

## Draft Groundwater Protection Rule

The Minnesota Department of Agriculture (MDA) recently released the framework for the Department's draft Groundwater Protection Rule. The purpose of the rule is to minimize potential fertilizer sources of nitrate pollution to the state's groundwater and protect our drinking water. This framework reflects a revision of the draft Nitrogen Fertilizer Rule that was released in June 2017. This fact sheet outlines the draft rule and the changes the MDA made as a result of public feedback. It does not present the draft Groundwater Protection Rule in its entirety and should not be viewed as comprehensive. A full draft Groundwater Protection Rule will be released in May 2018 for public comment.

### Why is nitrogen fertilizer a concern?

Nitrate is one of the most common contaminants in Minnesota's groundwater. The majority of Minnesota households have access to safe drinking water supplies. However, in areas vulnerable to groundwater contamination, some public and private wells have nitrate levels that exceed the health risk limit for nitrate. While elevated levels of nitrate in groundwater can result from several factors, a major contributor in rural Minnesota is nitrogen fertilizer that leaches past the crop root zone.

### Nitrogen Fertilizer Management Plan

The rule is based on the state's Nitrogen Fertilizer Management Plan (NFMP). The MDA uses the NFMP as the primary blueprint for preventing and minimizing impacts of nitrogen fertilizer on groundwater. The NFMP promotes the nitrogen fertilizer Best Management Practices (BMPs) developed by the University of Minnesota and was developed using a multi-stakeholder advisory committee and a public review process. It emphasizes involving local farmers and agronomists in problem-solving for local groundwater concerns when nitrate from fertilizer is a key contributor. Authority for the NFMP and rule comes from the Groundwater Protection Act, Minnesota Statute 103H.

### Why the rule changed

The MDA informally published a draft of the rule in the summer of 2017 to provide an opportunity for public input even before commencing the formal rulemaking process. More than 1,500 people attended public meetings in Chatfield, Fairmont, Farmington, Hawley, Marshall, McIntosh, Roseau, St. Cloud, St. Paul, Wadena and Warren. Additional public meetings were held in Bemidji, Crookston, Mankato, Marshall, Rochester and St. Cloud as part of the Governor's Water Town Hall Meetings. The MDA also received over 820 written comments on the rule and each of those comments was reviewed during the revision process.

The changes proposed in this revised rule are the result of the feedback we received and the MDA's commitment to developing a commonsense rule that is based on science, but also practicable, as required by the 1989 Groundwater Protection Act.

## Recent changes to the Draft Groundwater Protection Rule

The 2018 draft Groundwater Protection Rule contains two parts. It also contains important changes to the first draft of the rule released last year. The key changes are:

- The restricted areas for fall application of nitrogen fertilizer and the application of nitrogen fertilizer on frozen fields (Part 1) have changed;
- The MDA will focus its efforts on protecting public drinking water systems also known as Drinking Water Supply Management Areas (DWSMAs) that have high nitrate levels (Parts 1 and 2). A DWSMA is the estimated land area that contributes water to a public water supply well over a period of 10 years.

DWSMAs are critical protection areas for Minnesota's public water supplies. More than 50% of Minnesotans rely on groundwater-based public water systems. Public water supply wells are monitored for water quality under the Safe Drinking Water Act administered by the Minnesota Department of Health (MDH). The primary goal of the rule is to minimize nitrate losses in DWSMAs and to take action before a public water supply well exceeds the drinking water standard of 10 mg/L nitrate-nitrogen.

### **Part 1 – Use of nitrogen fertilizer in the fall and on frozen soils will be restricted in areas with a) vulnerable groundwater and b) DWSMAs with elevated nitrate.**

The application of nitrogen fertilizer in the fall or on frozen soils will be restricted to quarter-sections of land where 50% or more of the quarter-section is in an area with vulnerable groundwater and in DWSMAs that have nitrate-nitrogen concentrations at or in excess of 5.4 mg/L. An area with vulnerable groundwater is an area where nitrate can move easily through soil and into groundwater, contaminating drinking water sources. Vulnerable areas for Part 1 of the rule are defined as:

- coarse textured soils based on USDA NRCS soils maps;
- shallow bedrock based on USDA NRCS soils maps; or
- karst geology based on MN DNR maps.

#### **Part 1 Exceptions**

There are several exceptions to Part 1 of the rule. Fall application of nitrogen fertilizer will be allowed:

- to establish winter grains planted in the fall;
- for fall pasture fertilization;
- for perennial crops;
- for grass seed production;
- for cultivated paddy rice; and
- for growing fall cover crops within a potato rotation.

There are additional exceptions related to the presence of clay soils with ultra-low permeability, reduced leaching potential combined with a short spring planting season, and in counties with less than 3% of the land in row crops.

Ammoniated polyphosphate (MAP and DAP) and micronutrient formulations containing nitrogen can be applied as long as the applied rate does not exceed 40 pounds of nitrogen per acre. Fields with low or very low phosphorus are exempt from this restriction.

Fall nitrogen fertilizer applications will also be allowed for agricultural research and demonstrations for academic purposes, provided the area is limited to 20 acres or less, or approved by the Commissioner of Agriculture.

