

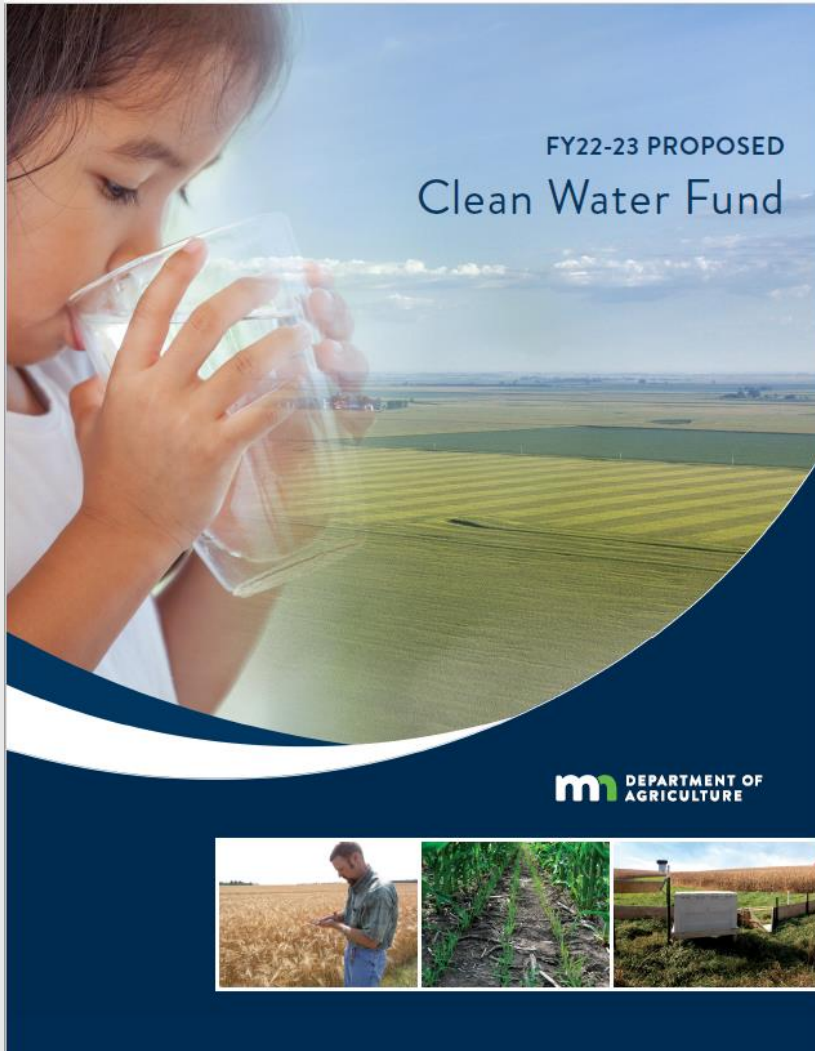


House Agriculture Finance Committee

February 10, 2021

Brad Redlin | Manager MAWQCP
Margaret Wagner | Manager Fertilizer Nonpoint Section
Dan Stoddard | Assistant Director

2022-2023 Clean Water Fund Budget Recommendations



| Clean Water Program/Activities | FY22-23 Proposed |
|--|---------------------|
| Minnesota Agricultural Water Quality Certification | \$6,000,000 |
| Forever Green Initiative | \$3,872,000 |
| Nitrate in Groundwater | \$5,006,000 |
| Technical Assistance | \$2,904,000 |
| Irrigation Water Quality Protection | \$270,000 |
| Monitoring for Pesticides | \$700,000 |
| Pesticide Testing in Private Wells | \$678,000 |
| AgBMP Loan Program | \$150,000 |
| Research Inventory Database | \$80,000 |
| Total | \$19,660,000 |



Minnesota Agricultural Water Quality Certification Program



FY22-23 Proposed Funding

\$6 Million



Minnesota Agricultural Water Quality Certification Program

Minnesota Agricultural Water Quality Certification Program (MAWQCP)

- **1,006** certified producers
- **713,169** certified acres
 - 2,048 new practices
 - 110,255 tons of soil saved per year
 - 38,446 tons of sediment reduced per year
 - 48,565 pounds of P prevented per year
 - As much as 49% reduction in nitrogen loss
- GHG accounting via MPCA estimates:
 - 39,455 CO₂-equivalent tons reduced per year



