

NRCS-BWSR soil health training builds staffers' confidence, skills



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

Top: Stearns County farmer and NRCS civil engineering technician Lee Zabinski of St. Cloud, left, and NRCS grazing lands specialist Jeff Duchene discussed soil health management systems and equipment on Zabinski's farm during a Soil Health and Sustainability for Field Office Staff training in June. The training was offered through BWSR's Technical Training and Certification Program in partnership with NRCS.



TTCP funding is split between Clean Water Funds and federal dollars through an NRCS contribution agreement. Details about TTCP training resources are available on the [TTCP web page](#).

ST. CLOUD — Soil health practices can address the root causes of farmers' primary resource concerns: erosion, runoff and nutrient loss. But implementing soil health practices isn't as simple as stopping tillage and seeding a cover crop. It requires fine-tuning all aspects of management, from equipment settings and herbicide applications to seed mixes and cover-crop termination.

"There's always that question: 'Why should I change if I've had success doing it this way?' Change is very difficult because of the tradition behind farming and how things are passed down from generation to generation," said Stephanie McLain, Natural Resources Conservation Service (NRCS) state soil health specialist. "Change is hard, and there's a lot of risk associated with change."

If a farmer tries something new and it



doesn't work, it may take a generation before someone reconsiders that practice on that land.

"It's really important for us to try to help those farmers have as much success as possible the first time they try these practices," McLain said.

Bottom: Training attendees learned about assessing soil color as part of the NRCS in-field soil health assessment.

Photo Credits: Kristin Brennan, BWSR

A 3 ½ day Soil Health and Sustainability for Field Office Staff training in Stearns County in June equipped 29 local NRCS and soil and water conservation district staffers from across the state to identify resource concerns, consider economic factors, conduct soil health field demonstrations and — most importantly — talk to landowners to determine the best way to incorporate soil health practices into their operation.

“We talk to farmers about resource concerns. Some of the biggest ones that we talk about are things like erosion or soil runoff or nutrient loss from our fields. But if we peel this back and we look at what the root cause problem is out there, so often it’s a lack of soil function,” McLain said. “If we don’t have stable aggregates at the surface, that soil’s going to seal up, and then we’re going to have erosion. ... If we have runoff, we’re going to lose those nutrients.”

McLain coordinated the June 12-15 training, offered through the Minnesota Board of Water and Soil Resources’ (BWSR) Technical Training and Certification Program (TTCP) in partnership with NRCS. Kristin Brennan, the TTCP southern region training conservationist at BWSR, handled logistics. Both led parts of the training.

“Soil health is a system. It isn’t any one practice. There’s no silver bullet. It’s so important for our students to get out in the field and talk to farmers and see what soil health looks like locally. It’s different if you’re in the northwest or the southeast — but it’s so important for them to connect with producers in their county and not to be afraid to go out in



Above: NRCS State Soil Health Specialist Stephanie McLain and NRCS resource soil scientist Brandon DeFoe led a rainfall simulator demonstration that compared infiltration rates between a conventionally tilled field (dry) vs. one that has been under a long-term soil health management system (no-till with cover crops – moist throughout).

Below: DeFoe showed the power of visual demonstrations, such as this tabletop rainfall simulator.



the field,” Brennan said.

McLain described local NRCS and SWCD staffers as being on the front lines of the effort to promote soil health. At the training, field demonstrations in adjacent fields — one using conventional tillage, the second incorporating soil health practices — clearly

illustrated the differences in soil structure, erosion rates and moisture retention. A rainfall simulator and [slake tests](#) delivered the biggest wow factors — drawing actual “ooohs” and “aaaahs” from trainees, who learned how to perform the tests themselves.

