



Animal Feedlots Rulemaking

Today's meeting

Objective: Understanding the “why” and “how” of the feedlot rulemaking

- Feedlot rules
 - History
 - Summary of current requirements
- Why change the rules?
 - Changes in agriculture
 - Areas of focus
- Process for rulemaking
 - Opportunities to get involved



What is a feedlot?

Feedlot: all animal-holding areas where manure may accumulate, and vegetation cannot be maintained

- Open lots
- Barns
- Calf huts
- Layer houses
- Chicken coops
- Horse stables



Rules versus permits

Q: Didn't the MPCA just finalize new rules this winter?

A: **No**, the MPCA finalized new general permits early this year, but they **are not** the same as rules.

State rules	Permits
Apply to all animal feedlots	NPDES or SDS operating permits are required for the largest feedlots in MN (roughly 1,000 permitted facilities)
"Minimum requirements"	"Additional requirements"
Do not expire	Have an expiration

Feedlot rules

History and current requirements

Minn. Rule 7020 history

- Feedlot rules have existed since 1971
- Feedlot rules revised in 1978
- Major revision in 2000
 - Registration program
 - Feedlot permits for construction/operation
 - Delegated county program
 - Locational restrictions for new feedlots
 - Technical criteria for manure storage
 - Land application of manure requirements



Rules apply to large and small feedlots



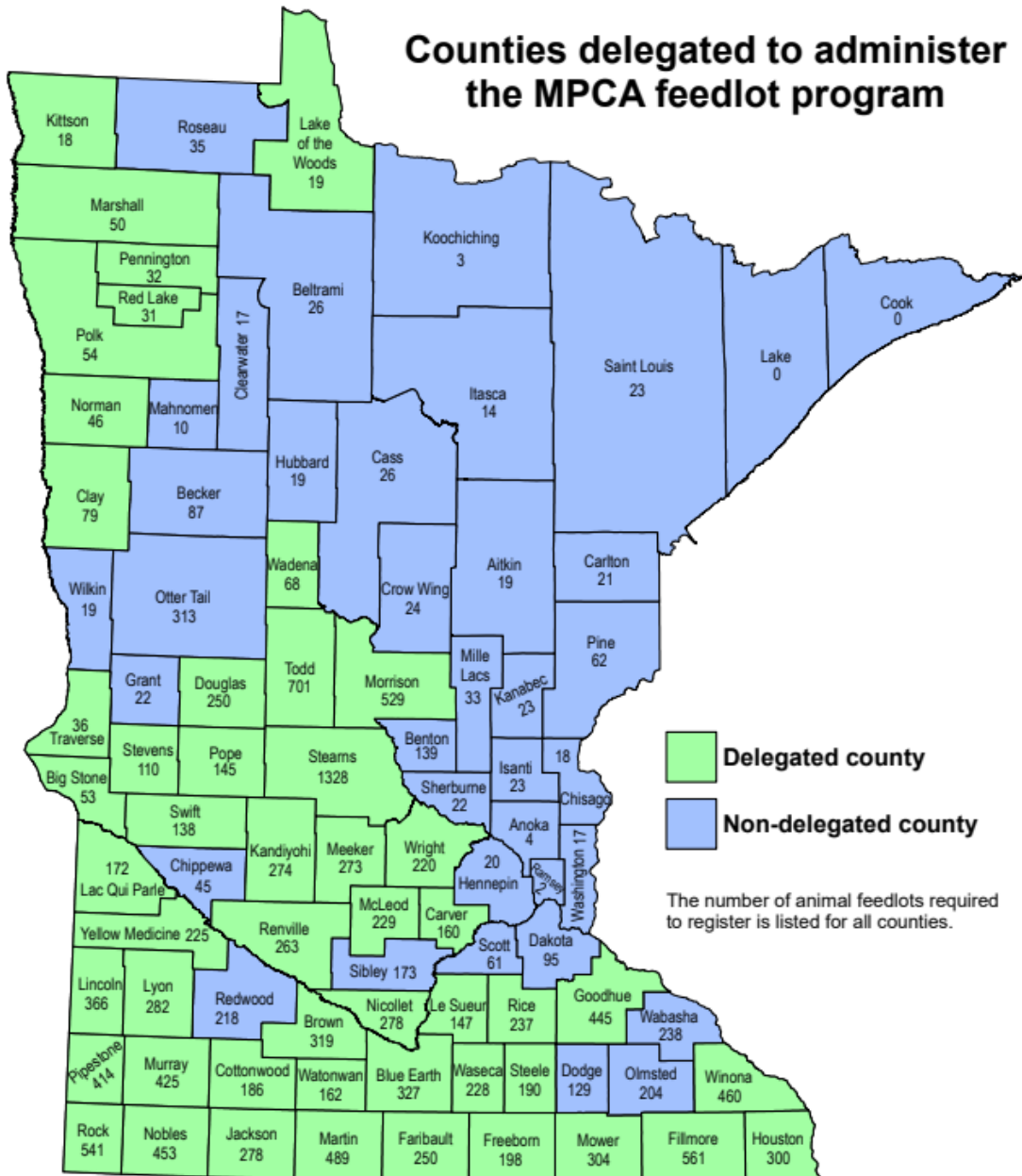
Feedlot registration

- 17,000 registered feedlots in Minnesota
 - 50+ animal units
 - 10+ animal units in shoreland



Delegated county program

Counties delegated to administer the MPCA feedlot program



- County feedlot officers work with small farms in their counties
- 50 counties administer the feedlot rules on behalf of the MPCA
 - Permitting and inspections (less than 1,000 AUs)
 - Local contact for farmers
 - Education
 - Assistance

Feedlot rules

Water quality-based regulations

Purpose: Prevent manure from entering surface and groundwater resources

- Feedlot permits for operation/construction
- Locational restrictions
- Technical criteria for manure storage
- Land application of manure requirements



Pastures are not regulated by the feedlot rules

Types of permits

***Purpose:** Ensure construction/expansion meets rule requirements and provide clear, consistent requirements to protect water quality*

