

NRCS, host of partners back \$17M for irrigation upgrades



Minnesota NRCS
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Fund AT WORK

From left: Ron Sakry, left, farms near Deer Creek with his son Kenny. The Sakrys are among those who installed precision irrigation upgrades via NRCS' Regional Conservation Partnership Program.

Minnesota Department of Agriculture research scientist Jeppe Kjaersgaard manages the RCPP award.

Daryl Zeise of Otter Tail County wanted to increase yields on the 75-acre field where he updated his irrigation system with RCPP support.

Photo Credits: Ann Wessel, BWSR

With technical support and options such as variable-rate irrigation and moisture sensors, central Minnesota producers fine-tuned systems to increase productivity and protect groundwater. NRCS' second Regional Conservation Partnership Program award extends eligibility from 20 to 25 counties.

Shortly after Ron Sakry installed a variable-rate fertigation system on the irrigator that sweeps across a 160-acre field, the neighbors called. Something was wrong. The sprinklers shut off when the irrigator reached the sloughs.

Turns out they were working as intended.

As the irrigator crosses the field, water and fertilizer delivery rates adjust — by zone or by individual sprinkler head — based on four mapped soil types and three seasonal precipitation scenarios programmed into the system. Dry hilltops receive the full rate; potholes receive nothing.

"Our biggest concern was that we didn't want to be putting all this extra nitrogen out over the open-water areas that we have. We have approximately 15 acres of low ground that (the irrigator crosses)," Sakry said. "Before, we were putting nitrogen through the irrigator — plus the water — so we were just wasting both the water and nitrogen on that portion."

Sakry, who farms in Otter Tail County, was one of 45 producers who installed precision irrigation upgrades with



“If we can conserve and improve our practices today in order for the next generation to take over the farm, that’s our end goal.”

— Jake Wildman, Irrigators Association of Minnesota president

Regional Conservation Partnership Program (RCPP) support from the USDA's Natural Resources Conservation Service (NRCS). The five-year RCPP was so popular that funds were committed within the first year.

NRCS awarded the \$3.5 million RCPP to the Minnesota Department of Agriculture (MDA) in 2022. Partners' \$5.4 million match made \$8.9 million available for upgrades, technical assistance and staff training.

Now, NRCS and its partners are making an additional \$17.3 million available for producers to install precision irrigation upgrades that will benefit both the

FUNDING & PARTNERS: A total of \$17.3 million is available. NRCS' \$11,160,000 RCPP award is funded by the Farm Bill. Partners' \$6,110,450 matching-fund and in-kind contributions include nearly \$1.9 million from 26 SWCDs, \$1.5 million from the Minnesota Department of Agriculture, nearly \$1.4 million from Central Lakes College, \$578,000 from irrigator organizations and industry (among them, the Irrigators Association of Minnesota, the Minnesota Area II Potato Growers Research and Promotion Council, and the Minnesota Corn Research & Promotion Council), \$500,000 in Clean Water Funds from BWSR, nearly \$199,000 from the University of Minnesota, \$75,000 from the Mille Lacs Band of Ojibwe and \$25,000 from the Minnesota Department of Health.

environment and their bottom line.

“It’s really to protect the groundwater from nitrate (pollution) and help our irrigators be more efficient,” said MDA research scientist Jeppe Kjaersgaard, who manages that \$11.2 million RCPP award.

The \$6.1 million match comes from partners — including 26 soil and water conservation districts, the Mille Lacs Band of Ojibwe, Central Lakes College, the Minnesota Board of Water and Soil Resources (BWSR), industry organizations and businesses.

The agreement between NRCS and MDA was finalized in mid-September. Information about sign-ups is expected to be released within a few months.

The new RCPP runs through Dec. 31, 2029. It expands eligibility from 20 to 25 central Minnesota counties.

“We know that some of the areas in Minnesota where the groundwater is more vulnerable to nitrate contamination from crop production (are) where we have sandy soils or caustic soils. Many of those (areas) are in the central part of Minnesota, and that is where we also have most of the irrigation,” Kjaersgaard said.

About 675,000 acres of cropland is irrigated in Minnesota, according to 2023 USDA census data.

“There is an unmet need out there of producers that want to adopt these new technologies because they know it’s going to be good for their bottom line — and also good for the environment. They want to make a profit, but they



Initial RCPP award details, upgrades

The initial \$8.9 million — the \$3.5 million RCPP and \$5.4 million in matching funds — provided 45 producers with financial and technical support. That RCPP, which launched in 2022 and runs through Oct. 15, 2027, supported contracts for 39 irrigation water management plans, 26 variable-rate irrigation systems, 33 soil moisture sensor systems, 47 practices related to pump upgrades or pumping plant automation, 12

sprinkler upgrade systems, five fertigation retrofits and one irrigation pipeline installation. It also supported eight cover crop agreements (for 13 cumulative years), five residue and tillage management plans (nine cumulative years) — and three irrigation workshops that trained more than 100 SWCD and NRCS technical staff in irrigation technology, practice certification and irrigation water management.



