PFMD UPDATE

A BULLETIN FROM THE PESTICIDE AND FERTILIZER MANAGEMENT DIVISION

OCTOBER 2024

Inside this Issue

DEPARTMENT OF AGRICULTURE

Director's Notes

Joshua Stamper
Director, Pesticide and Fertilizer Management Division

There is no better time to implement conservation practices, cover crops, best management practices (BMPs), and tell your story about how agriculture is part of the solution to environmental challenges facing society. There are literally dozens of current funding opportunities to implement conservation and sustainable ag approaches, and this is no coincidence. We always see renewed interest in alternative crops and third crops whenever commodity prices dip. But this isn't just a low commodity price fad, over the last five years, Ag Water Quality Certified farms in Minnesota have made conservation part of their legacy. These farms, on average, net more than $50,000 more than non-certified farms. They do this implementing BMPs, diversifying crop rotations, implementing livestock to utilize cover crops, using reduced tillage, embracing precision ag to prioritize inputs, and taking marginal land out of intensive production. You can read more about this in the Ag Water Quality Certification Program update inside.

Fertilizer and Pesticide BMPs are also an important part of driving profitability. BMPs have to be economically and ecologically viable to be implemented. I don't know a single farmer that isn't thinking about the next thing that they are going to try in the future, but we need to be ready to talk about what we have already done.

Being able to tell your conservation story is also a huge part of the narrative that is often mischaracterized in the popular press. As long as water flows downhill, there will be some non-point source pollution. However, when you can talk to non-farm folks about the things that you do on your land to protect our streams and rivers by slowing water down, managing nutrients and chemicals, and keeping ground covered, the narrative changes and agriculture is now part of the solution. It's your land. Make it part of your legacy.

There's no time like the present to make a change for the better

Commissioner Thom Petersen

As the saying goes, "If you don't like Minnesota's weather, wait five minutes. It'll change." The same could be said for farming. Science and technology have revolutionized agriculture over the past decade with high-powered drones, advanced genetics, mapping solutions, and more. Changes will likely continue at an even quicker pace. This isn't a bad thing. And while we may wait around for better weather, we need to utilize the latest tools we have now to shape our farming operations and improve our state's natural resources for decades to come.

For instance, we've seen positive outcomes when it comes to reducing nitrate loss and improving nutrient management, which is particularly important with the geology of southeast Minnesota and other parts of the state. Those outcomes are thanks in part to the Minnesota Ag Water Quality Certification Program, Root River Field to Stream Partnership, Nutrient Management Initiative, and other Minnesota Department of Agriculture programs. Active participation by farmers is critical to the success of these programs. When the ag community is involved in problem solving at the local level through these initiatives, we can all work together to see benefits on Minnesota cropland.

Cooperation and partnerships are also key to taking the latest in agriculture and shaping our future. As an example, Minnesota's Soil & Water Conservation Districts are important partners in delivering technical and financial assistance for conservation practices. Their staff can easily connect you with valuable resources that benefit our soil and water. Farmers are also banding together to purchase soil health equipment through programs like our Soil Health Financial Assistance Program. The soil health grants help fund new or retrofit existing equipment. A group of farmers working together through the program can ease costs and bring a regenerative ag approach to several farms at once. By reaching across the fence rows, we can come up with new ideas and opportunities that improve our natural resources and the bottom line.

Finally, we can take the latest technology and utilize outstanding programs and partnerships to make improvements right now that will have positive benefits for years to come, but it doesn't do much good if we aren't sharing what we do. Tell your neighbor about your success with a new conservation practice or how effective a recently implemented best management practice has decreased your inputs. Better yet, tell your non-farming friend how you've utilized the latest in science to improve water quality or better equip your soil to deal with heavier rains. We're our own best advocates.

Speaking of rains, two years of drought followed by this year's constant storms shows us how much our weather patterns can fluctuate. That's why we need to make adjustments on the farm now to help us deal with these extremes in future. There's too much at stake to wait for Mother Nature to change.

PFMD Update

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The purpose of this newsletter is to provide comprehensive, accurate information about the MDA Pesticide and Fertilizer Management Division's events, programs, policies and regulations. No endorsement is intended or implied of products or companies mentioned within. Printing and postage is paid for by the Pesticide Regulatory Account.