Minnesota Agricultural Water Quality Certification Program Legislative Report



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www.mda.state.mn.us

January 4, 2021

Page 1

Minnesota Agricultural Water Quality Certification Program

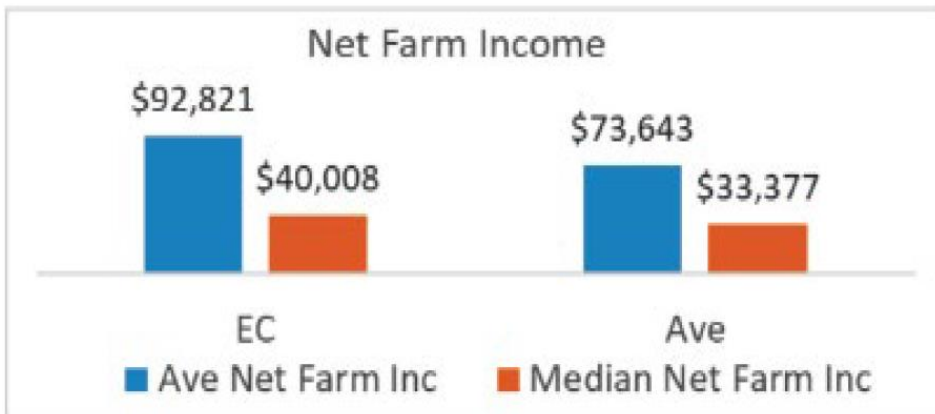
- Clean Water Fund: **FY23-24 \$6 Million**
- The **majority** of appropriation **passed-through** to local partners and growers
- Through FY20 has **leveraged more than \$13.3 million** additional funds
- Plus new **\$9 million**, 5-year USDA-NRCS award (RCPP)
 - Appropriation is match
 - Second consecutive award to MAWQCP

| Fiscal Year | Total Appropriations | Total Acres Certified | MAWQCP Cost Per Acre |
|-------------|----------------------|-----------------------|----------------------|
| FY2014 | \$1,500,000 | 2,770 | \$541.52 |
| FY2015 | \$3,000,000 | 26,400 | \$113.63 |
| FY2016 | \$5,500,000 | 109,667 | \$50.15 |
| FY2017 | \$8,000,000 | 250,400 | \$31.95 |
| FY2018 | \$10,500,000 | 374,488 | \$28.04 |
| FY2019 | \$13,000,000 | 512,416 | \$25.37 |
| FY2020 | \$16,000,000 | 631,662 | \$25.33 |

- **Cost per acre has gone down every year (total appropriations / total acres)**

Minnesota Agricultural Water Quality Certification Program

MAWQCP-certified farms are more profitable. Minnesota State Agricultural Centers of Excellence and AgCentric financial analysis of Farm Business Management Program participating farms: MAWQCP certified farms had **26% higher net income** than non-certified farms.



MAWQCP supplemental grant (max \$5000; 75% cost-share)

MAWQCP Financial Assistance Grant

| FY | Total \$\$ | # of Grants |
|-------|--------------|-------------|
| 2017 | 106,502.83 | 30 |
| 2018 | 214,763.23 | 52 |
| 2019 | 325,320.50 | 81 |
| 2020 | 311,547.33 | 83 |
| 2021* | 317,034.89 | 81 |
| | 1,275,168.78 | 327 |

• Top 5 activities funded:

| | |
|--------------------------------|------------|
| Cover Crop | 493,357.15 |
| Grassed Waterway | 84,046.37 |
| Water & Sediment Control Basin | 83,103.38 |
| Fence | 68,963.26 |
| Prescribed Grazing | 61,480.00 |

Endorsements

Capture co-benefits and categories of conservation excellence.

- **Climate Smart Farms Project**

CLIMATE
SMART



INTEGRATED
PEST
MANAGEMENT



WILDLIFE



SOIL
HEALTH



Minnesota Agricultural Water Quality Certification Program





Forever Green Initiative

FY22-23 Proposed Funding

\$3.872 Million



Forever Green Initiative

Developing perennial and cover cropping systems specific to Minnesota that are necessary to protect and restore the state's surface and groundwater resources while increasing efficiency, profitability, and productivity of Minnesota farmers.

- The MDA administers Clean Water funding that directly supports the University of Minnesota Forever Green Initiative
 - ✓ Research
 - ✓ Implementation
 - ✓ Steering Committee and Ag Diversification Network



Forever Green



UNIVERSITY OF MINNESOTA
Driven to DiscoverSM

Forever Green Initiative - Research

- **37 research projects** supported through an RFP process administered by the University of Minnesota
 - **FGI crops:** Intermediate wheatgrass (Kernza), hazelnuts, pennycress, camelina, winter barley, perennial sunflower, perennial flax, spring and winter pea
- **Leverages millions of dollars** from non-CWF sources
 - **FY18-19:** \$1.5M from CWF and \$6 M from other state, foundation and company funding and awarded \$32 M in competitive federal grants



