

Minnesota NewsWatch

Monitoring at the pump

On the Nordick farm, a 160-acre pattern-tiled field with a spacing of 80 feet and a depth of 3 feet was selected for monitoring in the fall of 2012. Water that is drained from this field flows to a sump pump located in the southwest corner of the field. All water is then pumped into an adjacent road ditch. The monitored field is almost level, creating very little surface runoff. Because of the flat topography, only water that flows through the sump pump is sampled.

Sampling frequency depends on flow volume. Samples are analyzed for total suspended solids, total phosphorus, phosphate phosphorus, total Kjeldahl nitrogen, ammonia, nitrate nitrogen and chloride. By combining a measure of water flow, and sediment and nutrient concentrations, Discovery Farms scientists will be able to calculate total nutrient and sediment movement.

Other instruments on the site continuously record precipitation, temperature and other climate variables. Monitoring will continue for the duration of the five- to seven-year project.

Improving, protecting the soil

The Nordicks continue to be on the lookout for ways to improve soil organic matter, reduce nutrient runoff and protect against wind erosion — a challenge for those farming in the Red River Valley, which formed from Glacial Lake Agassiz. Glacial activity in the region left behind poorly drained, silty and clay soils. Wilkin County is located in the flattest, and historically the driest, region of Minnesota.

That said, the Nordicks' home farm is located at the bottom of a lake bed, and the water flows west and north from there.

"It looks flat, but there is a 14-foot fall in a mile here," Jared says. "Water moves."

Soil compaction has been a concern over the years. They've worked at improving organic matter in fields, using a Sunflower disk ripper for better residue management for corn-on-corn and corn-on-soybean ground. Since ripping, organic matter has improved from 0.4 to 4.4 organic matter on four-year corn-on-corn ground. Plus, the Nordicks use tracks on all machinery —

Pilot area for Buffalo-Red River Watershed District



combines and grain carts, too.

They have invested thousands of dollars of their own money into water-control structures and buffer strips. They shaped and bermed a 1-mile waterway that cuts through the farm, and have yet to finish a 16-foot-wide buffer along one ditch. The latter will be seeded yet this season, with some cost-share money from the Natural Resources Conservation Service. With all the rain this spring, some sites are showing minor erosion, and they plan to seed those, too.

Assessing for certification

Don Bajumpaa, Wilkin Soil and Water Conservation District manager, performed the assessment on the Nordick farm. He estimates he spent about four days on it, which includes office and field verification. He evaluated 10 fields and ran 19 separate assessments. Each assessment evaluated soils, nutrient management, tillage management, pest management, tile and/or irrigation system management and existing conservation practices.

Bajumpaa relied on farm records provided by Jared and Gerald and their crop consultant to support assessment ratings. Records used included soil tests; fertilizer application rates, timing and placement methods; pesticides use (rates applied,



NO MORE COMPACTION: Improving organic matter and reducing compaction are important goals on the Nordick farm. Leaving crop residue on the ground helps. The Sunflower disk ripper does this.

setbacks used, economic triggers, thresh-olds implemented); tillage practices (implements used); and a drainage water-management operation plan.

"Jared and Gerald have worked hard over the years to improve their farm operation," he says. "The improvements they've made include both cultural and structural best management practices. Many of these practices have been completed on their own, without state or federal cost-share assistance. They are very deserving individuals who are doing everything they can to make their farm a better place. I am most ex-

cited for them and their accomplishment."

Soil and water officials in other pilot areas also are working on assessments with farmers. Those areas are:

- the Whitewater watershed, consisting of 205,000 acres of primarily agricultural lands in the Driftless region, covering parts of Olmsted, Wabasha and Winona counties
- the Middle Sauk River watershed, covering 175,640 acres in Stearns County
- the Elm Creek watershed, covering 73,000 acres in Jackson, Martin and Faribault counties



TRADING WET SPOTS: To allow for cropping a small wet section in a field, the Nordicks were required to build a small wetland.

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