Permits for smaller sites

- Construction Short Form
- Interim Permit

Construction/operation permits for large sites

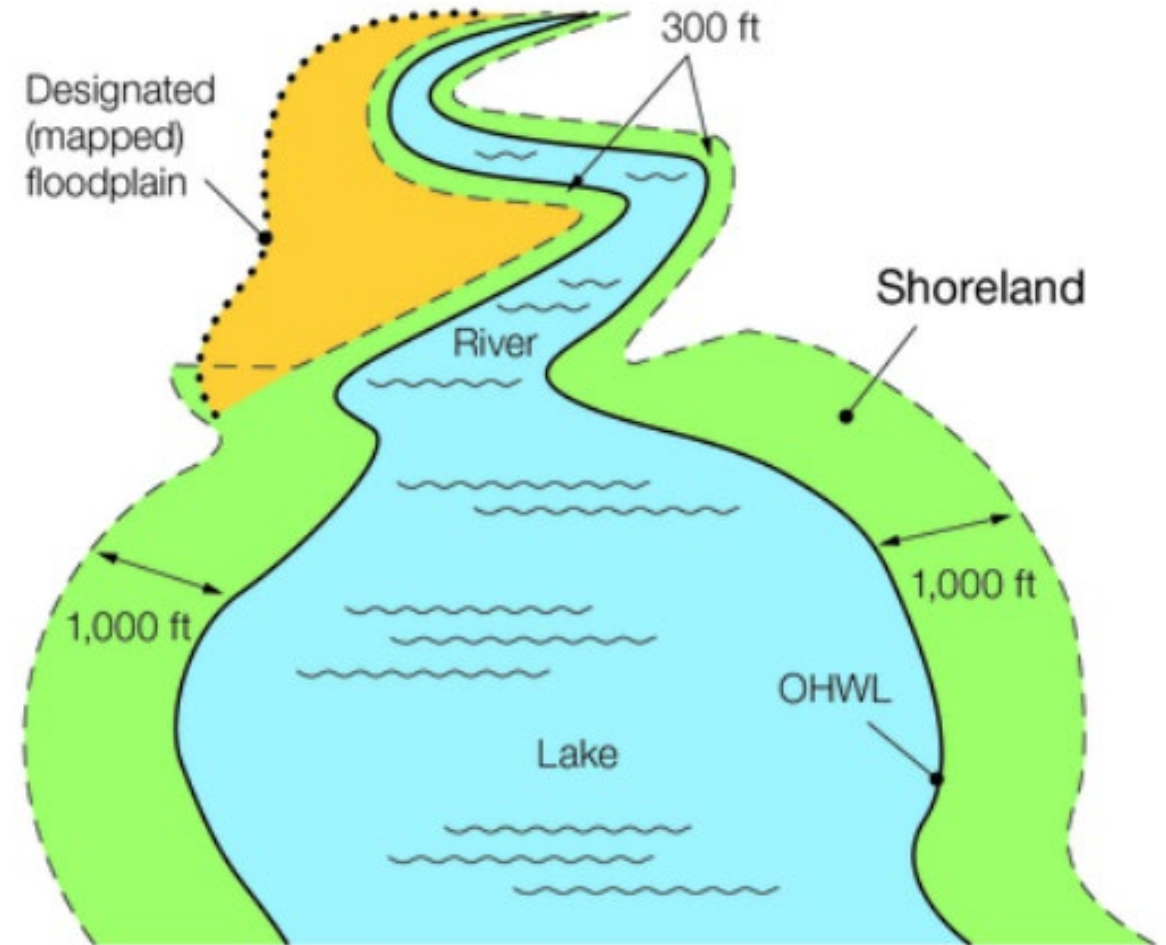
- Contain additional requirements to further protect waters
 - NPDES permit – National Pollutant Discharge Elimination System permit
 - SDS permit – State Disposal System permit

Locational restrictions

***Purpose:** Keep feedlots away from waters to lower risk*

- Prohibit new feedlots within
 - Floodplain
 - Shoreland
 - 300 ft. of a sinkhole
 - 100 ft. of a well*
 - 1,000 ft. of a community well*

* MDH may require greater distance from wells



Technical standards for manure storage

Purpose: Provide minimum standards to protect water resources

- Liquid storage
 - Engineer design – approved by MPCA
 - Liner required (earthen, plastic, concrete, etc.)
 - Construction oversight by engineer
- Solid storage (stockpiles)
 - **Permanent** – used year after year
 - Constructed pad – typically concrete or asphalt
 - **Short-term** – not used in consecutive years
 - No constructed pad - prohibited on coarse soils
 - Vegetated before re-use to utilize soil nutrients

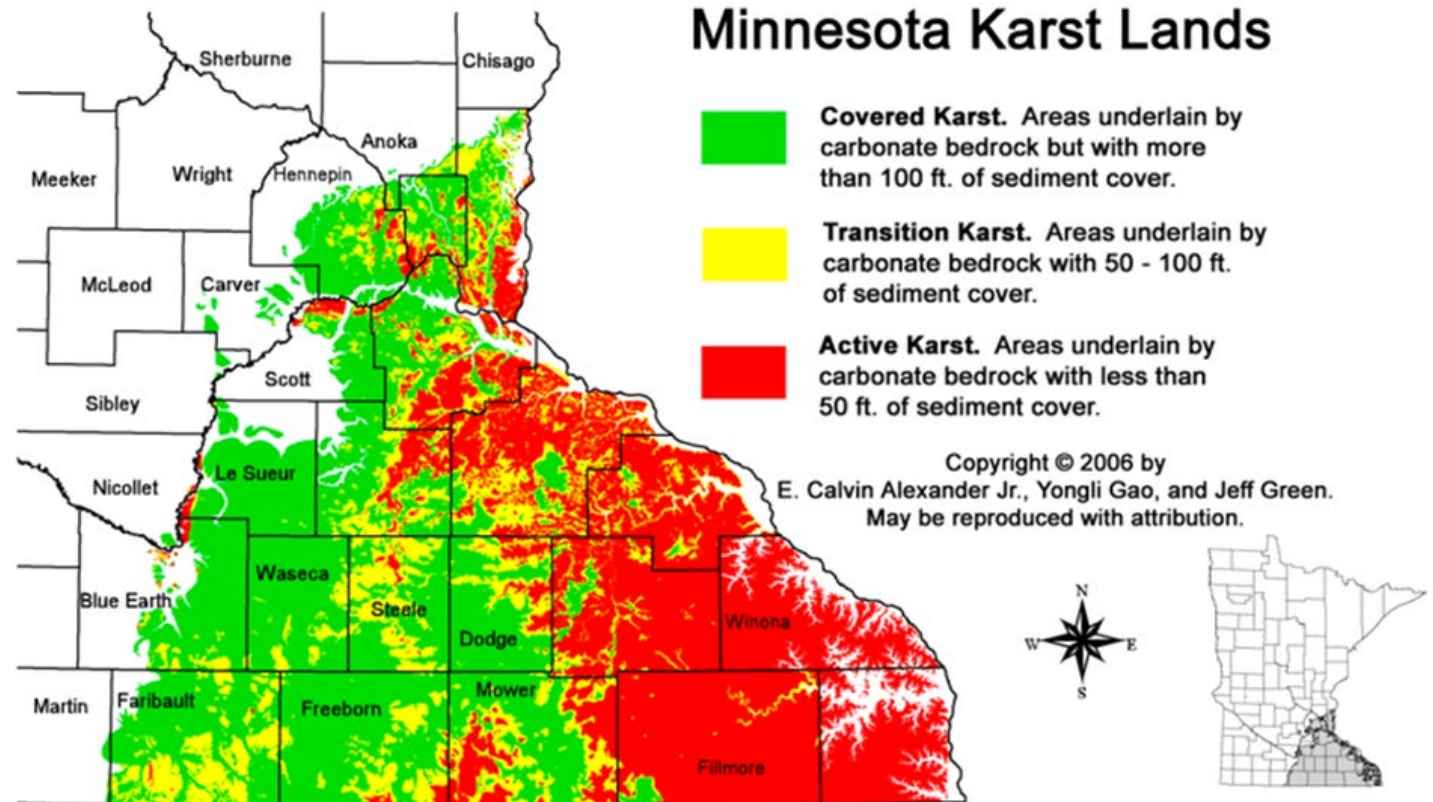


Greater protection in karst areas

Karst susceptible area:

50 ft or less to bedrock (red map area)

- More stringent design standards for liquid storage
- Distance to bedrock influences liner type
 - Less separation = more stringent liner design or prohibition
 - Some situations require 2 liners
- Field inspection of land within half-mile to look for unknown/new karst features



Land application of manure

Purpose: *Utilize manure nutrients and prevent impacts to water resources*

- Everyone who applies manure must:
 - Apply at agronomic rates (nitrogen)
 - Observe setbacks to waters
- Most (generally 100+ AU) need to:
 - Test manure for nutrient content
 - Keep records of applications
- Many (generally 300+ AU) need to:
 - Test and manage field soil phosphorus
 - Develop manure management plans (MMPs)



Want more info? See the fact sheet:
[Land application of manure - Minimum state requirements](#)

Agronomic rates

- Applicable to all manure application
 - Big (2,000 cows) or small (2 horses)
- Nitrogen (N) based
 - N needs of crop
 - N removal for legumes
 - Follow U of M recommendations
 - Rate must account for all nitrogen sources
- Phosphorus must be managed near waters
 - No excessive buildup

