health specialist, led a field station June 20 in Kanabec County where texture by feel was among the topics discussed.*



*Anna Cates, state soil health specialist with the Minnesota Office for Soil Health (a collaboration of the Minnesota Board of Water and Soil Resources and the University of Minnesota Water Resources Center), talked about the “Soil Your Undies” campaign that helped draw attention to soil health.*



*Kristin Brennan, NRCS’ assistant state soil scientist and soil health specialist, is among those leading a series of soil health trainings over a two-week period in four regions of Minnesota.*

conservation planner about one year earlier.

“When I make that initial site visit to start the conservation planning process, I’ll use soil health assessments to see the general health of the field and to get a better idea talking with the producer about how they manage the field and what their goals are, what resource concerns they have and how they want me to help them,” Zee said.

In June at the Kanabec County site, she and Rodney Aaron timed water infiltration on the conventionally tilled corn field.

Aaron, a Brooklyn Center-based civil engineer technician with 35 years’ experience with NRCS, said he was pursuing an apprenticeship to better understand how his work affects other facets of conservation projects.

“If I go in and do an exploration with a landowner, I’ll know what he’s getting and how what I do as an engineer is going to be applicable to that — what kind of structure will it be, to the point where it’s not impeding upon what would be good cropping,” Aaron said.

Lincoln, Nebraska-based NRCS agronomist Mike Kucera created the soil health bucket and education guides used in the Minnesota NRCS trainings. Originally designed for vocational agriculture instructors in Nebraska, the materials have been adapted and used throughout the U.S.

“The big picture is really getting them more





Three stations in a Kanabec County corn field allowed the Minnesota NRCS Soil Health Assessment Training to focus on physical, chemical and biological properties of soil under no-till conditions for the past nine years (bottom left). In an adjacent field (bottom right), they compared those properties in a field where conventional tillage was used.

comfortable with field assessments and the management concepts that go along with it so they can communicate more effectively with producers and agribusiness,” Kucera said.

At stations evaluating soil’s physical, chemical and biological properties, tests included the rate of water infiltration. Nitrate and phosphate levels. Earthworm counts.

“If they can actually see the water infiltrating at a faster rate; if they can see that soils under these types of systems are darker and they have more carbon — that they have this beautiful granular-type structure vs. on a conventional system where it’s very much blocky like a brick — that really helps to show the benefits of these practices,” Brennan said.

Among the more dramatic

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**Building the confidence of our technical staff to be able to articulate the benefits to our producers — overall I hope that means more producers in the doors of our offices, more producers that are signing up for cost-share assistance to do these practices. More producers communicating to other producers — I think that’s really where the benefit is, when farmers talk to other farmers about what they’re seeing on their own fields.**

— Kristin Brennan, Minnesota NRCS assistant state soil scientist and soil health specialist

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results: Water infiltration took 4.5 minutes on the no-till field vs. about 35 minutes where conventional tillage was used.

The series of June trainings was made possible through the Technical Training Certification Program, a collaboration among BWSR, NRCS, the Minnesota Association of Soil & Water Conservation Districts, and the Minnesota Association of Conservation District Employees.

TTCP strives to efficiently provide training to develop and maintain a highly trained, technically skilled workforce of natural resource professionals.

“Our goal is to produce a cadre of trained individuals in the local offices so when a landowner comes in and says, ‘I have a question’ or ‘I need some help’ there are people out there who can help them,” Svien said.



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