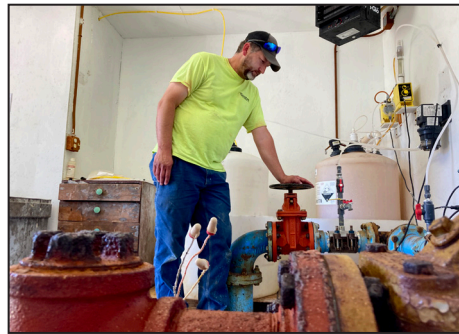


Soil health incentives strengthen Goodhue nitrate reduction effort



YOUR Clean Water Fund AT WORK

BWSR awarded the Goodhue SWCD a \$389,500 competitive Clean Water Fund grant in 2023 to incentivize soil health practices. The grant-supported work aims to reduce nitrate levels in the city of Goodhue's drinking water supply.

GOODHUE — By adopting soil health practices, landowners within Goodhue's 2,000-acre Drinking Water Supply Management Area (DWSMA) are helping to protect the city's drinking water, which has seen nitrate levels trending upward since the mid-1990s.

The Minnesota Department of Health links nitrates to [blue baby syndrome](#).

Goodhue draws its drinking water from a 430-foot-deep municipal well, which is tested quarterly. Nitrate levels are averaging about 7 parts per million (ppm), well within the U.S. Environmental Protection Agency's 10 ppm standard. But prevention is far less costly than treatment, which can run into the millions. So city officials asked Goodhue Soil & Water Conservation District (SWCD) staff to pursue state funds to address the source of the issue.

The Minnesota Board of Water and Soil Resources (BWSR) awarded the SWCD a \$389,500 Clean Water Fund competitive soil health grant in 2023 to promote and implement practices on agricultural lands that help to reduce nitrogen leaching. The SWCD has achieved 97% of its goal to implement soil health practices on 1,600 acres of the DWSMA.



“(The number of sign-ups) doesn't mean that good things aren't happening already.

There are landowners around town that are (implementing) soil health practices without our help. That's what we want to see in the long run.”

— Beau Kennedy, Goodhue SWCD manager

“It's a close, tight-knit community. (Most of) the farmers are in it for the greater good of the community and making sure that it thrives into the future, and we have a lot of support here in town on making sure the people of Goodhue do have clean water,” said Goodhue Public Works Director Jason Mandelkow.

Sixteen landowners had enrolled 1,557 acres by January 2025.

Through the Clean Water Fund grant, the SWCD offered incentive payments to landowners who signed up for three years. Per-acre payments are based

From left: At 7 parts per million, the nitrate levels in the city of Goodhue's municipal water supply meet the safe drinking water standard. But they're trending upward.

Jason Mandelkow, city of Goodhue public works director, sends samples from the municipal well to the Minnesota Department of Health for testing. He stopped at the well on June 10, 2024.

A fall-planted, spring-terminated rye cover crop kept roots in the soil of this corn field within the city of Goodhue's Drinking Water Supply Management Area year-round. Growing root systems take up nitrates that could leach into the groundwater.

Photo Credits: Ann Wessel, BWSR

on the practice — \$50 for planting cover crops or perennial crops, \$20 for no-till or strip-tilling. The grant also supported secondary per-acre incentives available to those who enrolled — \$20 for low-disturbance manure application, \$10 for planting green (planting into a living cover crop), \$6 for split-rate nitrogen application, and \$4 for nitrogen inhibitors.

“Goodhue is in the karst area, so we have a leaky groundwater system,” said Goodhue SWCD Manager Beau Kennedy. “Anything we can do on the surface to slow that nitrate leaching down is what our target is.”

Cover crops were the most popular incentive, partly because landowners could try the practice without buying or renting a lot of extra equipment. Fourteen landowners signed up 1,390 acres of cover crops. The DWSMA encompasses livestock operations, which made low-disturbance manure application the most popular secondary incentive, with nine landowners enrolling 733 acres.

Bruce Albers runs the farrow-to-finish hog operation Town’s Edge Pork with his wife and son. They raise corn and soybeans on 380 acres — including the 135-acre home farm, which lies within the Goodhue DWSMA. Albers enrolled all 135 acres in cover crops — something he said he would continue after the 3-year contract expired if it was working well.

He planted both oats and rye cover crops at first,



Bruce Albers, above and left, walked through a corn field within the Goodhue DWSMA where a fall-planted, spring-terminated rye cover crop kept roots in the soil year-round. “The root mass on the rye is just incredible. That’s the thing we were really intrigued with. Even when you kill that rye that root mass just really held that soil in place,” Albers said. “If it gets ahead of you, it can harm your crop, so you do have to be on top of it. But so far we’re very, very happy with it.”

and then switched to a 100% rye cover crop last fall — something he said he planned to do again this year.

“Rye can take a hard frost, and it’ll come back in the spring. We’ve got green on the ground until we plant in the spring,” Albers said.

He had planted rye cover crops a few years earlier on hillier fields, and liked the way it controlled erosion.

“The root mass on the rye is just incredible. That’s the thing we were really intrigued with. Even when you kill that rye, that root mass just really held that

soil in place,” Albers said. Terminating the crop before it takes over in the spring is important, he added, “So you do have to be on top of it, but so far we’re very, very happy with it.”

Albers already was implementing soil health practices elsewhere on his farm. He’d been no-tilling soybeans into corn stubble for about 15 years. He minimally tilled corn fields. And he applied manure by injecting it into the soil, which kept erosion to a minimum.

“As a farmer with a son coming into it, you like to keep that soil in good shape

for the next generation and the next generation on,” Albers said.

Minnesota Department of Health data show that it takes 10 years for surface water to reach Goodhue’s municipal well. But Kennedy said he was optimistic that the best management practices landowners are using for nutrient management in the DWSMA could produce nitrate reductions sooner than 10 years.

BWSR staff members write and produce Snapshots, a monthly newsletter highlighting the work of the agency and its partners.