The PFMD Update is, and will continue, to be mailed to all licensed pesticide and fertilizer applicators. Use the QR Code to sign up to receive electronic copies of the PFMD Update newsletter.

mda.state.mn.us/chemicals/pfmdupdate

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.

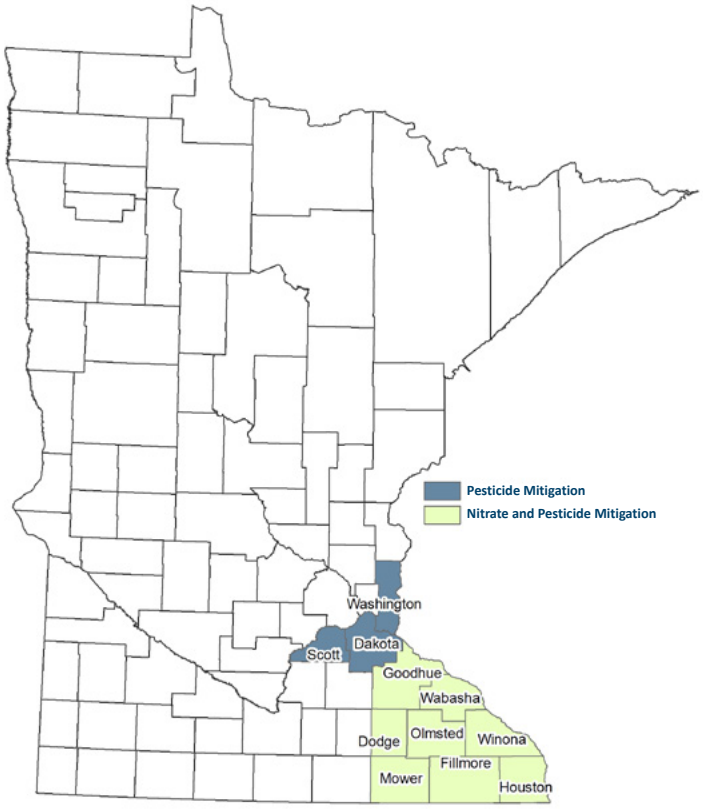
The MDA responds to nitrate and pesticides in private wells

Kimberly Kaiser, Groundwater Monitoring Unit Supervisor

In 2024, the Minnesota Department of Agriculture (MDA) received 2.8 million dollars from the Legislature to provide water treatment of private drinking water wells in southeast Minnesota impacted by nitrate. In response, the MDA has developed a mitigation program to provide reverse osmosis water treatment systems to residents of Dodge, Filmore, Goodhue, Houston, Mower, Olmsted, Wabasha, and Winona counties that have nitrate in their private well over 10 mg/L. Households with pregnant persons, children under 1 year of age, and those with financial need will be prioritized for mitigation. In the first phase of this program, the MDA has contacted households with known elevated nitrate. The second phase will expand beyond this initial population.

The MDA will also be offering reverse osmosis treatment to residents with private wells that have documented pesticide contamination above drinking water standards. The MDA has identified about 60 wells in these eight counties with cyanazine pesticide contamination and have reached out to the well owners regarding mitigation. Many of the wells that exceed the drinking water standard for cyanazine also exceed the standard for nitrate. The MDA is also working on providing pesticide mitigation to residents of Dakota, Scott, and Washington counties.

For more information, please contact
Nikol Ross at **Nikol.Ross@state.mn.us**
or Kimberly Kaiser at **Kimberly.Kaiser@state.mn.us**.



