

## REGIONAL CONSERVATION PARTNERSHIP PROJECT



*"This is as big as we want to be," Stacy Miller said of his 85-cow dairy operation. "I don't want to have to manage hired help." A manure storage lagoon installed last season with assistance from the Lower Mississippi River Feedlot Management in Minnesota Regional Conservation Partnership Project saves time and benefits water quality.*

**Photo Credit:**  
Ann Wessel,  
BWSR

# Mississippi River, trout streams benefit from feedlot upgrades



Groundwater benefits, too, from the BWSR- and NRCS-backed, 11-county project. In Wabasha County, a new lagoon saves time, allows one producer to better position his family farm for the future.

PLAINVIEW — With alfalfa in the crop rotation and pastureland in the mix, Stacy Miller's 350-acre dairy farm already played a role in filtering runoff flowing toward the Mississippi River. With a new lagoon and nutrient management plan, the 85-cow operation now does even more to protect groundwater and trout streams.

The 700,000-gallon, \$440,000 manure storage facility is the second one constructed with assistance from the Lower Mississippi River Feedlot



Miller



Peters

Management in Minnesota Regional Conservation Partnership Project.

Funded jointly by the Minnesota Board of Water and Soil Resources and the USDA's Natural Resources Conservation Service, the \$3.2 million, five-year RCPP feedlot management project provides a 90 percent cost-share to producers who build facilities that mitigate feedlot runoff. The project targets livestock operations with fewer than 300 or fewer than 500 animal units — the

limit depends upon the state funding source — in 11 southeastern Minnesota counties.

“The whole purpose is trying to protect the surface water and groundwater in the karst landscape,” said Dave Copeland, the BWSR board conservationist assigned to the project.

“It’s a landscape that really needs livestock. It needs farmers out there who are going to have a diverse crop rotation, including that perennial hay rotation and including well-managed pastures. Along with that opportunity comes a need to manage the manure,” Copeland said.

Regional water quality data and modeling previously identified livestock operations as major contributors of nutrients, bacteria and sediment to Mississippi River tributaries. The biggest resource concern on Miller’s farm: With no storage, it was necessary to spread manure every day. Spreading on frozen ground increases the chances of runoff.

“Now instead of having to spread every day, a person can spread when the conditions are a little more favorable,” Miller said.

The lagoon will provide about 12 months’ storage.

“Having the storage allows him to time his (manure) application well so that the nutrients are used by his crops rather than running off into the streams,” said Terri Peters, Wabasha Soil & Water Conservation District manager.

Wabasha SWCD staff first worked with Miller in the early 1980s when he installed ponds, waterways



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and contour strips. He’d switched from a stanchion barn to a parlor barn in the 1990s when his children were young. For the past few years, he’d considered a feedlot upgrade.



*An earthen berm surrounds the concrete lagoon. An emergency spillway opens to a meadow. Manure from the dairy barn and heifer lot, above, is scraped into the lagoon.*

**Photo Credits:**  
Ann Wessel, BWSR

## Details and definitions

**ANIMAL UNITS:** Measure how much manure is produced. One dairy cow equals 1.4 animal units. One calf equals 0.20 animal units.

**ELIGIBLE COUNTIES:** Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Rice, Steele, Wabasha, Winona

**KARST GEOLOGY & NITRATES:** Because fractures in the limestone

make it easy for anything that flows across the surface to enter the groundwater, nitrates are a concern in Wabasha County. In 13 of the 14 Wabasha County townships where private well testing was offered in 2017, about 3,230 households received test kits. Nearly 1,090 wells were tested. Nitrate levels in 16 percent of those tested failed to meet the state health standard.

“I had wished I had something other than scrape-and-haul for a long time, but the expense of it didn’t work into my plan very well,” Miller said. “I couldn’t see spending that much on a manure storage facility because it was more than twice the price of the farm when I paid for the farm. When they had the 90 percent cost-share, it became really attractive.”

The Millers’ farm is at the top of the watershed that drains into East Indian Creek, a trout stream that flows east to the Mississippi River.

“It’s helping address a national issue,” Copeland said of the 11-county project.

The project plays a small role in states’ nutrient-reduction plans to combat hypoxia in the Gulf of Mexico. The low-oxygen “dead zone” can be caused by excess nutrients including phosphorous and nitrogen.

“But closer to home, in this part of the state we have a nitrates-in-our-groundwater issue. So it helps address that as well. It’s addressing phosphorous in our surface waters (through) improved manure management that comes along with installing these systems,” Copeland said. “With those also comes improved oxygen levels in cold-water trout streams.”