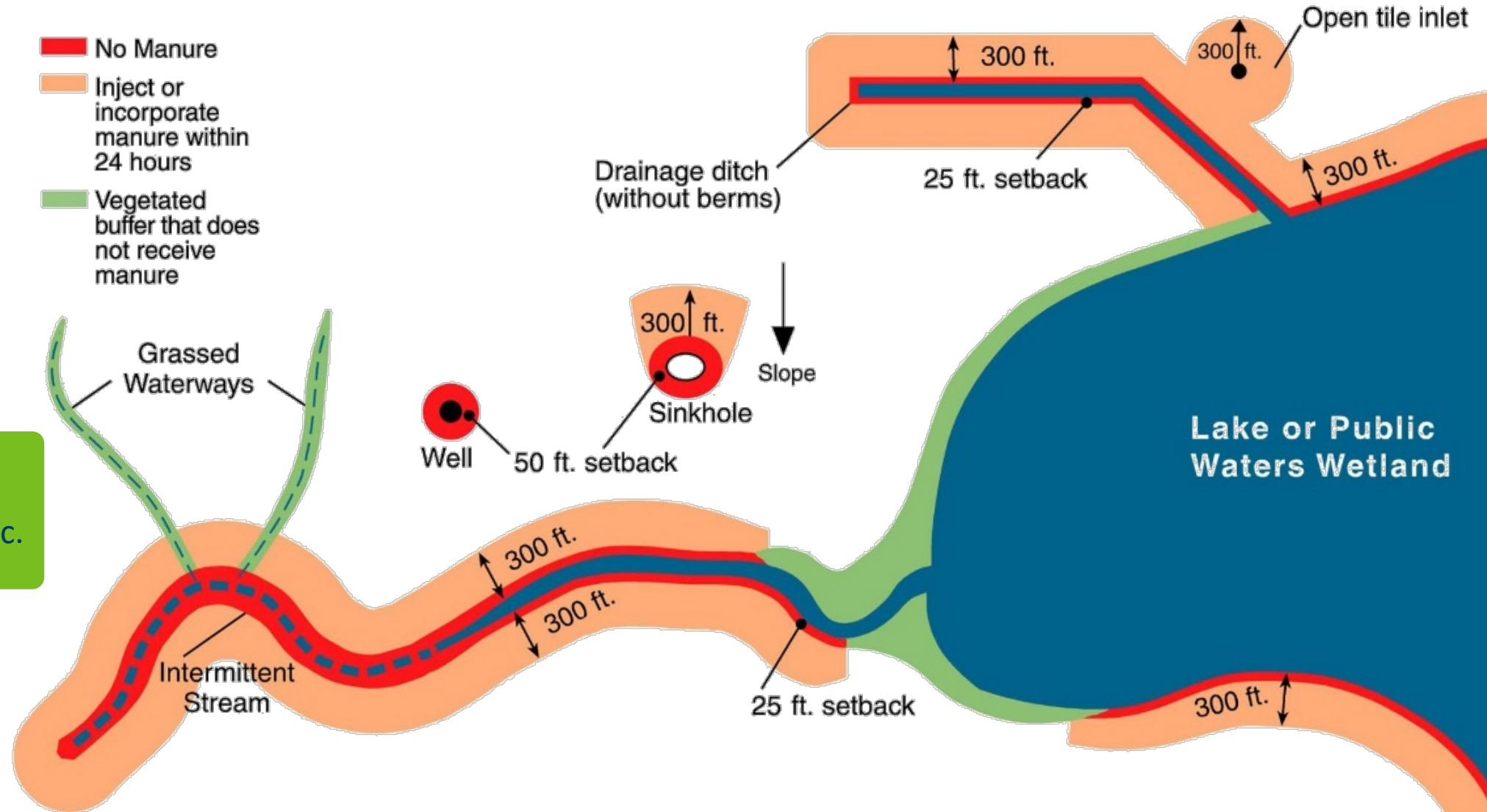
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CONTROL AGENCY



Manure Application Rate Guide



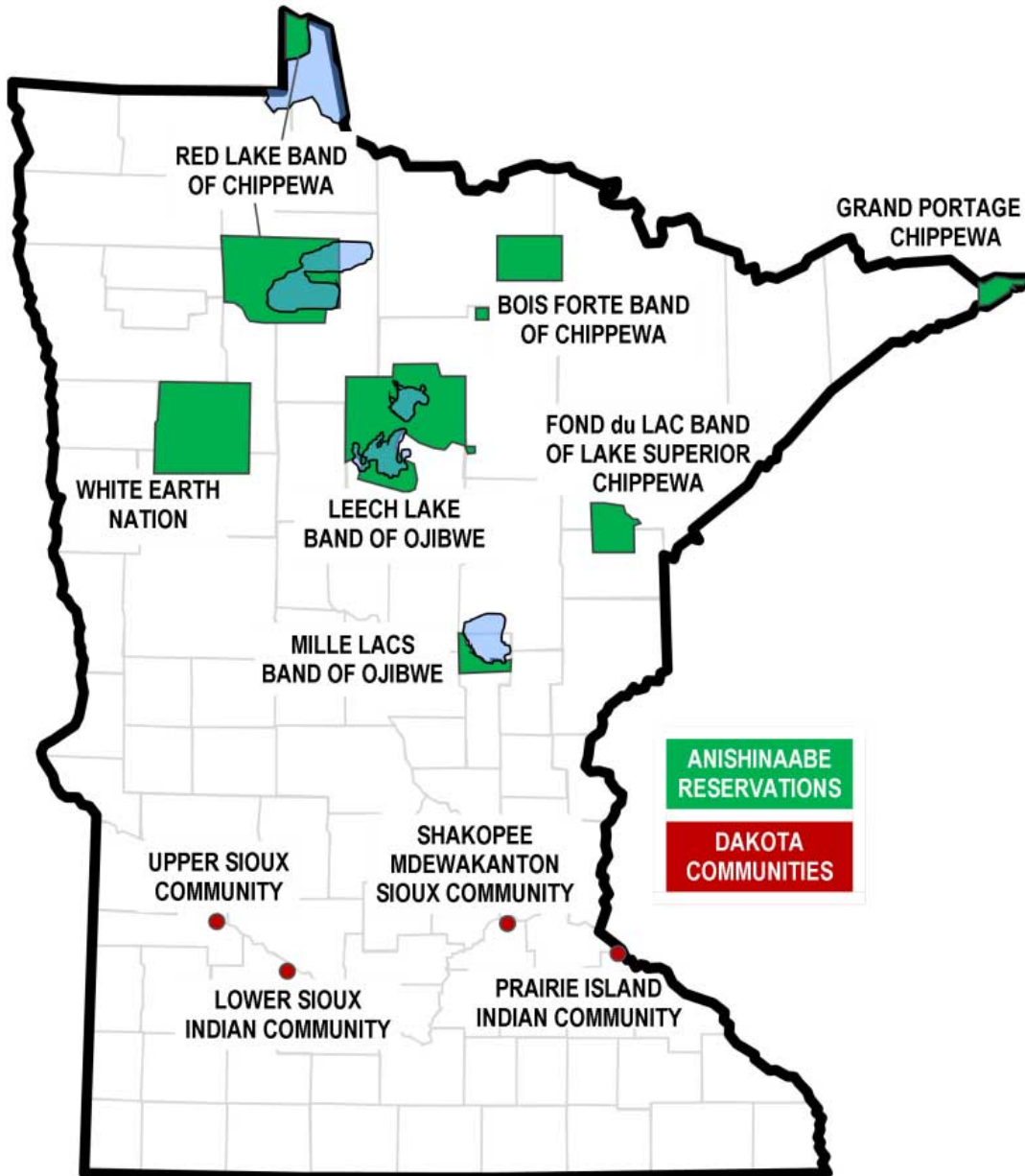
Setbacks to waters



No setbacks to homes, churches, cemeteries, etc.