Excessive rainfall leads to elevated flow and nitrate levels in rivers

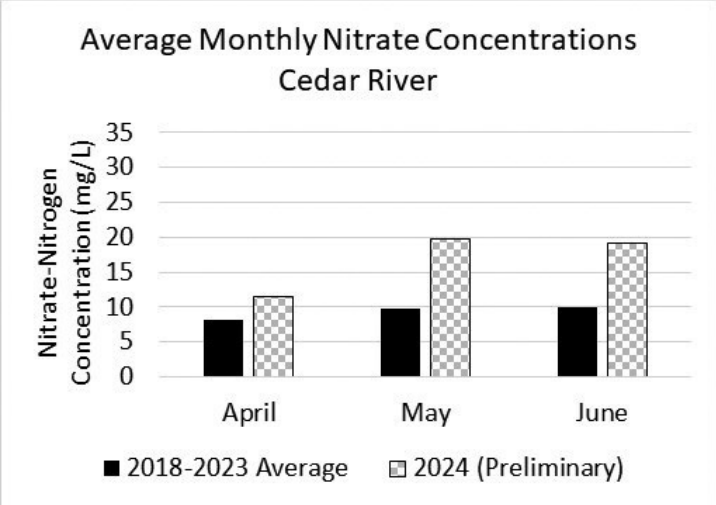
David Tollefson, Surface Water Monitoring Unit Supervisor

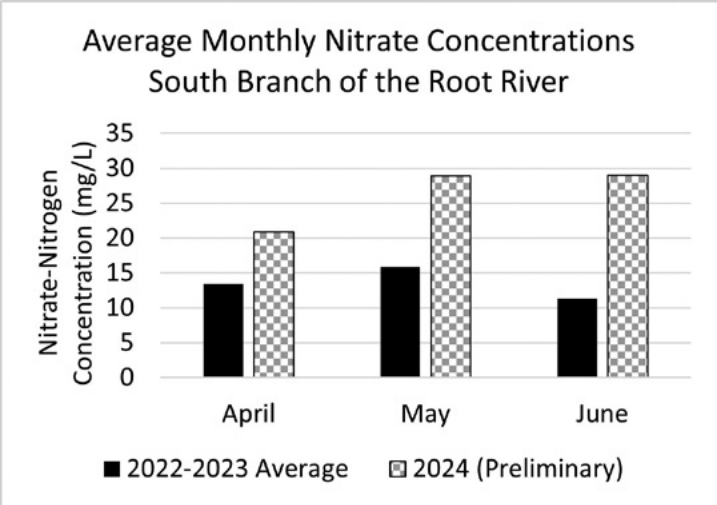
In many parts of the state, 2024 weather conditions made crop production and managing nitrogen extremely challenging. Record-setting rainfall in April through June led to higher flows and nitrate-nitrogen (nitrate) concentrations in rivers. As of early July, over 120 climate stations in Minnesota had already reported over 25 inches of precipitation (University of Minnesota Extension; Minnesota Weather Talk July 4, 2024). Nitrate often accumulates in the soil profile during dry periods and can be released in wet years like 2024.

State agencies have deployed sensors to continuously measure nitrate on the Cedar River near Austin and the South Branch of the Root River near Grand Meadow. Preliminary 2024 data collected at these locations indicate the average monthly nitrate concentrations approximately doubled in May and June from previous years. While it is impossible to control the weather, these extreme conditions reinforce the need for managing nitrogen closely.

Real-time nitrate concentrations in the Cedar River can be viewed at **dnr.state.mn.us/waters/csg/index.html** and in the South Branch Root River headwaters at **mda.onerain.com**.

For more information, please contact David Tollefson at 507-206-2882 or **David.Tollefson@state.mn.us**.





