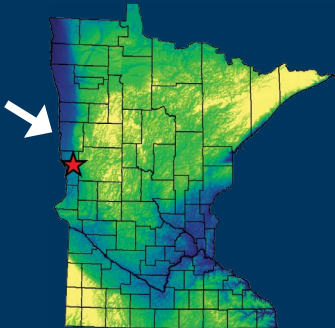


RED RIVER VALLEY

Drainage Water Management Project



Wilken County, Minnesota

Status

Installation: 2015-2016

Data collection: 2016 – 2022

Contact

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Project Information

www.mda.state.mn.us/redrivervalleydwm

Partners

Collaborative effort between multiple government agencies, agricultural businesses and organizations, and the University of Minnesota
List of partners on the reverse.

GOAL

Minimize the environmental impacts of subsurface drainage while maintaining or improving agricultural productivity.

OBJECTIVE

Demonstrate controlled drainage (CD) and saturated buffer as flood mitigation practices as well as their water quality and quantity benefits. The project is intended to set a compelling example to increase the acceptance and adoption of drainage water management practices in the Red River Valley.

DESIGN

The study has two field locations approximately 3 miles apart in the southern Red River Valley.

Field 1: 155 acres

Paired watershed approach comparing:

- No subsurface drainage
- Conventional drainage (no water control structure)
- Controlled drainage

Monitoring

- Surface runoff from 3 treatments
- Subsurface drainage flow from an area of the field with conventional drainage
- Subsurface drainage flow from 4 controlled drainage zones
- Soil moisture and soil temperature
- Nitrogen, phosphorus, and suspended solids in subsurface drainage water
- Nitrate-nitrogen in surface runoff



In accordance with the Americans with Disabilities Act, this information is available in alternative forms of communication upon request by calling 651-201-6000. TTY users can call the Minnesota Relay Service at 711. The MDA is an equal opportunity employer and provider.



Field 2: 65 acres

Field includes two treatments:

- Two zones of controlled drainage
- A saturated buffer for nitrate removal from drainage water

Monitoring

- Subsurface drainage flow from 2 controlled drainage zones
- Subsurface drainage flow through saturated buffer
- Depth to saturated soil within the root zone
- Nitrogen, phosphorus, and suspended solids in subsurface drainage water
- Nitrate-nitrogen in subsurface drainage and through the saturated buffer

Additional Monitoring

The following information is also collected at each field:

- Rainfall, air temperature, and air humidity
- Time and the type of management required to maintain controlled drainage
- Soil moisture levels (sensors), seasonal water table levels (piezometers)



LEGEND

- Saturated Buffer Sample Wells
- Piezometers
- 👉 Outlet

- ▬ 4" laterals (60 ft)
- ▬ 6" Main
- ▬ 8" Main
- ▬ Saturated Buffer Lines

- 👇 Agri Drain Control Structure
- 📦 Monitoring Control Box

Thank you to our project partners

Collaborating
Landowners