“ We have some pretty awesome jobs. That’s one of the biggest take-homes that we want people to remember, is that we have that opportunity to directly impact the natural world around us within our community. ”

— Stephanie McLain,
NRCS state soil health specialist

“The goal of the training was to help make those employees more comfortable and better able to understand soil health management systems — how to communicate that with the farmer, what those systems are, what those entail — but then also looking at a farmer’s system, what they’re currently doing,” McLain said. “Where are they on their land with their management? And then helping them find a way to step into a system that better promotes soil health and improves soil function.”

Trainers encouraged conservation workers to get to know farmers and their operations, to draw from each other’s expertise and to share the expertise of local farmers.

Brennan said a key to success was starting with smaller, less risky changes with the potential to make significant improvements. For example, instead of converting to no-till and a 20-species cover crop mix, a farmer might first try reducing a tillage pass and planting a winter



Stearns County farmer Dan Ley described his farm management practices and experiences with transitioning to a soil health management system.

cereal rye cover crop. McLain recommended trying a new practice on 10% to 20% of a farm’s cropland — enough to make the effort meaningful while minimizing the risk.

“We want to make sure that we’re setting them up for success,” Brennan said.

Designed for newer employees with at least one year of NRCS or SWCD work experience, the training set conservation workers up for success, too. Trainers and trainees alike said the practice demonstrations and assessments built confidence.

“It’s nice to have that ability to practice in front of your peers where maybe people might snicker or laugh a little bit, but that’s about as far as it’s going to go, where if you mess that demo up in front of a landowner, he’s going to tell Jim next door and Joe down the road and Bob at the dealership — and all of a sudden your credibility is now decreased,” said Jake Cleys, a Stearns County SWCD conservation planner who previously worked in Brown and Crow Wing counties.

“My (biggest) takeaway was just how serious compaction can actually be, and how easy it is to have that compaction

“ Probably the big take-home message is the soil is the foundation for everything related to agriculture or just life in general. Without good soil, we probably would have never developed a civilization. ”

— Jace Stallman,
NRCS area rangeland management specialist

Soil Health Principles, Course Details

SOIL HEALTH PRINCIPLES:

Research has shown that [soil health function](#) is improved by maximizing the presence of living roots, minimizing disturbance, maximizing soil cover and maximizing biodiversity.

COURSE DETAILS: It covered soil health and sustainability principles; soil health evaluation; soil quality indicators and how they relate to

management; communicating soil health concerns; and applying soil health and sustainability principles and conservation technology to supply safe, healthy and abundant food and sustain ecosystem functions on ag lands. The [TTCP](#) suite of soil health related trainings in 2023 included Basic Cover Crop training in March, and its follow-up, ongoing Cover Crop Small Group Cohort.

occur, and how long it stays around,” Cleys said, describing the evidence left from previous years’ tillage passes in the conventionally managed field.



Cleys

Jace Stallman, a Baxter-based NRCS area rangeland management specialist whose territory includes 27 counties in northeastern Minnesota,

said he was most likely to apply what he learned to grazing plans. Stallman, who started his career with the Bureau of Land Management in Idaho, also planned to put audience engagement tactics into practice during outreach events.

“They really took the time to break down each of the methods, made sure everyone had it, allowed plenty of time for questions,” Stallman said. “Getting the time to practice those things in a controlled environment

so we make sure we have a good foundation for when we go out and do it on our own — it’s invaluable.”

He found the soil moisture readings comparing side-by-side strip-tilled and conventionally tilled fields the most impressive — especially during this year’s drought.

A foundational course for soil health, the June training was required for those who go on to seek conservation planning certification.

“There’s not many jobs in the world where you get to directly impact the natural resources where you live. But we do, as conservationists, get to work with neighbors and the farmers around us, and help them to improve their natural resources,” McLain said.

“We hope people leave that training feeling lifted up and motivated to continue on with their soil health journey. Our role working directly with farmers is to support them on their journey as they move into soil health systems in their soil health journey. But it’s also for us as employees to figure out where we are on our soil health journey. Lots of times this training might be the beginning,” she said.