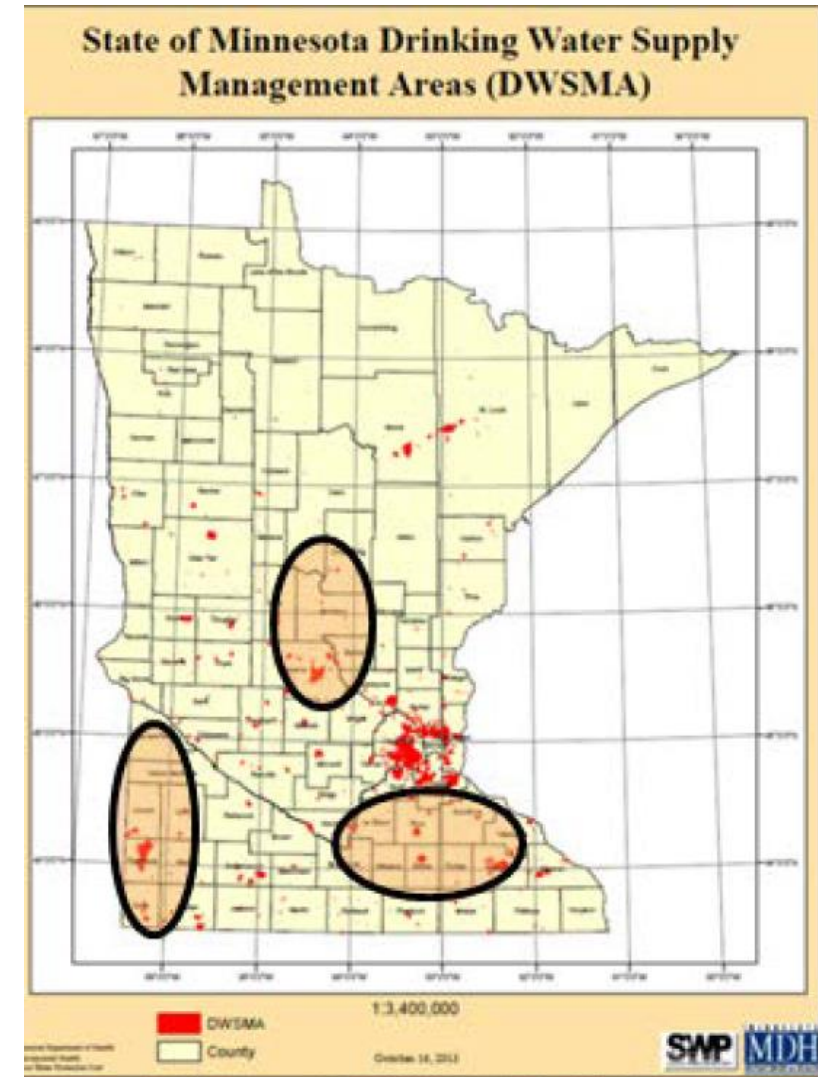
Forever Green Initiative - Implementation

FY20 is the first year of support for FGI implementation

- ✓ Increase the number of acres of Kernza grown in MN
- ✓ Pilot a model for commercializing Kernza

Outcomes:

- 3 targeted regions, or clusters, with supply chain partners
- 1,172 acres of Kernza planted in Minnesota by 33 new growers,
 - 378 acres (32%) was planted in a DWSMA
- 1,600 lbs of UMN Kernza was distributed to 25 business and partners for market development