Feedlot rules and Tribal lands

State rule applicability



- State feedlot rules apply on Tribal lands
 - State-level permitting
 - NPDES permits only issued by EPA
- Technical and land application standards
- Registered feedlots within tribal lands
 - Upper Sioux Community – 1
 - Leech Lake Band of Ojibwe – 5
 - Mille Lacs Band of Ojibwe – 6
 - White Earth Nation – 90 (1 - SDS permit)

Implementation: Continue to inform Tribal contacts about NPDES/SDS permitting actions within or near Tribal lands

Why change?

Advancement of agricultural practices

- Livestock production and agricultural practices have changed in 25 years
 - New information, research, and understanding regarding agriculture and the environment
 - Changes in crop production and nutrient management practices
 - Changes in livestock and poultry production techniques and practices
 - Evolution of regulatory strategies and technologies



New information, research, and understanding regarding agriculture and the environment

- High levels of nitrate in surface waters and groundwaters
- Increase of extreme unpredictable weather events
 - Fish kills
 - Manure storage area overflows
- Evolution of land application best management practices
- Recent MPCA work
 - 2014 Nutrient Reduction Strategy (2025 update)
 - Total Maximum Daily Load (TMDL) reports
 - Impaired waters
 - Watershed Restoration and Protection Reports (WRAPS) for all major watersheds
 - High nutrient and bacteria levels in streams
 - MPCA response to EPA petition
 - Proposed to review state feedlot rules

Changes in crop and nutrient management practices

- Precision agriculture technologies
- Increase in tile drainage
- Loss of small grains/alfalfa and accompanying grazing lands/operations
- Increased research on manure nutrient crediting
- Increased research and emphasis on nitrogen BMPs
 - Cover crops
 - Nitrification inhibitors

Changes are not judged as bad or good – just different



Changes in animal agriculture production

- Fewer feedlots but more animal units per facility
 - Consolidation and complex ownership structures
- More liquid manure handling systems
- Increase in manure sold or given (transferred) to cropland farmers for land application
- Increased reliance on commercial application of manure
- Different feed storage practices

Changes are not judged as bad or good – just different



Evolution of regulatory strategies and technologies

- Online services for registration, permitting, manure management planning, and reporting
- Move from paper to electronic data management system
- Demand for real-time information on regulated universe and program performance



The screenshot shows the MPCA Online Services portal. At the top is the MPCA logo, which consists of a stylized 'm' in blue and green, followed by the text 'MINNESOTA POLLUTION CONTROL AGENCY'. Below the logo is the title 'MPCA Online Services'. A welcome message states: 'Welcome to the new MPCA Online Services portal. We're in the process of preparing several online services for launch on this site, and will add more over the coming months as they become available. Online services that have been available to you from the MPCA Data page will continue to be available from that page until they are moved here.' Below the text are two input fields: 'Username' and 'Password'. At the bottom left are two buttons: 'Login' (dark blue) and 'Register' (light blue). At the bottom right is a link that says 'Forgot password?'.

m MINNESOTA POLLUTION CONTROL AGENCY

MPCA Online Services

Welcome to the new MPCA Online Services portal. We're in the process of preparing several online services for launch on this site, and will add more over the coming months as they become available. Online services that have been available to you from the MPCA Data page will continue to be available from that page until they are moved here.

Username

Password

[Login](#) [Register](#) [Forgot password?](#)