Wabasha County alone contains 117 miles of designated trout streams — 18 streams entirely within its borders, plus segments of two more.

“I think our biggest resource challenge is our varying topography and the smaller fields,” Peters said. “There’s a lot of woods and streams and other natural barriers that are interspersed with the farm fields. The hills are pretty



Stacy and Julie Miller’s three children, from left, Melendy, 21, and twins Marcus and Mika, 19, are prospects for taking over the family dairy farm just outside Plainview in Wabasha County.



East Indian Creek is a designated trout stream that flows into the Mississippi River. Improvements on the Miller farm will benefit the creek.

**Photo Credit:** Terri Peters, Wabasha SWCD

steep and rolling in most areas.”

With fields in three separate sites, Stacy had been hauling manure 3 miles on a busy state highway.

“Anybody who does that knows that is no fun at all because there’s always traffic

to deal with and it creates all kinds of issues,” Miller said.

The new lagoon not only ended daily hauling but also cut time spent on chores by about two hours a day. Miller’s nutrient management plan calls for fall field application via injection.

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“If somebody takes over the dairy farm, they’re going to have things a lot nicer than I did,” Miller said.

Prospects include Stacy and Julie’s three children.

Melendy, 21, a dairy science major at the University of Wisconsin-River Falls, will spend next semester living and working on the farm before she graduates in December. “The only way to figure out if this is what you want is to do it 100 percent,” she said.

Mika, 19, also is studying dairy science at UWRF. Her twin, Marcus, worked on the farm until recently, when he got a job with a Rochester landscaper.

Miller, 59, grew up on a dairy farm 4 miles down the road, and went to school for carpentry before returning to work with his father and two brothers. He bought this place in 1982, and started milking cows in 1983.

“A lot of my hours in the day were spent hauling manure. I just wish I would have had (the lagoon) when I was 25 or 30. I just spent a lot of my time hauling manure.”

Construction started in May



Stacy Miller and his daughter Melendy talked to Wabasha Soil & Water Conservation District Manager Terri Peters about the manure storage lagoon installed in 2018 with assistance from the Lower Mississippi River Feedlot Management in Minnesota Regional Conservation Partnership Project. The project is funded jointly by the Minnesota Board of Water and Soil Resources and USDA's Natural Resources Conservation Service. Landowners provide a match..  
**Photo Credit:**  
 Ann Wessel, BWSR

2018 and ran through mid-November. Three heavy rains delayed work and added to the expense. The concrete pit is surrounded by an earthen berm. An emergency spillway opens onto a 30,000-square-foot meadow. Fencing a cattle lane from the barn to pasture was planned for this spring.

Follow-up includes continued manure and soil testing.

The five-year Lower Mississippi River Feedlot Management in Minnesota RCPP runs through 2020. BWSR's \$1.6 million contribution includes a \$300,000 Clean Water Fund grant. NRCS is providing Environmental Quality Incentives Program (EQIP) implementation funds.

The 11-county Southeast Minnesota Technical Support

Joint Powers Board receives the BWSR funding, and then distributes it to SWCDs, which work directly with producers. Landowners receive EQIP assistance directly through their local NRCS office. Projects within the 11-county area require a 10 percent landowner contribution.

Copeland said remaining project funds could build four or five more manure storage facilities. For the size of operations being targeted, the average cost is \$400,000. More than a dozen applications are in the works. Besides the two lagoons, funding to date has allowed about 10 producers to develop comprehensive nutrient management plans.

Producers still can apply for funding through the Lower Mississippi River Feedlot

Management in Minnesota RCPP. NRCS has not announced the sign-up deadline for 2020. The RCPP provides a higher level of financial assistance. But other sources are available, and the Wabasha SWCD accepts continuous sign-ups for manure management practices.

"A healthy livestock economy is important to protecting the resources here in southeast Minnesota," Copeland said. "Whatever can be done to keep a healthy livestock economy and keep those livestock producers on their farms, it's important for us to do that — to try to provide what they need, because if we can keep hay in rotation in the landscape, we're going to go a long way to try to address the (water quality issues in southeastern Minnesota)."



*The Minnesota Board of Water and Soil Resources' mission is to improve and protect Minnesota's water and soil resources by working in partnership with local organizations and private landowners. Website: [www.bwsr.state.mn.us](http://www.bwsr.state.mn.us).*



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