ENTER CITY — With assistance from the USDA’s Natural Resources Conservation Service, Chisago County farmer Max Gustafson is helping to improve water quality from here to the Gulf of Mexico.

Mississippi River Basin Initiative funds targeting the Green Lake watershed gave Gustafson more incentive to commit 8 acres of highly erodible land to hay. In subsequent work with NRCS, he expanded no-till to nearly 300 acres and fenced cattle out of a wetland.

Those measures help to keep algae-feeding, oxygen-depleting nutrients such as phosphorus from reaching the Gulf via the St. Croix and Mississippi rivers.

“The Chisago Lakes area is known for its lakes, so I’m sensitive to the fact that we’re part of that community and our farmland is right up against the lakes themselves,” Gustafson said.

An NRCS initiative, the MRBI centers on practices that improve water quality, restore wetlands, enhance wildlife habitat and sustain agricultural profitability in the Mississippi River basin. Dedicated funds come from the Farm Bill’s Environmental Quality Incentives Program (EQIP). The Chisago Soil & Water Conservation District
completed the assessments needed to prioritize the work.

Deb Hermel, the NRCS district conservationist team lead for Chisago, Isanti, Pine, Kanabec and Mille Lacs counties, worked with Gustafson on the hay conversion in 2016. The $156-an-acre payment helped to offset costs.

Twelve landowners received a total of $125,675 in assistance through the Green Lake MRBI for 13 projects estimated to keep more than 178 tons of sediment and 218 pounds of phosphorus out of the St. Croix River. One pound of phosphorus can produce up to 500 pounds of algae. A second MRBI focuses on Chisago County’s Goose Creek watershed.

“Conservation practices specifically through this initiative are all geared to improve water quality. If it’s reducing nitrogen and phosphorus that eventually get to our surface water, reducing sediment — all those things work toward improving the health of the Mississippi River,” Hermel said.

She and Gustafson identified other resource concerns and conservation goals during a walk-through of his land shortly after he started farming full time.

Gustafson, 58, returned to the century farm where he grew up in 2004 after a career in the supply chain field. At first, he helped his father part time. Eventually, he bought a second farm, and now raises 450 acres of corn, soybeans and hay alongside a 30-cow-calf-pair beef operation.

A wet spring in 2019 prompted Gustafson to try no-till as a last resort.

“It was either plant no-till or don’t plant at all, and I was happy with the results,” Gustafson said.

The following year, he expanded the practice from 40 to 200 acres. In 2021, with $13.80 an acre in EQIP assistance, he enrolled 278 acres in a three-year contract. Cost-share was available through the Chisago SWCD to erect the 1,350-foot-long cattle exclusion fence in 2017. Hermel completed the planning, certification and inspection work through NRCS’ Conservation Technical Assistance program.

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— Deb Hermel, NRCS district conservationist team lead
that category. It’s quite an investment — building a new fence. ... It’s not necessarily required, but it’s the right thing to do. It sure helps to justify it when you get a little financial help."

Clean Water Funds from the SWCD and a Chisago Lakes Lake Improvement District grant covered about 70% of that $4,560 cost.

When it came to expanding no-till, Gustafson was already convinced by his 2019 experience.

“It gets more and more challenging every year from a weather standpoint to get the crop in, and they always emphasize the importance of early planting. I thought about the amount of time that’s required for the multiple tillage passes — and the fact that sometimes that can delay you if you work the ground, and then you end up getting a rain ... that can slow you up,” Gustafson said. “I believe that the water infiltration is significantly better with the no-till.”

As his agronomist had predicted, no-till helped to minimize weed pressure because the seeds on top of the soil aren’t being incorporated.

His 2019 corn and soybean yields were comparable to neighbors’ — lower than average, but attributed to the wet growing season. Gustafson said “operator error” contributed to 2020’s slight yield drag, which was still comparable to neighbors’ — soybeans averaged 50 bushels an acre, corn averaged 199 bushels an acre.

“No-till does a lot better than conventional tillage in years like (2021’s drought) because that soil is covered and you’re conserving that moisture within the soil profile. So the plants have a little bit more moisture than neighbors’ — soybeans averaged 61 bushels an acre, corn averaged 190 bushels an acre.

“My crops last year, even with the limited moisture, were fantastic. The corn was near my all-time best, and was certainly impacted by the low rainfall. The soybean yields were the best I have ever raised,” Gustafson said. “When I thought we were really getting dry, I dug a hole and was surprised to see the topsoil still had moisture.”

He attributed the yields to moisture preservation and to changes in his fertilizer program.

“He’s always willing to learn and try to understand and improve his soil,” Hermel said. “I think Max has done his research and he knew that this (no-till) was what he needed to do for soil quality and for his own farm and his own fields.”