Nitrate in Groundwater

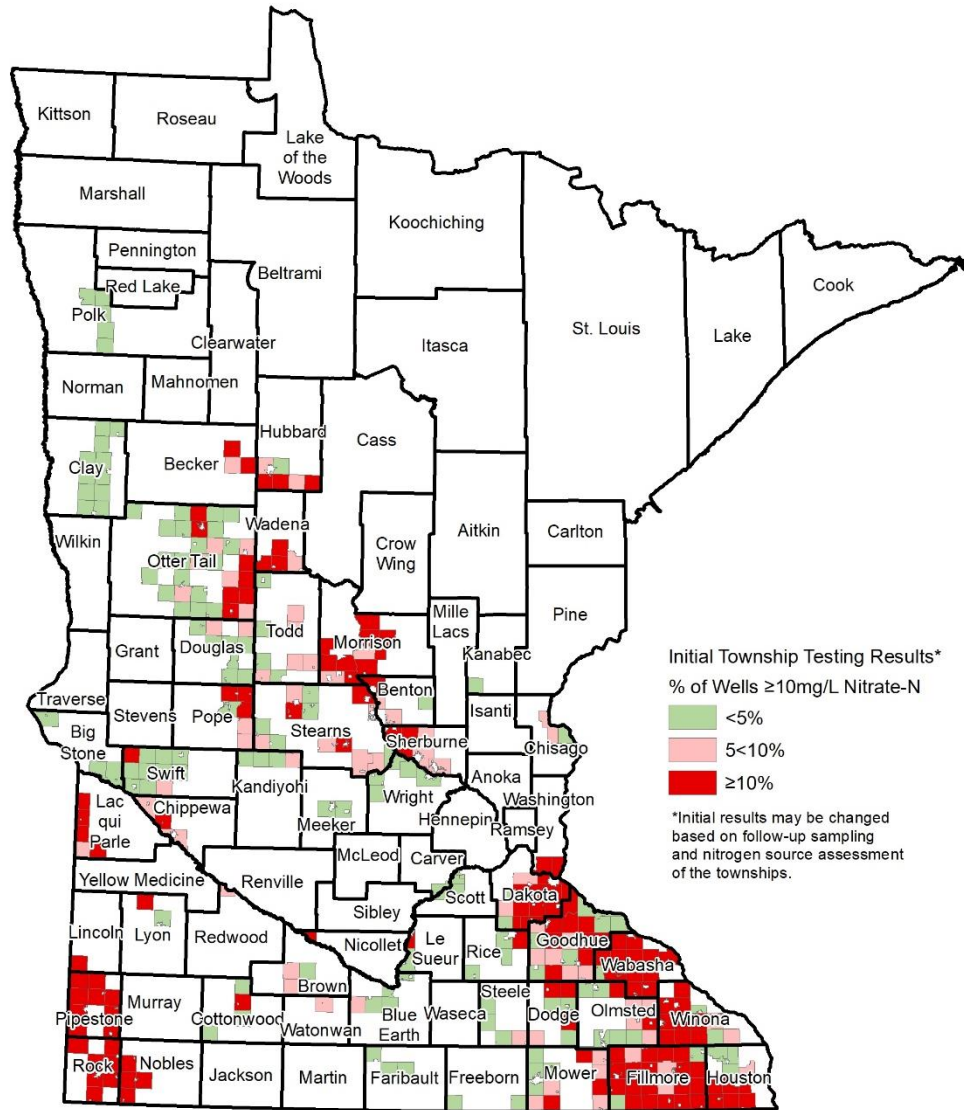


FY22-23 Proposed Funding

\$5.006 Million



Township Testing of Private Wells Under Nitrogen Fertilizer Management Plan



| Percent of Wells in a township ≥ 10 mg/L | Number of Townships (2013-2019) |
|---|---------------------------------|
| <5% | 133 |
| 5%-9.9% | 68 |
| $\geq 10\%$ | 143 |
| Total | 344 |

- Map shows initial Township Testing results from 2013-2019
- MDA will use Township Testing results to prioritize townships for additional work

Working with Local Partners and Stakeholders

The MDA's groundwater and drinking water projects include:

- Working with local farmers in vulnerable areas to prevent or minimize groundwater contamination
- Regional efforts with the University of Minnesota Extension and local governments to promote BMPs and other practices to reduce nitrate levels in vulnerable areas
- Establishing groundwater monitoring networks
- Apply computer modeling tools to quantify the potential benefits to ground water quality for a wide range of agricultural practices
- Demonstration sites validating nitrogen fertilizer recommendations and water quality impacts under irrigated agriculture

Developing and Promoting Nitrogen Fertilizer Best Management Practices (BMPs)



- Multiple demonstration and promotion projects in areas of the state with vulnerable groundwater
- **SE MN BMP Demonstration** - Since 2015, 250 farmers and crop advisers have participated in on-farm nitrogen trials
- **Rosholt Farm BMP Demonstration** and evaluation
- **Supports two U of M Extension Educator positions** to work directly with farmers and crop advisers in high risk DWSMAs and townships

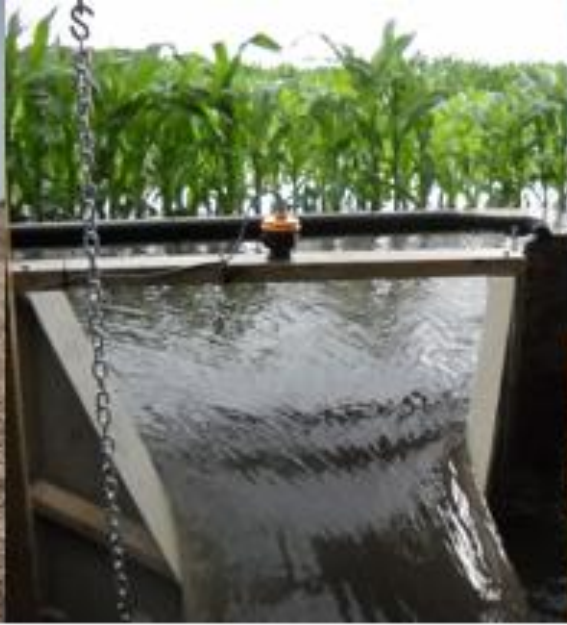


Alternative Management Tools (AMTs)

A major goal of this approach is to promote BMPs and practices that go beyond the fertilizer BMPs. These are called AMTs.