Areas of focus



Land application
of manure



Technical
standards



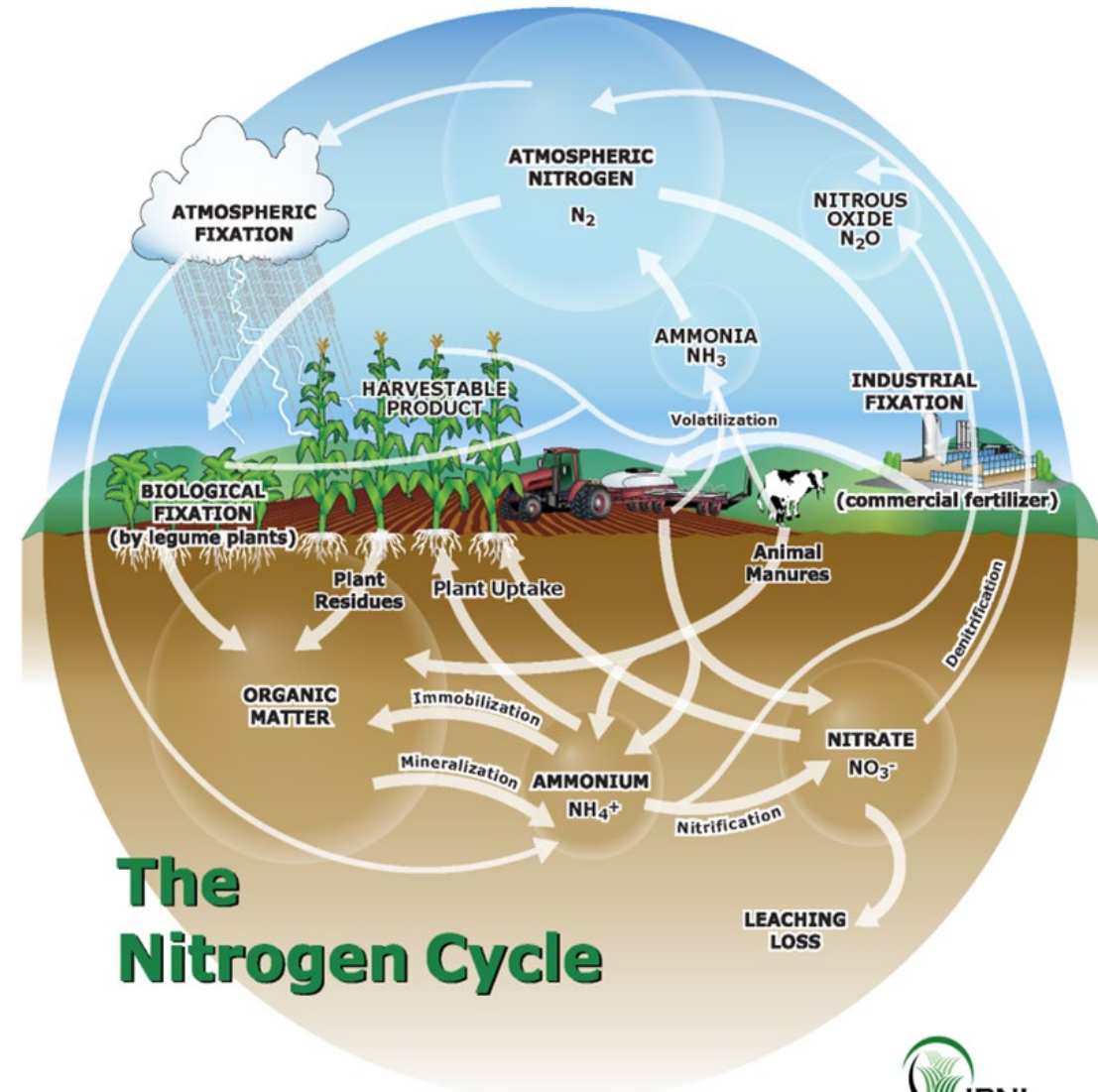
Rule
implementation



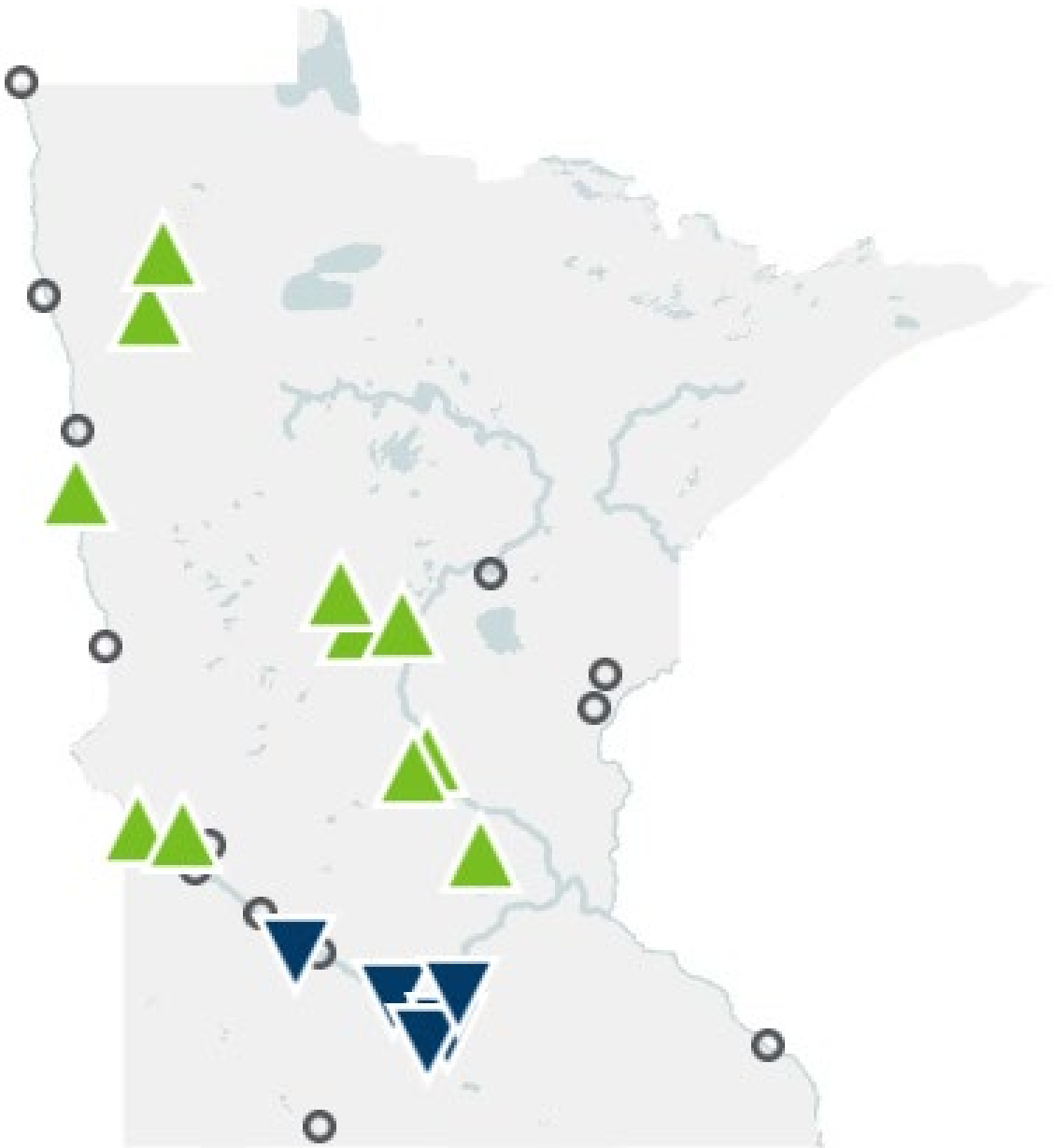
Land application of manure

Nitrogen cycle

- Nitrogen is all around us
 - 78% of the air we breathe
 - Nitrate in drinking water is a concern
- Nitrate formation is a natural soil process
 - Plants use nitrate but it is mobile with water and can be lost to water resources
 - Potential for nitrate loss is present even without fertilizer or manure applications
 - Goal: Reduce risk of loss to the environment



Surface water nitrate trends 2003-2022 (flow corrected data)

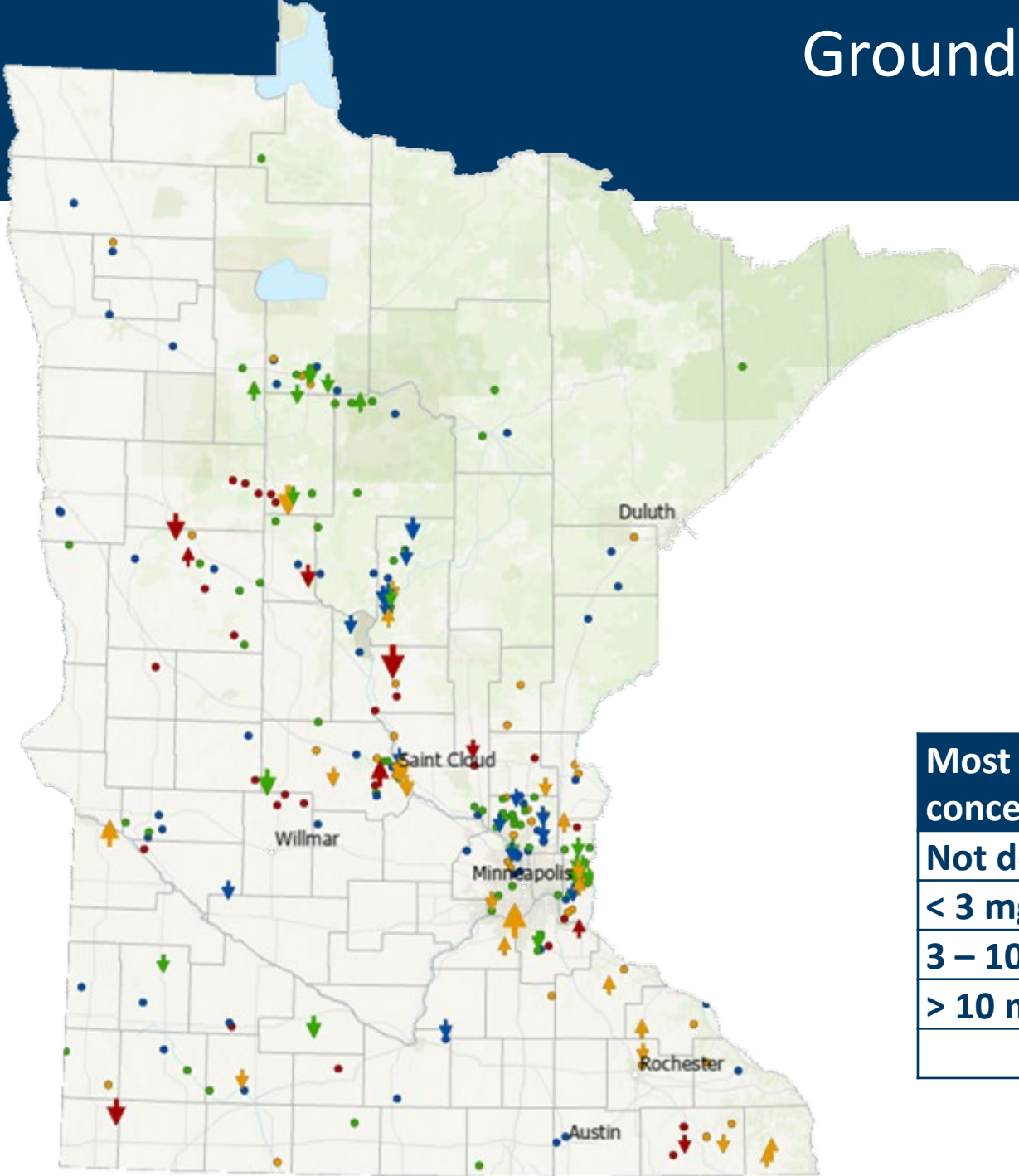


Statistical significance

- ▲ Increasing
- ▼ Decreasing
- No trend detected

- An increasing trend is not the same as high risk for people or aquatic life
- A decreasing trend or no trend does not mean that water quality is good

Groundwater monitoring nitrate trends 2013 - 2023 (MDA, MPCA, DNR)



Nitrate trend (2013-2023)