Expansion of Minnesota Ag Weather Network underway

Stefan Bischof, Hydrologist

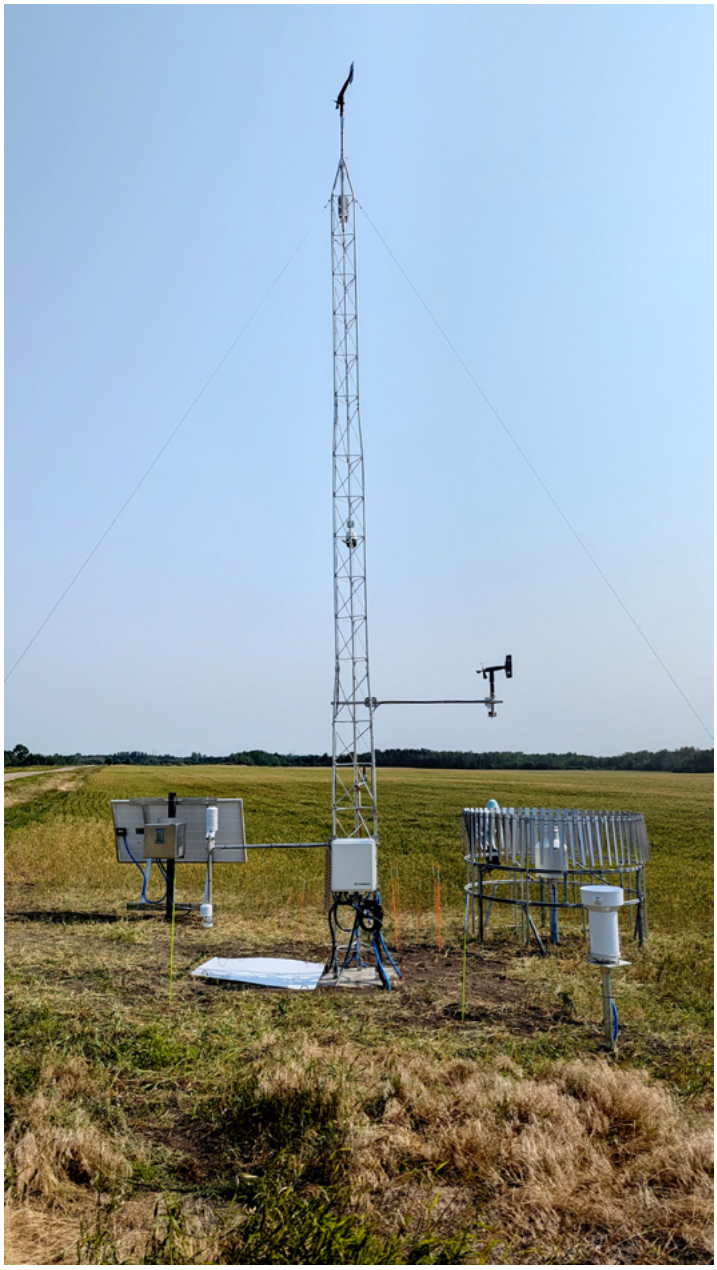
Expansion of the Minnesota Ag Weather Network (MAWN) kicked off this past summer with the installation of new stations in northwest and southern Minnesota. Funded by the Clean Water Land and Legacy Amendment, these stations provide weather and soil condition data to assist growers with tools to guide management decisions and reduce water resource impacts. The MDA plans to install up to 40 additional weather stations in the next several years to meet the goal of having a station within 20 miles of most agricultural lands in the state.

The MDA has partnered with the North Dakota Ag Weather Network (NDAWN) to allow open access to the data collected. The NDAWN has developed free applications that transform the raw data collected in North Dakota and Minnesota into usable agronomic tools to aid in crop production while reducing environmental impacts of agricultural practices, including the recently updated "NDAWN Inversion" application. Minnesota Ag Weather Network station data is available at **ndawn.ndse.nodak.edu** and **ndawn.info/centralmn.html**.

The MDA continues to accept applications from public and private landowners who are interested in volunteering to host new stations. Complete the online application at **mda.state.mn.us/minnesota-ag-weather-network**.

For more information, please contact Stefan Bischof at 218-396-0720 or **Stefan.Bischof@state.mn.us**

NDAWN inversion app icon



Weather station at the edge of a field in Crookston, Minnesota.

CLEAN WATER LAND & LEGACY AMENDMENT

Prevent drift to sensitive sites during fall herbicide applications

Larry VanLieshout, Research Scientist

Although most herbicide applications are made in late spring and early summer, some are also applied in the fall as a harvest aid to desiccate crops and weeds. Others are used to control problem weeds after harvest or in pastures. Many of these herbicides are growth regulators, site-of-action 4, and have activity at very low rates. These include herbicide active ingredients such as 2,4-D and dicamba. Some crops, such as grapes, are extremely sensitive to these herbicides. In addition, glyphosate, gramoxone, carfentrazone, flumioxazin, and saflufenacil can also be used as preharvest or fall weed control treatments.

Prior to application, scout the area for sensitive species near the field. Also, check the FieldWatch map for sensitive crops in the area. Take precautions to prevent drift to sensitive plants by avoiding application during windy conditions and temperature inversions, using lower spray pressure, and utilizing low-drift nozzles. Larger spray droplets are less prone to spray drift. Follow label recommendations to reduce drift.