- Increased low nitrogen vegetative cover (perennial crops, forages, and cover crops)
- Taking targeted land out of production
- Methods to reduce or manage nitrogen precisely – precision Ag, new hybrids, management software, inhibitors





Technical Assistance Program



FY22-23 Proposed Funding

\$2.904 Million



Core Technical Assistance Activities

Edge-of-Field Monitoring

- Root River Field to Stream Partnership
- Discovery Farms Minnesota
- Red River Valley Drainage Water Management

On-Farm Trials

- Nutrient Management Initiative

Support for Impaired Water Process

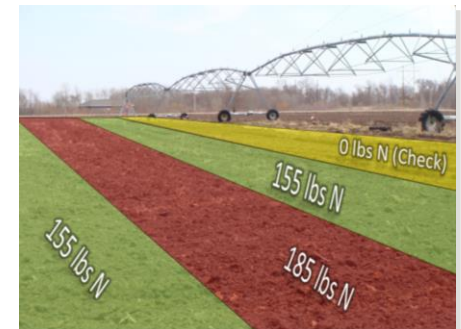
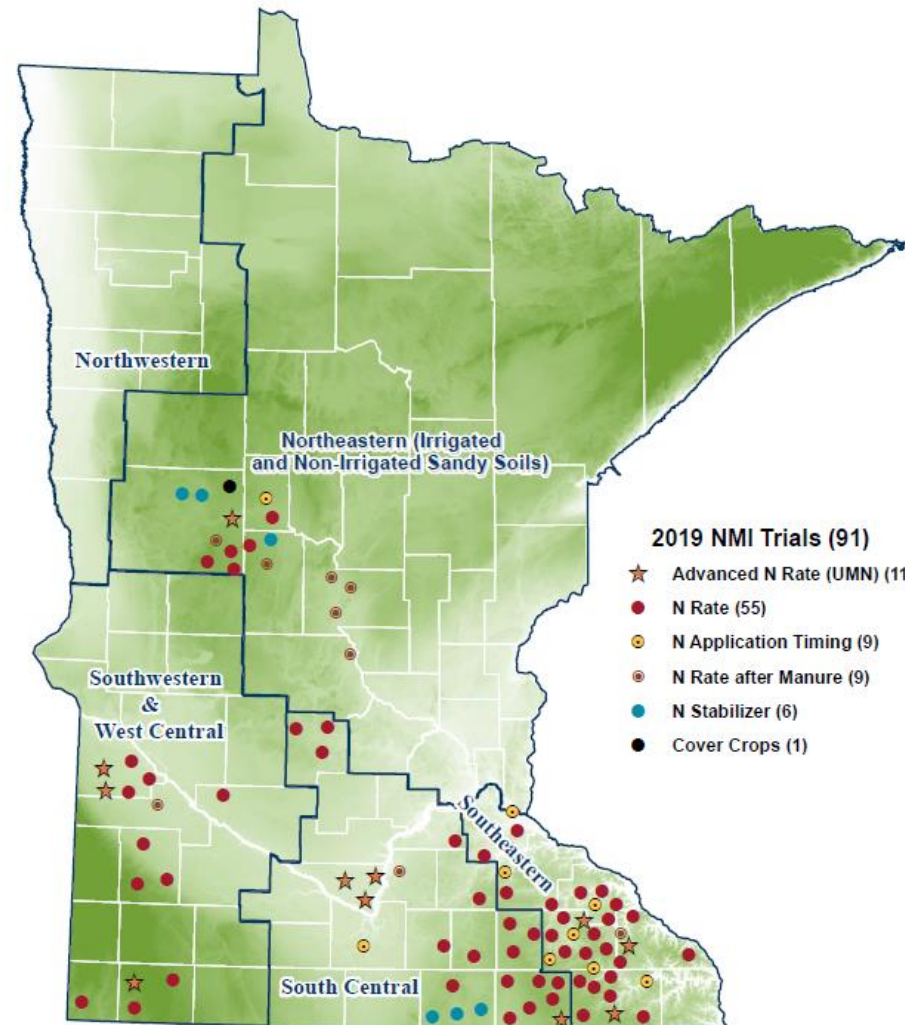
- Provide input to local teams
- Develop and share tools and technology
- Working with local partners and ag community



Nutrient Management Initiative (NMI)

Value of the NMI Program

- Working directly with farmers and crop advisers
 - ✓ 627 NMI field trials (2015-2020)
 - ✓ 100 farmers and 30 crop advisers participate each year
- ✓ Conversations about nutrient management
- ✓ Local data and learning from results
- ✓ Low cost



Applications of Edge-of-Field and On-Farm Data

- **Outreach and education**
 - MDA has engaged >15,000 ag producers, crop advisors and LGUs at >300 education and outreach events since 2015
- Used for a variety of computer simulation and model calibrations including PTMApp, Adapt-N, SWAT, and the Runoff Risk Advisory Tool
- Directly supports the Water Quality Framework



Chippewa River Watershed Restoration and Protection Strategy Report



Minnesota Pollution Control Agency

April 2017



100.000.000





Irrigation Water Quality Protection

FY22-23 Proposed Funding

\$270,000

Irrigation Water Quality Protection

- Position is located at the University of Minnesota Extension
- Developing new guidance and providing education on irrigation best management practices (BMPs)
- Developing new irrigation scheduling tools to help reduce nitrogen leaching losses in irrigated cropping systems
- Working closely with MDA, DNR, BWSR, NRCS and many local conservation and watershed districts
 - Working with 20 LGU partners



Dr. Vasudha (Vasu) Sharma



Irrigation Water Quality Protection

Conducts research and provides direct support to irrigators on issues of irrigation scheduling and soil water monitoring.