- ↑ Up
- ↓ Down
- None

Most recent nitrate concentration

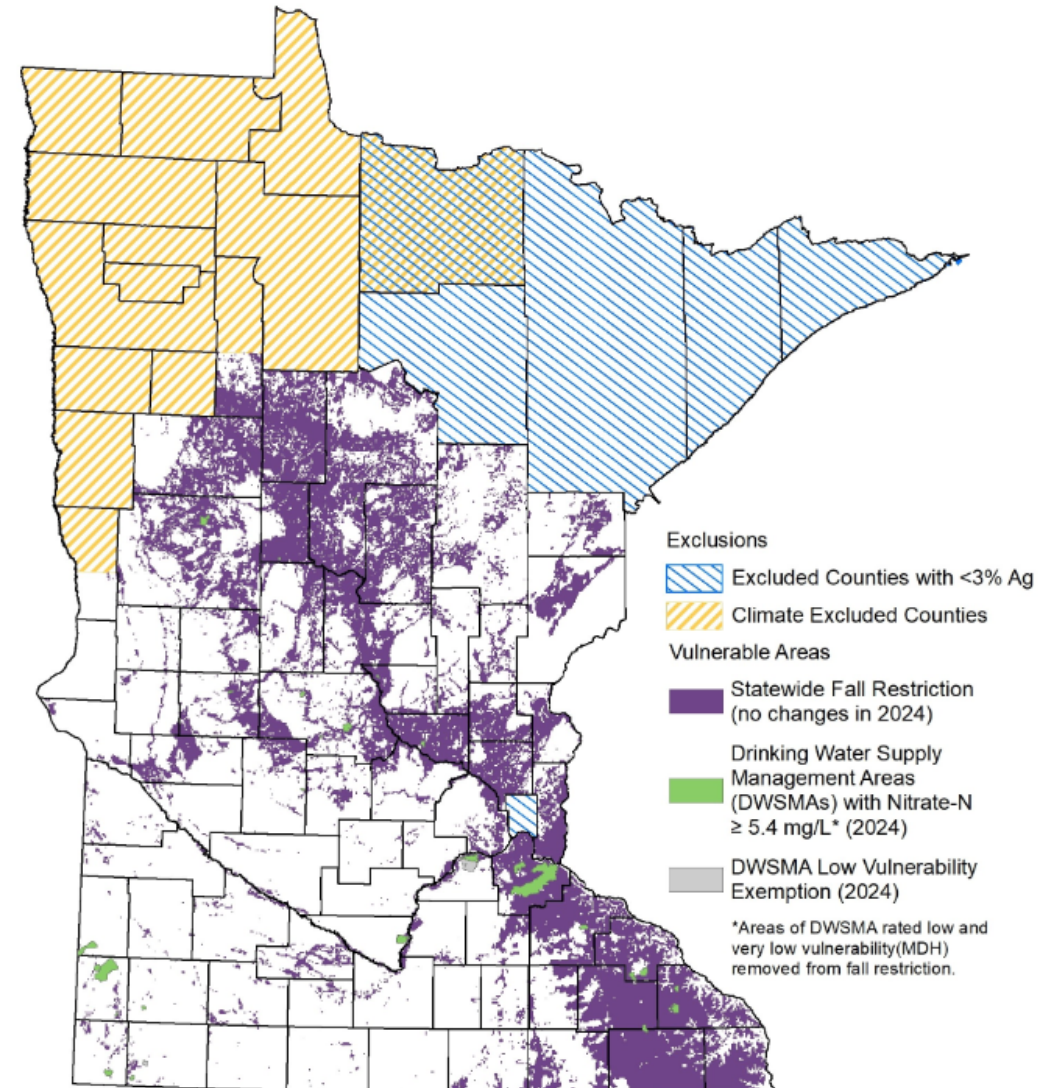
- Not detected
- < 3 mg/L
- 3-10 mg/L
- > 10 mg/L

Most Recent Nitrate concentration, in mg/L	Trending down	No trend	Trending up	Total #
Not detected	15	58	0	73
< 3 mg/L	17	68	2	87
3 – 10 mg/L	12	49	11	72
> 10 mg/L	7	27	4	38
SUM	51 (19%)	202 (75%)	17 (6%)	270

Cooperative efforts to address nitrates

Larger than just manure

- Other state agencies
 - MDA – Fertilizer management plan
 - MDH – Drinking water supply management areas
- U of MN research
 - Nitrogen BMPs
- Watershed organizations (SWCD, NRCS)
 - Cost share



Groundwater susceptibility

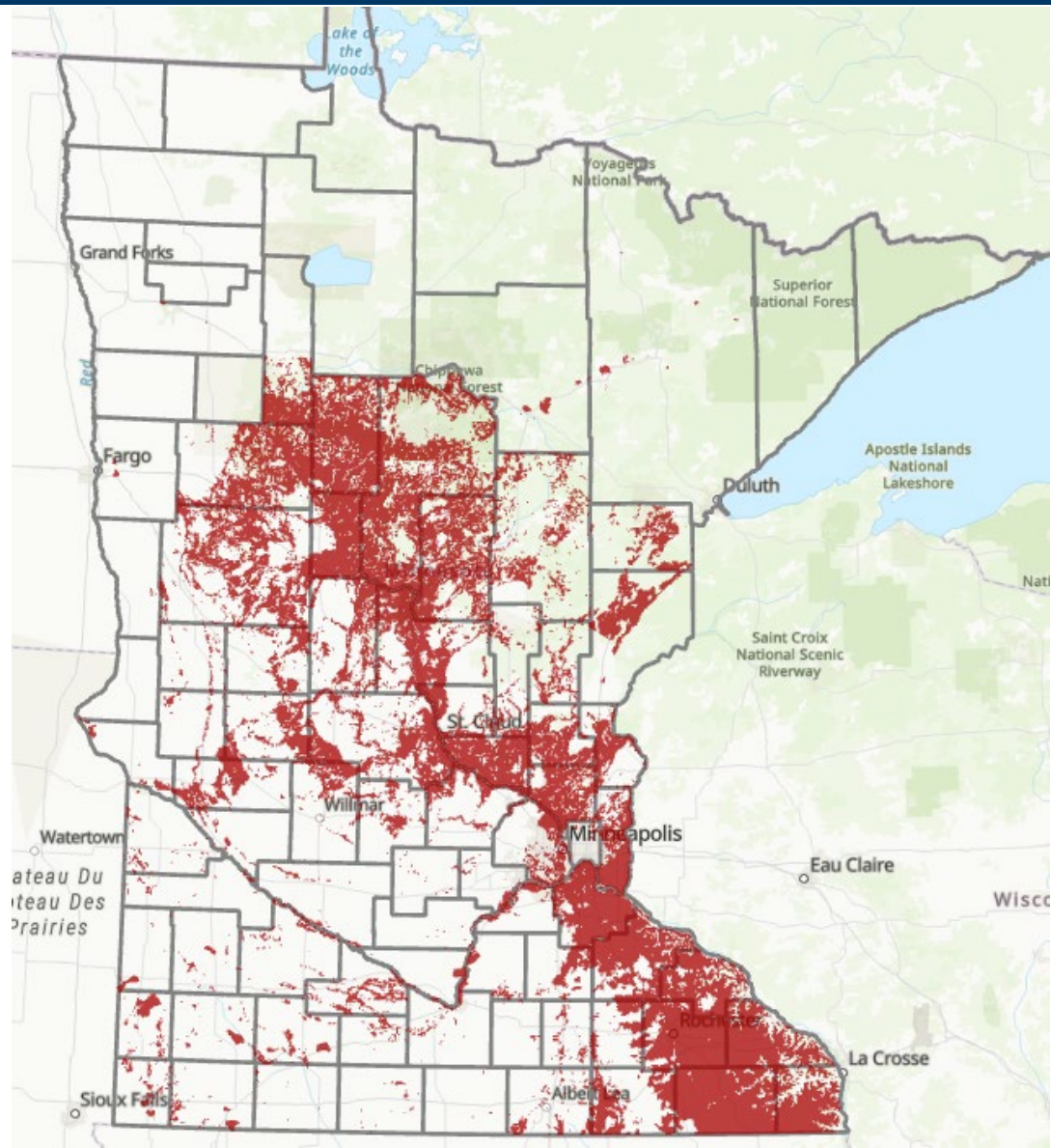
Geologic/soil conditions in some areas of the state can allow nitrate to move more easily through soil and into groundwater.