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— Darren Newville, manager, East Otter Tail and Wadena SWCDs

also want to be stewards and make sure (it does not have a) negative impact on the environment, if at all possible,” said Darren Newville, who manages the East Otter Tail and Wadena soil and water conservation districts (SWCD).

Perham-based NRCS District Conservationist Troy Baumgart said irrigation efficiencies address resource concerns such as plant productivity and health, and water and energy conservation.

The sensors and monitors are meant to feed the

plants the right amount of water and fertilizer at the right time. When the holding capacity of the soil and root systems is exceeded, those nutrients flow into the aquifers.

But upgrades are expensive. The first RCPP included projects ranging from \$100,000 variable-rate systems to \$6,000 for soil moisture sensors. Landowners’ share was about 25%.

“We know the technology is good, we know it works. But it’s expensive to get into, so if we can have

a little help and a little support with the funding, it makes our decision a lot easier,” said Jake Wildman of Glenwood.

Wildman is president of the 550-member Irrigators Association of Minnesota, whose mission includes supporting science-based irrigation management research. The association is among the RCPP partners.

“We’re delivering water more accurately and more efficiently,” Wildman said. “When we can agronomically, environmentally and economically improve — those three things right there are exactly what will benefit the producer.”

The RCPPs reflect what producers said they wanted and needed during a series of meetings organized by the Freshwater Society and supported by a \$58,000 Clean Water Fund accelerated implementation grant BWSR awarded to the East Otter Tail SWCD.

Daryl Zeise of Otter Tail County wanted to increase yields on the 75-acre field where he updated his irrigation system with RCPP support.

“That variable-rate irrigation, it’s unbelievable. I had some low spots that probably didn’t yield 20% (compared with the rest of the field). It’s not 100%, but it’s pretty close now,” Zeise said this summer. “The low spots in the field, they just didn’t produce. And now when we can just skip (applying) the water on them, they’re drying up.”

Zeise still drives out to check the field, where a renter is growing corn this

year. Twice a day, he checks the irrigation company app for rainfall totals, the rate of water depletion and sunlight intensity. The agronomist who set up the system ensures the monitor accurately reflects the field readings.

“The first year I don’t think anybody believed anything, but as you learn how to use it, it is very good,” Zeise said of the moisture sensors. “We just kind of needed to trust that thing.”

Wildman said some producers are more comfortable with a system they can fix themselves. Precision irrigation elements such as variable-rate nozzles, which contain individual sensors that continuously communicate with the pivot as the irrigator crosses the field, can be a challenge to troubleshoot.

“It’s amazing how well it works ... and when it does work,” Wildman said. “There’s just a lot of things that we can’t see that’s going on. And one little wire or loose hardware misplaced somewhere could throw everything off, and it’s very hard to diagnose.”



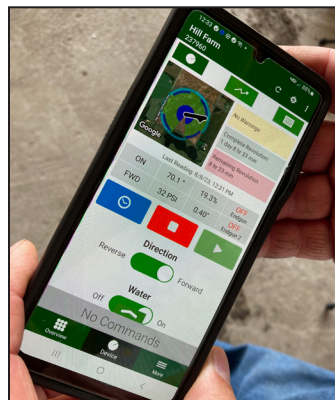
An irrigator ran during a demonstration, part of the Irrigation RCPP Technical Training Workshop that introduced new technology and different types of irrigation systems to NRCS and SWCD staff in July 2023 at Central Lakes College in Staples. The most recent training was in summer 2025.

“The ultimate goal with this project is to help irrigators with financial assistance, but also that technical assistance — having people that understand the technology to assist irrigators ... so they can be more efficient with their irrigation.”

— Jeppe Kjaersgaard, research scientist,
Minnesota Department of Agriculture

The RCPP not only made it possible for producers to work with their own agronomist or irrigation company representative but also offered three workshops that trained the NRCS and SWCD staff who will work directly with farmers.

“We’re really working towards the same goals.



Natural Resources Conservation Service

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It is true that we certainly want irrigators to continue to be profitable, to farm in an economically sustainable way, but also an environmentally sustainable way. I think that’s a goal everyone has, and I think this RCPP really helps bring everyone together,” Kjaersgaard said. “The partnerships and trust have been there for a long time, but this RCPP has helped move that forward, or maybe take it to a higher level.”

MDA is working with the University of Minnesota and Central Lakes College on field research and computer modeling to determine the economic and environmental outcomes, including what impact the practices have on reducing nitrate losses to groundwater.

Written by Ann Wessel, BWSR
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The Minnesota Board of Water and Soil Resources’ mission is to work with partners to improve and protect Minnesota’s land and water resources. www.bwsr.state.mn.us