



Mississippi River Basin Initiative

Dedicated MRBI funding supported a conversion to hay on highly erodible ground, but this Chisago County farmer’s additional work with NRCS to expand no-till and install fencing also benefits water quality from the St. Croix River to the Gulf of Mexico

CENTER 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



*NRCS District Conservationist Team Lead Deb Hermel and Chisago County farmer Max Gustafson walk a field July 12, 2021, **top**, and discuss the no-till soybeans growing in corn stubble, **above**. The farm lies within the Green Lake watershed. One of the Chisago Lakes Chain of Lakes, Green Lake flows to the Gulf of Mexico via the St. Croix and Mississippi rivers. **Photo Credits:** Ann Wessel, BWSR*

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



USDA is an equal opportunity provider, employer and lender. Natural Resources Conservation Service website: www.nrcs.usda.gov



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



Hermel points to one of the fields where Gustafson committed to no-till for three years. EQIP assistance offset some of the costs.

Green Lake, Goose Creek MRBI details

MISSISSIPPI RIVER BASIN INITIATIVE: Water quality concerns, mostly related to nutrient-loading, prompted NRCS to prioritize the Mississippi River. Launched in 2009, the 12-state MRBI taps several Farm Bill programs, including EQIP and the [Agricultural Conservation Easement Program](#), to help landowners sustain natural resources through voluntary conservation. NRCS helps landowners correct resource concerns via technical and financial assistance. NRCS' per-practice payment rate is based on local costs.

GREEN LAKE: The Green Lake watershed MRBI award was announced in 2015. Funds became available in 2016. A signup extension was granted in 2019. A total of \$125,675 in dedicated funding supported \$205,585 in projects, leveraging \$78,270 in targeted watershed Clean Water Funds the Chisago SWCD received in 2015, and a \$1,640 Chisago Lakes Lake LID grant. The resulting work involved 12 landowners with 13 projects affecting 829 acres in the watershed. One of those projects is still underway; pollution reduction estimates for the rest show the work will keep 218 pounds of phosphorus and more than 178 tons of sediment out of the St. Croix River annually. Projects included 8 acres of hay, 45 acres of grade stabilization, 88.8 acres of waterways, 124.8 acres of grazing land, 129 acres of diversions, and 433.4 acres of water and sediment control basins.

GOOSE CREEK: The Chisago SWCD in 2021 received a \$425,000 MRBI award, which brought dedicated funding to the Goose Creek watershed, which includes Goose Lake, Rush Lake and Rush Creek. It drains to the St. Croix River. Work to date in the Goose Creek watershed has involved 15 landowners and 16 projects covering just over 507 acres and drawing from \$91,074 in EQIP assistance. Projects completed and in the works include 20.7 acres of pollinator habitat plantings, 267.3 acres of water and sediment control basins, 95.4 acres of hay and 83.8 acres of cover crops. Applications will be accepted until a cutoff date is announced.

“

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.

”

— Deb Hermel,
NRCS district
conservationist team lead

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.

"It can help be that final little push," Gustafson said of the incentives. "The fencing for sure I'll put into



From left: Hermel, Gustafson and NRCS videographer Dan Balluff prepare to film a scene in Gustafson's no-till soybean field July 12, 2021. Drought conditions in 2021 affected crops throughout Minnesota. Gustafson later said the residue helped to conserve moisture. "My crops last year, even with the limited moisture, were fantastic," Gustafson said. His soybean yields averaged 61 bushels an acre.

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

No-till advice, planter modifications

NO-TILL ADVICE: Because planter setup is critical, Gustafson suggests finding an experienced mentor. He worked with someone at a co-op who had 20 years of experience and who hosted a field day.

EQUIPMENT MODIFICATIONS: Working with his John Deere 1750 six-row planter, Gustafson adjusted the row cleaners to move the previous year's

stubble out of the way. He switched to a single-disk fertilizer opener and heavy duty down-pressure springs to penetrate untilled soil better, and added seed firmers to ensure good seed-to-soil contact. In 2022, he mounted "stalk stompers" to the planter to flatten the corn stalks and prevent them from damaging the implement's tires.

“ When I thought we were really getting dry, I dug a hole and was surprised to see the topsoil still had moisture. ”

— Max Gustafson, Chisago County farmer, on how no-till fields fared in 2021's drought

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

VIDEO: [Farmer Max Gustafson and NRCS' Deb Hermel discuss his expanded no-till practice.](#)

a field that's completely tilled," Hermel said.

In 2021, Gustafson's soybean crop 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."