IMPLEMENTING INNOVATIVE IRRIGATION PRACTICES
to Protect Groundwater Quality and Quantity

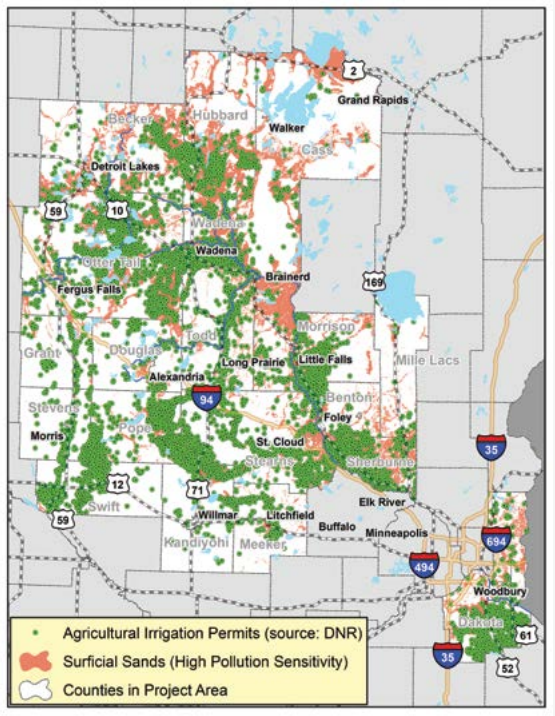
DEPARTMENT OF AGRICULTURE

The Minnesota Department of Agriculture (MDA) has partnered with over 30 organizations, including USDA-Natural Resource Conservation Services (NRCS), soil and water conservation districts (SWCDs), institutes of education, Mille Lacs Band of Ojibwe, state agencies, irrigator's associations, and businesses, to provide financial and technical support for precision irrigation to irrigators.

This 5-year project is designed to work directly with agricultural producers using irrigation in the project area to:

- apply conservation practices that protect groundwater quality and quantity,
- promote expanded precision irrigation practices,
- build technical expertise among NRCS and SWCD staff to guide farmers in applying conservation practices,
- promote and organize farmer to farmer learning opportunities,
- utilize partners' expertise to design innovative approaches to expand conservation efforts,
- and to quantify the environmental, economic, and social impacts of the implemented practices.

Project Area



BACKGROUND

Irrigation often occurs on well-drained coarse textured soils, making the underlying groundwater susceptible to nitrate contamination. Nitrate leaching through the soil has led to elevated nitrate levels in drinking water in some areas, impacting drinking water wells. Groundwater withdrawals for agricultural irrigation may also impact groundwater-surface water hydrology, such as reduced streamflow.

Optimizing irrigation water management helps reduce nitrate leaching losses to the groundwater and synchronize timing and amount of water to meet crop needs and reduce overapplication.

The Groundwater and Agriculture Report[1] that was done by the East Otter Tail SWCD and the Freshwater Society documents that agricultural producers are willing to adopt practices that address these issues if education and financial assistance are available.

[1] Available at **www.eotswcd.org/grant-reports**

Funding: USDA NRCS Regional Conservation Partnership Program (RCPP) award of $3.5 million, plus additional match by all project partners

Project Duration: 2022-2026 (tentative)

Eligibility: Irrigators located in the project area participate at a level that fits their needs and goals (see the Approach on page 2)

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agcentric.org/rcpp-precision-irrigation

APPROACH

Provide financial and technical support to irrigators willing to adopt and integrate proven precision irrigation and nitrogen management practices and technologies to help address groundwater quality and quantity issues in the primary irrigated areas of the state.

The project will focus on conservation irrigation practices utilizing a flexible, tiered approach where irrigators can participate at the level that is relevant for their operation and attitude towards technology adoption and risk:

- The first tier includes implementing the relatively inexpensive practice of installing advanced soil moisture sensors in irrigated fields to enhance water management through irrigation scheduling.
- The second tier includes installing precision irrigation packages, including updates to panel, nozzles and variable frequency drive pumps.
- The third tier includes an advanced irrigation package along with the newest technology for irrigation water and nutrient management. This will include recent, proven systems using remote operation technology, crop status sensors and variable rate fertigation systems.

PARTNERS

- Soil and Water Conservation Districts (20): Becker, Benton, Cass, Dakota, Douglas, East Otter Tail, Grant, Hubbard, Kandiyohi, Meeker, Morrison, Pope, Sherburne, Stearns, Stevens, Swift, Todd, Wadena, Washington and West Otter Tail.
- Central Lakes College Ag and Energy Center,
- AgCentric and Northern Center of Agricultural Excellence,
- Mille Lacs Band of Ojibwe,
- Irrigators Association of Minnesota,
- Central Minnesota Irrigators,
- Todd-Wadena Electric Coop,
- Reinke Manufacturing,
- RD Offutt Farms,
- RESPEC Consulting,
- University of Minnesota,
- Minnesota Board of Water and Soil Resources, and
- Minnesota Department of Health.

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