For more information, visit the online resources listed below, or please contact Larry VanLieshout at 651-201-6115 or **Larry.VanLieshout@state.mn.us**.

FieldWatch®
Communication. Cooperation. Collaboration.

FieldWatch Map:
mn.driftwatch.org/map

Temperature Inversions:
crops.extension.iastate.edu/blog/terry-basol/be-watch-temperature-inversions

Herbicide Drift Management cue card:
mda.state.mn.us/sites/default/files/docs/2020-05/herbdriftmgmt.pdf

Nitrate reduction strategy in townships

Larry Gunderson, Fertilizer Management Unit Supervisor

Much of the attention on nitrate in groundwater has been focused in Drinking Water Supply Management Areas (DWSMAs) since the adoption of the Groundwater Protection Rule in 2019. With this work underway, the MDA is also returning to work at a township level. While this work does not fall under the Groundwater Protection Rule, addressing nitrate in private wells in townships is part of the MDA's overall nitrate strategy as identified in the Nitrogen Fertilizer Management Plan (NFMP).

CLEAN WATER LAND & LEGACY

The NFMP was revised in 2015 and includes a voluntary approach to prevent or minimize the impacts of nitrogen fertilizer on groundwater. The primary goal of the NFMP is to involve the agricultural community in problem solving at the local level to address localized concerns about unsafe levels of nitrate in groundwater.

The MDA is using Township Testing Program results to identify townships where over 10% of the wells exceed the nitrate Health Risk Limit of 10 mg/L nitrate-nitrogen. Most of the townships with high nitrate are in the Central Sands, and the southeast and southwest regions of Minnesota.

The MDA will work with local farmers and agronomists to develop a list of nitrogen best management practices (BMPs) that can be used by farmers to reduce potential nitrate leaching into groundwater. The effectiveness of the BMPs will be modeled to estimate leaching losses through the root zone. The nitrogen fertilizer BMPs involve rate, timing, source, and placement and are developed by the University of Minnesota and adopted by the MDA.

A difference between the approach in townships and that in DWSMAs is that in townships, practices on the BMP list are voluntary under the existing Groundwater Protection Rule. Strategies to truly advance and accelerate work will require maintaining and building additional trust and relationships with local farmers, landowners, and the broader agricultural community. Active participation and demonstrated outcomes are critical to supporting a voluntary approach.

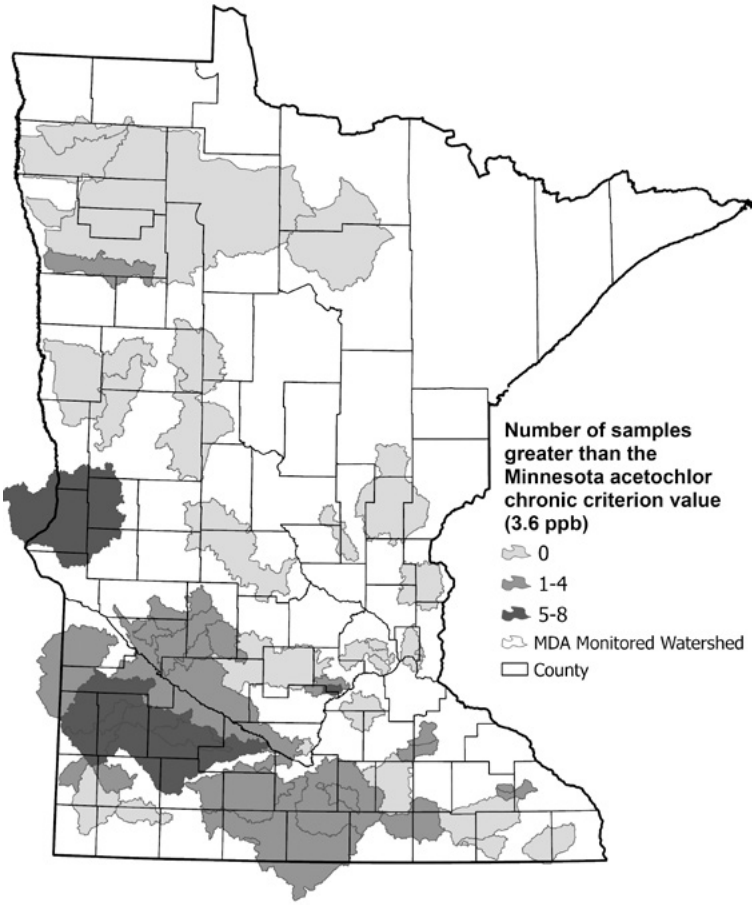
For more information, please visit
mda.state.mn.us/nfmp
or contact Larry Gunderson at 651-201-6168 or **Larry.Gunderson@state.mn.us**.