These restrictions will not take effect until January 1, 2020.

## **Part 2 – Mitigation efforts in Drinking Water Supply Management Areas (DWSMAs) with elevated levels of nitrate**

### **Part 2 of the rule applies to DWSMAs.**

This part of the rule is a combination of voluntary and regulatory efforts designed to work with local farmers and their agronomists to find solutions that are tailored to their specific situation. There are four levels in Part 2 of the rule. Levels 1 and 2 are voluntary, and Levels 3 and 4 are regulatory. Under Levels 3 and 4 the Commissioner of Agriculture will work with local advisory teams to consider the appropriate regulatory requirements.

DWSMAs that fall under Part 2 of this rule will be monitored and will move up or down according to changes in water quality. DWSMAs may only move up one mitigation level at a time. For example, a DWSMA will never go from Level 1 to Level 3 in a single cycle.

### **Level One**

Fields located in DWSMAs that contain 5.4 to less than 8 mg/L nitrate-nitrogen fall under Level 1. At this mitigation level the MDA will encourage the voluntary adoption of the University of Minnesota's Best Management Practices (BMPs) for nitrogen fertilizer.

### **Level Two**

Fields located in DWSMAs that are at or exceed 8.0 mg/L nitrate-nitrogen or have been at or exceeded that level at any point during the previous 10 years, or that are projected to exceed 10 mg/L nitrate-nitrogen in ten years, will be included in Level 2. The MDA will promote the implementation of BMPs and conduct surveys to assess the adoption rates of BMPs.

### **Level Three**

A Level 2 site will progress to Level 3 if one of the following occurs: 1) after three growing seasons the BMPs are not adopted on 80% of the cropland acres (excluding soybean acres); or 2) after three growing seasons the residual soil nitrate below the root zone increases; or 3) after three growing seasons or the estimated lag time, whichever is longer, the nitrate concentrations continue to increase. The Commissioner of Agriculture – in consultation with a local advisory team – would then require landowners to implement best management practices, testing, and educational programs.

### **Level Four**

If nitrate-nitrogen in the public water supply well exceeded 9 mg/L for any three samples in the previous 10 years; or after three years the residual soil nitrate below the root zone increases; or after three years or the estimated lag time, whichever is longer, the nitrate levels continue to increase, then the DWSMA would be given a Level 4 designation. The Commissioner of Agriculture – in consultation with a local advisory team – could require landowners to implement additional practices beyond best management practices. These practices would be determined on a site specific basis following guidance outlined in MN Statutes Chapter 103H.275 Subd. 2(a). However they may not include restrictions on the primary crop or restrictions on fertilizer rates below the low end of the University of Minnesota recommended fertilizer rate range.

### **Part 2 Exceptions**

**Progress Under Way** – In areas where progress is being made, the Commissioner of Agriculture could grant a one-time exemption for each level before moving the area to the next level of regulation.

## What was changed from Draft #1 to Draft #2 of the rule?

		June 2017	March 2018
<b>Part 1</b> <b>Statewide Restrictions on Nitrogen Fertilizer Application in the Fall and on Frozen Soil</b>	Vulnerable Groundwater Area Definition	Areas with vulnerable groundwater were defined using a method that measured how water moved through a 5 foot soil profile (Ksat) and karst geology	Areas with vulnerable groundwater defined based on USDA NRCS soil maps and karst geology
	Field Determination Criterion	Used full sections of land to determine if Part 1 of the rule applied to individual fields	Uses quarter-sections of land to determine if Part 1 of the rule applies to individual fields
	County-level exemptions	Provided no county-level exemptions	Exempts counties based on their low risk for nitrate contamination in groundwater due to climate and minimal row crops
<b>Part 2</b> <b>Mitigation Efforts</b>	Eligibility Criterion	Applied to both townships and DWSMAs	Applies to DWSMAs

## Timeline and next steps

<b>June 2017</b>	Draft rule released for an informal public comment period.
<b>Summer 2017</b>	Seventeen public listening sessions and multiple stakeholder group meetings held around the state in order to explain the draft rule, listen to concerns, and collect comments.
<b>Fall 2017/ Winter 2018</b>	MDA staff reviews comments and revises the proposed rule.
<b>March 2018</b>	The Governor and MDA hold a press conference to announce the framework of the proposed rule.
<b>Spring 2018</b>	MDA staff completes the draft of the rule and the Statement of Need and Reasonableness. MDA begins outreach to stakeholders to explain the content of the proposed rule.
<b>Early May 2018</b>	MDA publishes the draft Groundwater Protection Rule and Statement of Need and Reasonableness. A 30-day public comment period begins with the publication of the rule.
<b>Summer 2018</b>	Hearings are held at various locations before an Administrative Law Judge (ALJ).
<b>Fall 2018</b>	Administrative Law Judge completes report, gives MDA time to respond to ALJ report.
<b>December 2018</b>	MDA submits the final Groundwater Protection Rule to the Office of Administrative Hearings, the Office of the Revisor of Statutes, and the Governor.
<b>January 2019</b>	Governor signs final rule.
<b>January 2020</b>	Fall fertilizer application prohibition goes into effect.