Example: Vulnerable groundwater area map created for NPDES and SDS permits

- MDA fall fertilizer restriction map
- Drinking Water Supply Management Areas with high vulnerability (MDH)

Something to think about:

- Should there be a similar concept incorporated into the rule for all manure applications?

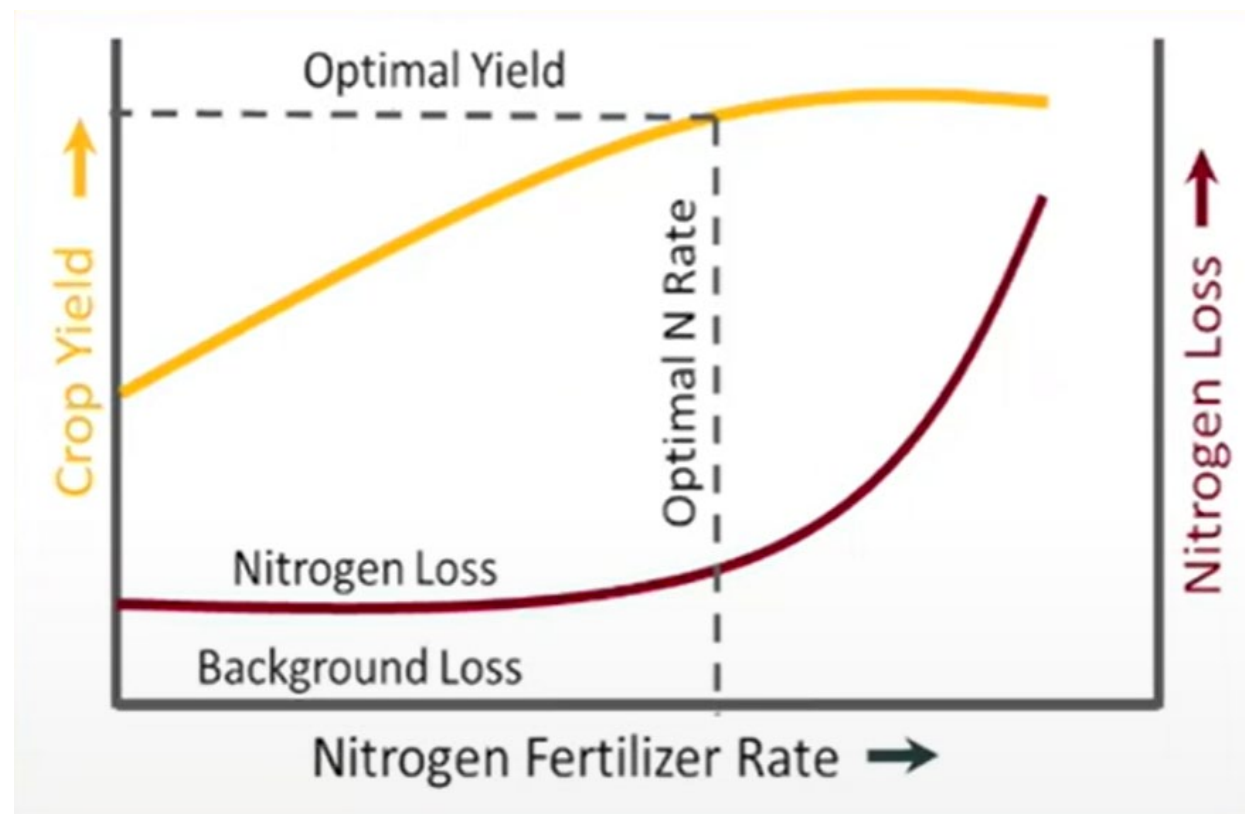


Basic nitrogen BMPs

Best Management Practices (BMPs) can limit potential for nitrate loss.

Current Rule: Requires basic N BMPs

- Apply at U of M recommended rates
 - Optimal N Rate
- Account for all nitrogen sources
 - Starter fertilizer
 - Credit from manure last year



Nitrogen best management practices are best for crops and the environment. Fabian Fernandez, U of M. 2025 Nitrogen Conference

Other nitrogen BMPs

Other N BMPs used with manure application

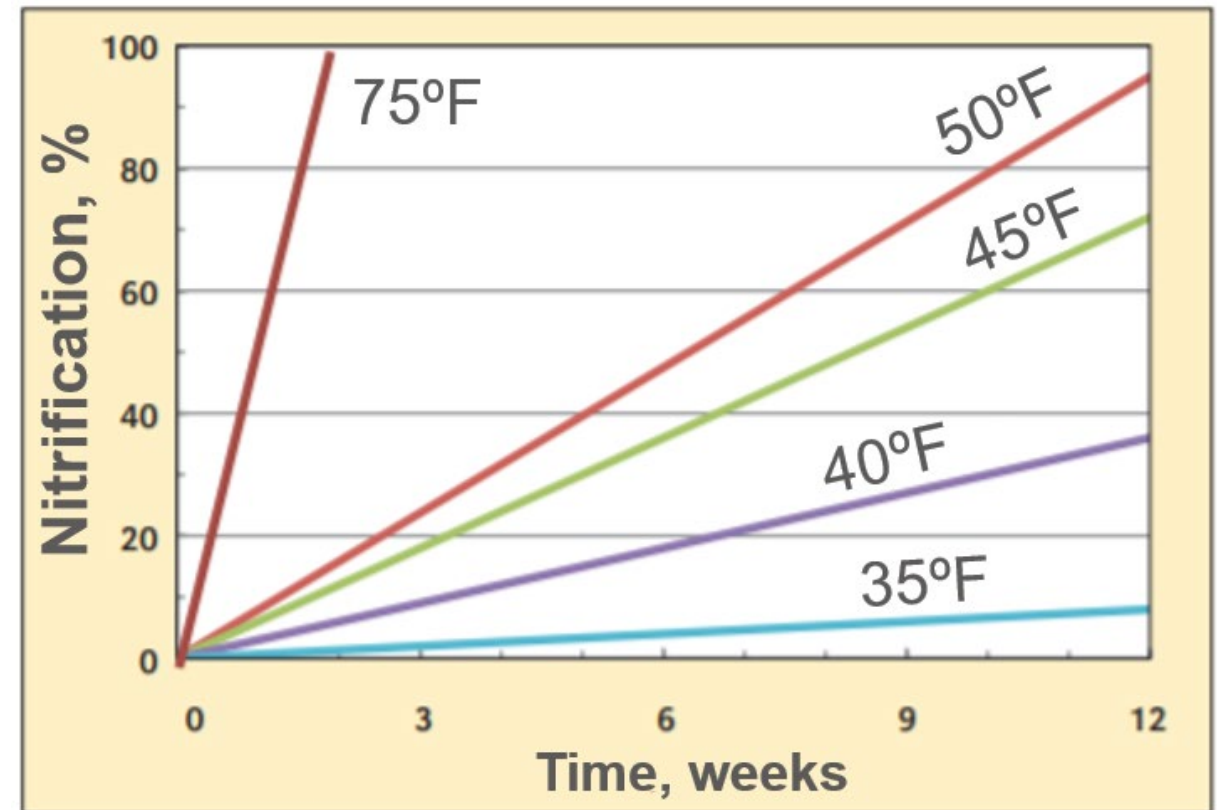
- Applying manure to cool soils (50° F)
- Cover crops
- Perennials in the rotation
- Nitrification inhibitors
- Split applications of nitrogen