Follow acetochlor BMPs to tackle surface water detections

Naworaj Acharya, Research Scientist

The MDA monitors rivers and streams statewide for pesticides. The herbicide acetochlor, found in products like Tripleflex, SureStart, Warrant, and Harness, has been detected at or above the Minnesota chronic water quality standard (≈ 3.6 ppb) in south central and southwestern Minnesota (see watershed map). This is concerning due to its toxicity to aquatic organisms. The elevated acetochlor levels mainly occur in May and June. This often coincides with pre-planting or pre-crop emergence applications and rain events that cause surface runoff.

Minnesota acetochlor monitoring 2017-2023



The MDA advises following acetochlor best management practices (BMPs) and general agricultural herbicide BMPs to protect water quality, including:

1. Use non-acetochlor herbicides like S-metolachlor (Dual magnum), Dimethenamid-P (Outlook) and Pyroxasulfone (Zidua) early in the season and save acetochlor for post-crop emergence application if label permits.
2. Soil-incorporate pre-plant acetochlor to the label-recommended depth. This may include moving pre-crop emergence surface application to pre-plant incorporation.
3. Avoid applying acetochlor before a rain event that could cause surface runoff.
4. Install and maintain vegetative buffer strips along surface waters, karst features, tile inlets, and sinkholes. Local Soil and Water Conservation District offices can assist with design and may offer cost-sharing programs.

Acetochlor BMPs and the General Water Quality BMPs for all Agricultural Herbicides can be found at **mda.state.mn.us/herbicide-best-management-practices-protect-water-quality**.

For more information, please contact Naworaj Acharya at 651-201-6029 or **Naworaj.Acharya@state.mn.us**.

Select MDA Pesticide & Fertilizer Management Division enforcement actions

Corinne du Preez, Agricultural Consultant

Warren, MN

An aerial application facility with a Minnesota commercial pesticide applicator paid a $500 penalty for applying a pesticide inconsistent with the label by failing to maintain a 160-foot buffer.

Hitterdal, MN

An agricultural operator with a Minnesota private pesticide certification paid a $500 penalty for applying pesticides inconsistent with the label resulting in drift.

Osseo, MN

A lawn care facility paid a $250 penalty for applying pesticides for hire without a Minnesota commercial pesticide applicator license.

Ulen, MN

An agricultural operation paid a $1,250 penalty for applying pesticides inconsistent with the label by failing to include an approved tank mix partner and herbicide contact with desirable plants/vegetation by directing pesticide onto property beyond the boundaries of the target site.

Ulen, MN

A right-of-way application facility with a Minnesota commercial pesticide applicator paid a $1,125 penalty for applying a pesticide inconsistent with the label resulting in drift.

Thief River Falls, MN

An agricultural operator with a Minnesota private pesticide certification paid a $2,350 penalty for applying Engenia herbicide inconsistent with the label by failing to measure wind speed at boom height, failing to apply a minimum of 15 gallons of spray solution per acre, and an incomplete application record.

Bricelyn, MN

An agricultural facility with an MDA fertilizer license and anhydrous ammonia (NH3) permit paid a $2,775 penalty for NH3 storage violations, including failing to adequately lock riser hose end valves and failing to have two full face gas masks, each with one spare ammonia canister on hand.

Springfield, MN

An agricultural facility with an MDA fertilizer license and anhydrous ammonia (NH3) permit paid a $2,975 penalty for NH3 storage and equipment violations, including failing to have a total of four ammonia canisters on hand, failing to maintain all piping, hose, and tubing free from leaks, and failing to maintain accessible 5-gallon safety water containers.