Examples of Outreach and Education in 2019:

- Reached 2,000 farmers, crop consultants and co-op dealers at field days and events
- Gave 25 presentations
- Wrote articles for the Irrigators Association of Minnesota newsletter
- Organized an irrigation field day at Rosholt Farm

3 sets of irrigation BMPs revised, developed and promoted in 2020



Dr. Sharma
Irrigation Field Day August 2019

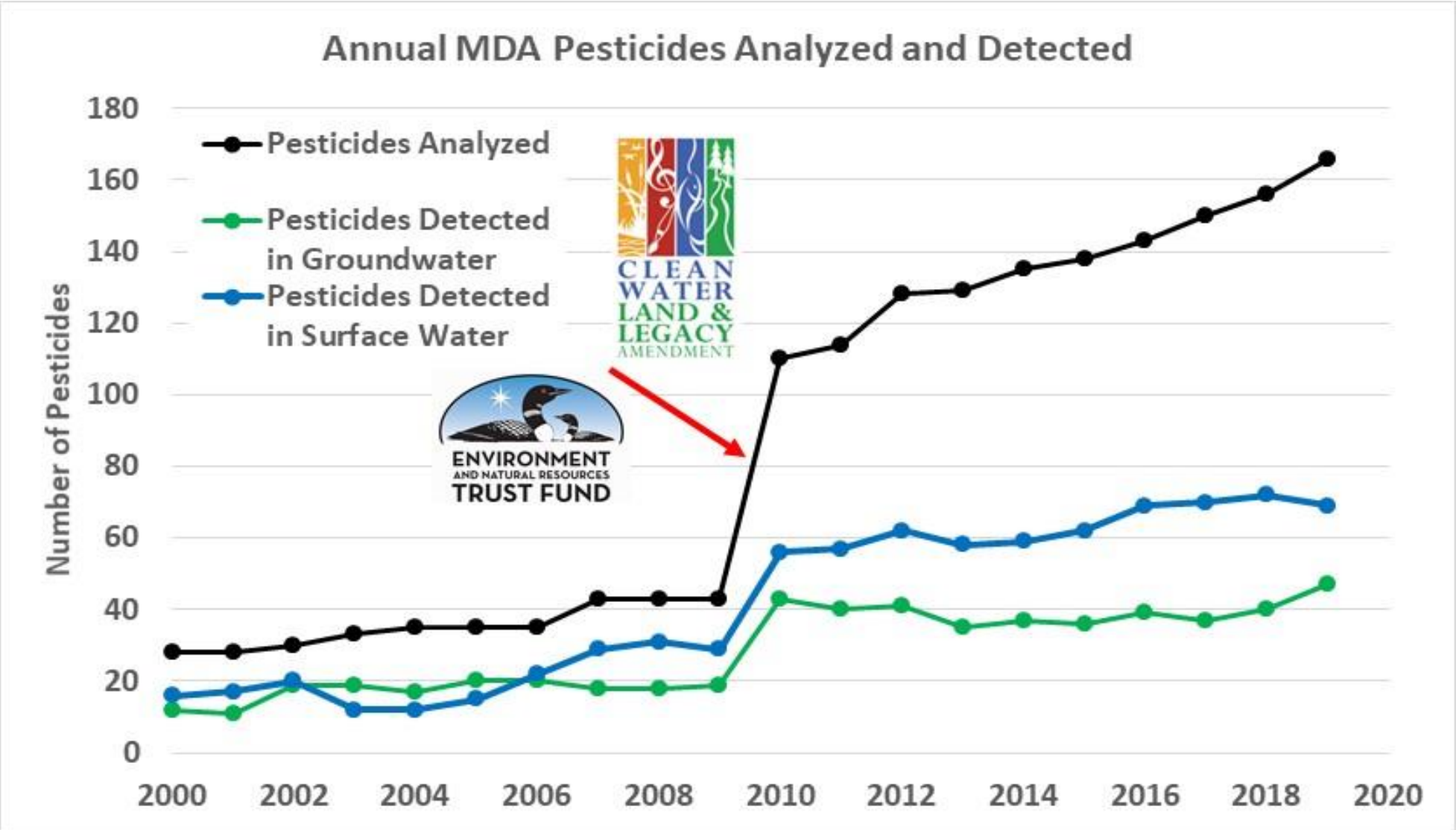


Monitoring for Pesticides in Surface Water and Groundwater

FY22-23 Proposed Funding

\$700,000

Monitoring for Pesticides in Surface Water and Groundwater



How is the Pesticide Data Used?