Example: NPDES/SDS permits require N BMPs based on:

- Time of application
- Geologic/soil conditions (vulnerability)
- Type of manure (liquid vs. solid)

Want more info? See the fact sheet:
[Applying manure from NPDES/SDS permitted feedlots](#)

Effects of soil temperature on nitrification



IPNI. [http://www.ipni.net/publication/nitrogen-en.nsf/0/7F7F448C4D064A5985257C13004C83A3/\\$FILE/NitrogenNotes-EN-04.pdf](http://www.ipni.net/publication/nitrogen-en.nsf/0/7F7F448C4D064A5985257C13004C83A3/$FILE/NitrogenNotes-EN-04.pdf)

Nitrogen management is a complex issue

Things to think about:

- Nitrates are impacting groundwater, surface water, and drinking water supplies
- Weather greatly influences nitrogen loss
 - Even if everything is “done right,” loss may still occur
- Many N BMPs require a significant amount of manure storage
 - Smaller sites tend to have limited storage capacity
- N BMPs can make it more difficult to land apply manure
 - Shorter application window for fall application before soils freeze
 - Spring application window is influenced by precipitation and desired spring planting dates

Runoff from land application sites

Current rule: Uses setbacks to reduce manure runoff risk

- What has changed
 - More extreme weather events
 - Increased potential for runoff and impacts to water quality including fish kills
- Other potential ways to help reduce risk (from NPDES and SDS permits)
 - Time application to avoid predicted rainfall
 - Avoid application to saturated fields
 - Visual observation of application fields after rainfall
 - Winter application limitations

Things to think about:

- Storage limitations influence times when manure can be applied
- New tools are now available to help (Ex: Runoff Risk Advisory Forecast)

Transferred manure

Transferred manure: Manure sold or given to someone else to land apply to their crop fields

Current rule: MMP not required of recipient & limited records provided back to the feedlot

- What has changed
 - More reliance on transferring manure
 - More tools available to assist with planning and recordkeeping
- Other potential ways to ensure compliance with manure application rules
 - Manure application planning required for recipients
 - Increased recordkeeping and reporting for recipients
 - More communication between facility and recipient

Recipients must apply at agronomic rates, observe setbacks, and keep records

Things to think about:

- Potential for impacts are the same no matter who is managing the field
- Crop farmers may not be familiar with manure application regulations

Technical standards

Liquid manure storage areas

- What has changed
 - Increase in feedlots size and more managing manure as a liquid
- Related factors to consider
 - Aging LMSA liner integrity and functionality
 - Manure storage capacity key to proper manure management
- Potential ways to address changes and related factors
 - Design standards to address greater size and depth of LMSAs
 - Re-evaluate liner integrity at certain times during the life of the LMSAs
 - Groundwater monitoring of aging LMSAs
 - Require enough storage capacity to implement N BMPs and avoid winter application (4 - 6 months)

Things to think about:

- Geologic conditions play a large role in risk of impacts from liquid storage
- Storage is a large expense for farms
Estimate: \$700 - \$1,000/dairy cow
(concrete liner & 4 months of storage)

Feed storage areas

Current rule: No specific design standards, runoff considered process wastewater

- What has changed
 - More silage/feed storage per facility as AU per facility increase
- Related factors to consider
 - No current design requirements in rule
 - Runoff can impact water quality
- Potential ways to reduce risk from feed storage
 - Location requirements (i.e. setbacks to waters)
 - Design standards for feed storage area pads (required for NPDES/SDS permits)
 - Establish criteria for runoff collection (required for NPDES/SDS permits)

Things to think about:

- Not all feedstocks or storage facilities have the same leachate/runoff potential
- Runoff storage structures are expensive

Livestock access to waters

Current rule: Animals at smaller feedlots are allowed to access streams/rivers

- What has changed
 - Sampling indicates nutrient and bacteria impairments in waters
- Related factors to consider
 - Pastures are not considered animal feedlots
- Other potential ways to manage access to waters
 - Controlled access to waters with BMPs (NRCS programs/design)
 - Limit the size of facilities where animals are allowed to freely access waters

Things to think about:

- Animals need water
- Feedlot rules do not apply to animals only on pasture

Rule implementation

Permits and registration

- What has changed
 - More animals per site
 - Complex ownership structures – more LLPs, LLCs, etc.
- Related factors to consider
 - Commonly owned sites in close proximity to each
 - One site or multiple sites for registration and permitting
- Potential ways to update the permit and registration program
 - Re-examine the current permit and rule thresholds
 - Update rules to accommodate complex ownership arrangements
 - Establish criteria to define when two or more sites should be considered one site



Animal units (AUs)

- What has changed
 - Production models have changed (i.e. raising animals to different weights)
 - Federal rules no longer use AU – just head count
- Potential ways to address industry changes
 - Adjust AU factors to reflect current production trends
 - Adjust AU factors to better align with large federal CAFO thresholds
 - More defined categories for some animal types

Example: More categories for turkeys of varying market weights

Something to think about:

- Other state/county regulations use MPCA feedlot animal units

New agency data services

- What has changed
 - Online services
 - Registration
 - Permitting
 - Nutrient Management Tool
 - Annual Report (coming 2027)
- Potential ways to incorporate new technology
 - Update rule language to reflect new submittal methods

Something to think about:

- Technology limitations and access to the internet



MPCA Online Services

My Online Services

Feedlot Annual Report

Feedlot Permitting

Feedlot Registration

Nutrient Management Tool

Rulemaking process and timeline

Rule process overview

Note: This is not to scale with the rule timeline



Draft rule and SONAR development (2025-2027)

- Rule language is drafted by the Agency and approved by the Office of the Revisor of Statutes
 - The Agency will ask for feedback on rule concepts throughout the rule writing process
 - A draft rule will not be published until the Notice of Hearing stage
- The SONAR is a document that accompanies the rule and identifies:
 - The need and reasonableness of amendments,
 - Persons affected by the rule,
 - Economic impacts of the rule, and
 - Other requirements as outlined in *Minnesota Statutes* section 14



Get involved

Informal opportunities for stakeholder involvement



- Will coincide with rule and SONAR development (2025-2027)
 - Informal feedback opportunities
 - The Agency will ask for feedback on rule concepts throughout the rule writing process
- Rule-specific webpage:
 - <https://www.pca.state.mn.us/get-engaged/animal-feedlots>
- GovDelivery
 - Agriculture Stewardship newsletter
 - Rulemaking: Animal Feedlots



Formal opportunities for stakeholder involvement

Happening now:

- Request for comment period: March 24 to July 22
 - Recorded virtual webinar: May
 - In-person information sessions: June

Future opportunities:

- Notice of Hearing (years from now)
 - Formal comment period: Minimum 30 days
- Hearing (years from now)
 - Verbal testimony
 - Post-hearing comment and rebuttal period



Request for comments



- Legal notice that rulemaking has begun
- Published in the *Minnesota State Register*, the official weekly publication of the State of Minnesota's Executive Branch of government.
- Request for comments (RFC) period to give feedback, submit comments, and ask questions.
 - Allows MPCA to address important issues and helps to ensure informed decision-making as rules are drafted
 - The MPCA has posed nine specific questions in the RFC

Reminder: There will be future opportunities for both formal and informal comments.

How to comment



Share your feedback through the OAH eComments portal.

- Comment period opened **March 24, 2025.**
- Comment period closes **4:30 p.m. July 22, 2025**

Written comments can be submitted to:

OAH Attn: William Moore, OAH
600 N Robert St. PO Box 64620
St. Paul, MN 55164-0620



<https://minnesotaoah.granicusideas.com/>

Important note: Comments cannot be submitted via phone or email.

Thank you!

George Schwint, Technical Lead
george.schwint@state.mn.us

Addison Otto, Rule Coordinator
addison.otto@state.mn.us