Elgin, MN

An agricultural facility with an MDA fertilizer license and anhydrous ammonia (NH3) permit paid a $2,825 penalty for NH3 equipment violations, including failing to maintain legible nameplates and/or Visual, Thickness, and Pressure (V, T, P) tank markings, failing to maintain accessible 5-gallon safety water containers, and failing to adequately anchor the containers to the farm wagons.

Truman, MN

An agricultural facility with an MDA fertilizer license and anhydrous ammonia (NH3) permit paid a $2,425 penalty for NH3 storage and equipment violations, including failing to adequately secure riser hose end valves, failing to maintain legible nameplates, and failing to maintain pressure relief device records.

Cokato, MN

An agricultural facility with an MDA fertilizer license and anhydrous ammonia (NH3) permit paid a $2,075 penalty for NH3 storage and equipment violations, including failing to maintain a temperature gauge, failing to maintain a legible nameplate, and failing to maintain control valve indicators.

Elkton, MN

An agricultural operation with an anhydrous ammonia (NH3) permit paid a $1,525 penalty for NH3 storage and equipment violations, including failing to maintain adequate traffic protection, and failing to lock main container shut-off valves and riser hose end valves.

Pesticide Control Law updates

Brian Clark and Robyn Frederick,
Recertification Project Managers

In response to the MDA's revised certification plan (Environmental Protection Agency approved), the 2024 Legislature made changes to the Pesticide Control Law (MINN. STAT. 18B). Listed below are some of the amendments to the law that went into effect August 2024.

1. The definition of "Application or use of a pesticide" now includes:
    a. Application of pesticide on a target site (Applicator).
    b. All activities involving mixing, loading, and handling (Mixer/Loader/Handler) with an opened container of a Restricted Use Pesticide (RUP).
2. Minimum age requirement of 18 years for all licensed applicators, mixers, loaders, and handlers.
3. Private applicator certification exams will require a proctor to administer the open book exam.
4. All pesticide exams, except the private applicator certification exam, will be offered in both English and Spanish starting January 2025.

The MDA will work with the pesticide industry to bring applicators in compliance with these changes. The MDA has also updated the pesticide record templates to meet the new federal reporting requirements. The templates can be found at **mda.state.mn.us/licensing/licensetypes/pesticideapplicator/pestrecords**.

For more information, please contact Pesticide Licensing at 651-201-6615 or **Pesticide.Licensing@state.mn.us**.

Pesticide testing services expanded

Marissa Behr, State Program Administrator and Gurinderbir (G) Chahal, Licensing and Certification Unit Supervisor

The MDA has partnered with Metro Institute to expand pesticide testing services. Metro Institute is an industry leader specializing in pesticide exam administration. They have 20 years of experience and offer computer-based testing services in 15 states. This partnership allows for better testing services and supports the pesticide industry to meet the MDA's licensure requirements.

Metro Institute has opened 10 testing sites in the Twin Cities area along with three locations in Greater Minnesota, with plans to open more testing locations in the future. For a current list of Metro Institute testing locations and to complete online registration for testing appointments, go to **metrosignup.com**. Metro Institute offers online scheduling in addition to customer support at 877-533-2900. Employers can manage testing appointments 24/7. Metro Institute charges a $60 per exam fee for testing services. This will be paid during the online registration prior to the test appointment. Upon the MDA's approval, pesticide applicators can register for testing appointments with Metro Institute. For an appointment, applicators are required to enter their license number or item number from their online payment confirmation receipt as the Testing ID on the Metro Institute website. More information on taking exams with the MDA pesticide testing partners can be found at **mda.state.mn.us/pesticideapplicator/examcontacts**.