- 1. Risk Assessment – MDH and MPCA review pesticide data**
 - Drinking Water
 - Aquatic Life
- 2. Water Planning (WRAPS, GRAPS, 1W1P)**
- 3. Pesticide management and BMP development**
- 4. Other Uses**
 - EPA and other federal and state agencies
 - Research and Modeling
 - Public (homeowners, water suppliers, lake and watershed organizations, etc.)
- 5. Pesticide data is published annually, released through statewide water quality database (EQuls)**

www.mda.state.mn.us/monitoring

mn DEPARTMENT OF
AGRICULTURE

2016 Water Quality Monitoring Report

January – December 2016

Minnesota Department of Agriculture
625 Robert Street North, Saint Paul, MN 55155
www.mda.state.mn.us

Published July 2017

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Pesticide Testing in Private Wells

FY22-23 Proposed Funding

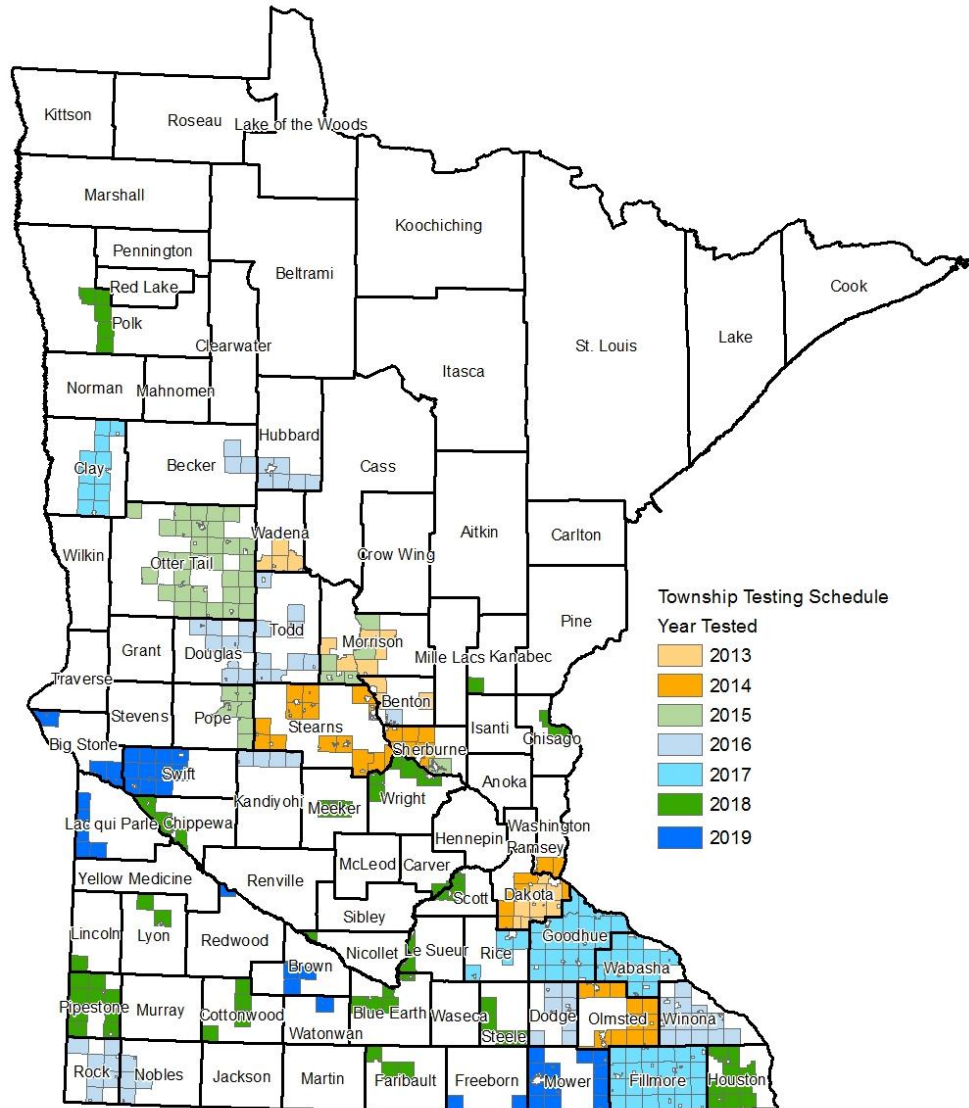
\$678,000

Private Well Pesticide Sampling (PWPS) Project and Township Testing Program (TTP)

- The PWPS Project is a follow-up testing program to the Township Testing Program
- Homeowners that had a nitrate detection during the initial Township Testing Program sampling are offered the opportunity to have their well sampled for pesticides



Township Testing Program Overview and Goals



- All initial testing is done in cooperation with local Soil and Water Conservation Districts or County staff
- Prioritize by working in townships with vulnerable groundwater and significant row crops
- Determine current nitrate concentrations
- Public outreach and education for well owners
- Fulfill needs of county water plans
- Over 300 townships
- By 2019, offer testing to over 70,000 wells
- Voluntary
- No cost to owner – funded by the Clean Water Fund