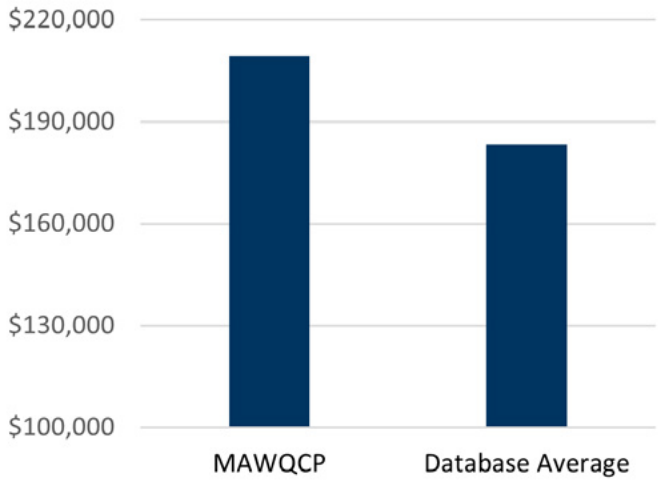
Five years of data reveal higher profitability for Ag Water Quality Certified farms

Danielle Isaacson, MAWQCP Operations Coordinator

Farmers enrolled in the Minnesota Agricultural Water Quality Certification Program (MAWQCP) have higher profits than non-certified farms, according to five years of data from the Minnesota State Agricultural Centers of Excellence.

The "Influence of Intensified Environmental Practices on Farm Profitability" study examines financial and crop and livestock production information from farmers enrolled in the Minnesota State Farm Business Management education program. The 126 MAWQCP farms in the study saw more gross cash farm income and net farm income in 2023 than non-certified farms. Looking at five-year average data, the average net cash income for MAWQCP farms was over $213,600 compared to nearly $163,000 for non-MAWQCP farms. Other key financial metrics are also better for those enrolled in the MAWQCP, such as debt-to-asset ratios and operating expense ratios.

Average Net Farm Income 2019-2023



The five years of data serve as an indicator of a positive return on investment for whole-farm conservation management that farmers implement to become certified.

"We now have continuous data that shows the Minnesota Ag Water Quality Certification Program provides better economic outcomes on top of the benefits to our water and soil resources," said Agriculture Commissioner Thom Petersen. "With so many advantages to the MAWQCP, I encourage all farmers and landowners to look into certifying their land and contact their local Soil and Water Conservation District for more information."

To find details on the economic study, visit **agcentric.org/farm-business-management/annual-fbm-reports**.

Farmers and landowners interested in becoming water quality certified can contact their local Soil and Water Conservation District or visit **MyLandMyLegacy.com**.

For more information, please contact Danielle Isaacson at 651-319-1832 or **Danielle.Isaacson@state.mn.us**.

MN Ag Water Quality Certification Program awards over 500 endorsements to recognize outstanding farmers

Danielle Isaacson, MAWQCP Operations Coordinator

The Minnesota Agricultural Water Quality Certification Program (MAWQCP) has awarded over 500 endorsements, in addition to 10-year certification, to farmers and landowners across the state.

There are currently five MAWQCP endorsements. The integrated pest management, soil health, and wildlife endorsements have been available since 2019. The irrigation water management and the climate smart endorsements have been available since 2022. Many conservation practices targeting water quality have benefits for other conservation goals, and the endorsements provide additional recognition to water quality certified producers who are going above and beyond to implement conservation on their farms.

Meadowbrook Dairy, Inc. was the first farm to achieve all five endorsements through the Ag Water Quality Certification Program. Meadowbrook Dairy, Inc. is a fifth-generation farm in Stearns County owned and operated by the Udermann family. Together they raise 1,000 acres of corn, soybeans, small grains, and alfalfa, along with operating an 80-cow dairy and 300 feeder steers.

The Udermanns began their soil health journey in 2016 and became Water Quality Certified in 2021. Since then, they have transitioned to 100% no till and cover cropping.

"Signing up and going through the process of water quality certification and the endorsements gave our farm direction and assistance to meet the conservation goals we had set for ourselves," said Alex Udermann. "It clearly laid out a solid foundation to learn, to improve, and to grow on. We really wanted to show our local community of Sartell that our farm is doing everything we can to do to improve water quality on the acres we farm and taking care of the soil in a sustainable and regenerative way."

Minnesota Ag Water Quality Certification sign and additional endorsements posted at the Udermann farm in Stearns County.

Farmers and landowners interested in becoming water quality certified can contact their local Soil and Water Conservation District or visit **MyLandMyLegacy.com**.

DEPARTMENT OF AGRICULTURE

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