AgBMP Loan Program

FY22-23 Proposed Funding

\$150,000

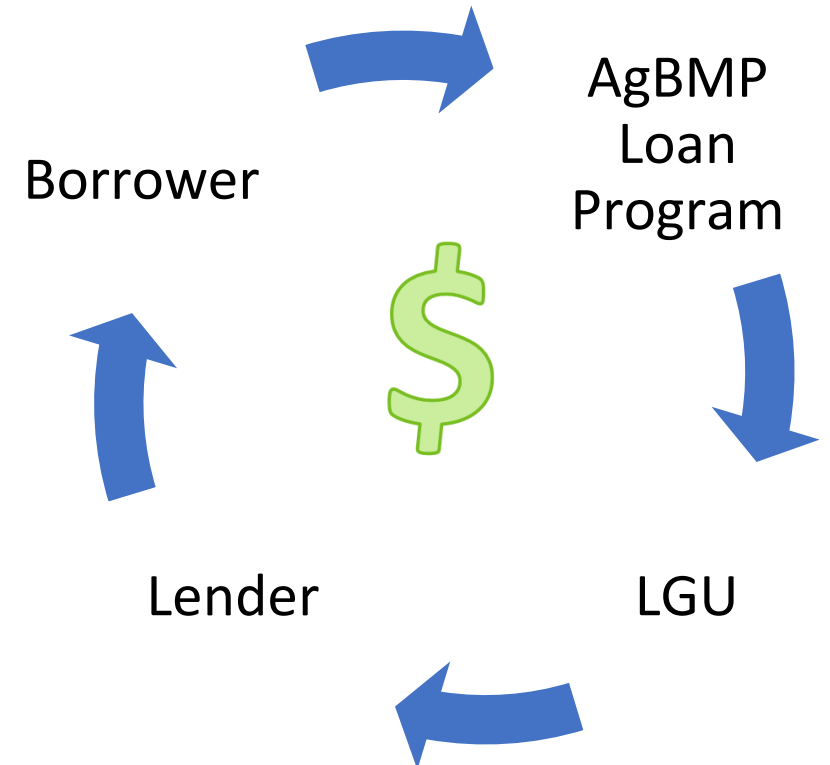


Loans with a Full Guaranteed Repayment

Low interest financing for practices that reduce pollution

- Effective and efficient revolving loans
- Not a grant, loans are repaid
- Provided through local LGUs and Lenders
- CWF loans can help landowners address private wells that are contaminated, including treatment or replacement
- Covers administrative costs for Clean Water funded loans

Revolving Loans





**Minnesota Digital
Water Research Library**



Research Inventory Database

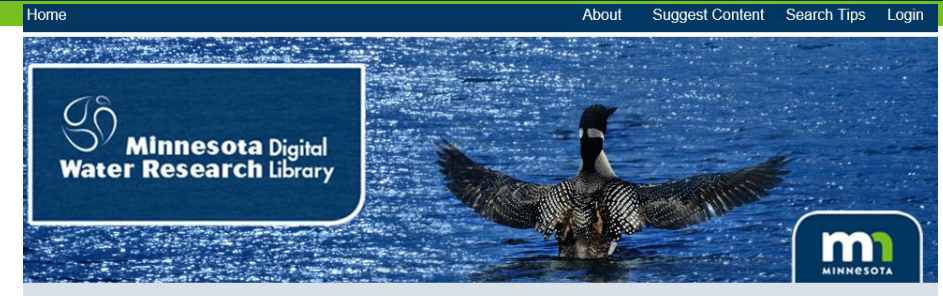
FY22-23 Proposed Funding

\$80,000



Research Inventory Database

- User-friendly, searchable inventory of water research relevant to Minnesota
 - wrl.mnpals.net
- Includes both peer-reviewed articles as well as white papers and reports
- ‘One-step’ access to all types of water research
- Currently 3,115 articles and reports in MNWRL




DISCOVER MnWRL DIGITAL COLLECTIONS

















BROWSE BY
Year Issued
Associated Organization
Location – County
Location – HUC8 Watershed
Journal Title

ADVANCED SEARCH
FIELD
Title

SEARCH TERMS
 +

Welcome to the MnWRL
The Minnesota Water Research Digital Library is a searchable inventory of documents focused on research and projects relevant to water in Minnesota.
The Library provides one-stop access to information about water - enabling water managers, researchers, and engaged citizens to support their efforts to protect, conserve, and restore water in Minnesota.



| | | | |
|--|--|---|--|
|  Agricultural Drainage |  Drinking Water |  Groundwater |  Hydrology |
|  Surface Water |  Urban & Industrial Stormwater |  Wastewater |  Water Biology & Aquatic Habitat |
|  Water Conveyance & Hydraulics |  Water Economics |  Water Education, Outreach & Community Capacity |  Water Monitoring & Assessment |
|  Water Policy |  Water Quality & Pollutants |  Water Restoration & Protection |  Water Use & Availability |

Thank you!

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