Nutrient Management Update
2018

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WI Dept. of Agriculture, Trade and Consumer Protection
WI Agricultural Water Quality Performance Standards

NR151 & ATCP 50 Wis. Admin. Codes

NR 151 SETS Performance Standards

- Meet T for fields and pastures
- Follow 2015-590 NM plan Jan. 2018
- Follow a 5’ to 20’ tillage setback from water
- Prevent direct runoff: feedlots, waste water, or manure storage
- Follow manure storage tech standards constructing, abandoning, prevent overflow and leaks
- Limit livestock access to maintain banks

Near surface water or areas susceptible to groundwater contamination
- Don’t pile manure
- Divert clean water away from manure
- Prevent well contamination over Silurian Bedrock from mechanical applications

ATCP 50 SETS HOW to implement PS using conservation technical standards

Describes how farms need NM plan when offered cost share $ or without cost share if:

1. Participating in the
   Farmland Preservation
2. Regulated by permits DNR WPDES or local ordinance manure storage or livestock siting
3. Accepting manure storage cost share
4. Causing a significant discharge

Exceeding state standards ATCP 50.04 is only allowed if approved by either DATCP or DNR. A local governmental unit is responsible for analyzing the legal adequacy of its regulations.
June 2018 DNR passed **Silurian Bedrock Performance Standard NR 151.075 and NR 243.143**

Applies to mechanical manure applications to prevent fecal pathogens from contaminating wells where Silurian bedrock is within 20’ of the soil’s surface

| Thickness of Unconsolidated Materials over Silurian Bedrocks |
|-----------------|-----------------|
| 0-2 ft          | 2-5 ft          |
| 5-20 ft (5-16 ft in Door County) |

2-20’ setbacks: **1000’** of community wells, **300’** up 100’down slope from direct conduits to groundwater (DCTGW), **250’** of drinking wells, **100’** of concentrated flow channel (CFC) leading to DCTGW.

Fields with 100’ from closed depression or ≥6% slope and CFC to closed depression:
1. Incorp within 24 hrs or prior to precip producing runoff, or
2. Use 3 or more years of no tillage.

- Follow NM plan using ATCP 50.04(3) - 590, UW Recs
- 0-2’ to Silurian bedrock or apparent water table – prohibited mechanical applications
- 2-5’ to bedrock – no mechanical winter applications or manure stacking or when rainfall >1” is forecast to occur within 24 hours
Exemption – Pre-tillage, incorporation, or injection is not required if 3 or more years of no tillage or if fields can’t meet T when implementing tillage, crops, contouring, filter strips, or cover crops.

Liquid manure exemption limit of 6.75K gal/acre/application where bedrock is within 2-5’ and 10K gal/acre/application where bedrock is within 5-20’.

Silurian Bedrock Performance Standards NR 151.075 and NR 243.143
Applies to mechanical manure applications

Solid manure  >11% DM
2-5’ incorp within 72 hrs * and pick 1:
• 15T/A~ 30 lbs N/A
• Use A2809 rates on est crop or within 10 days of planting
• ≤ 500,000 Colony Forming Units (CFU)
5-20’ follow 2015-590

Liquid manure
2-5’ pre till and incorp within 24 hrs * and pick 1:
• 6.75K-13.5K Gal/A
  ~ 81-162 lbs N/A
• Use A2809 rates on est crop or within 10 days of planting
• ≤ 500,000 CFU
5-20’ 13.5K-27K Gal/A
  ~ 162-324 lbs N/A

*Exemption – Pre-tillage, incorporation, or injection is not required if 3 or more years of no tillage or if fields can’t meet T when implementing tillage, crops, contouring, filter strips, or cover crops.
0-2’ to bedrock & GW------2-5’ to bedrock 2-20’ to bedrock

- No mechanical manure application within:
  - 1000’ of comm. wells
  - 300’ up
  - 100’down slope from DCTGW, 250’ of drinking wells
  - 100’ of CFC leading to DCTGW
  - 100’ from closed depression or fields ≥6% slope and CFC to closed depression:
    1. Incorp 24 hrs or prior to precip producing runoff, or
    2. Use 3 or more years of no tillage.
Silurian Bedrock Performance Standard NR 151.075 and NR 243.143

- DNR will enforce this rule on CAFOs as new permits are issued
- NR 151.075 may be enforced on smaller farms when cost share is offered and when ATCP 50 includes technical standards for implementing these performance standards – giving counties the authority to provide cost sharing to farmers to implement new requirements

- What will be **cost shared**? What are the bedrock mapping procedures, map scale, method for recording findings, who, how, and costs? What are **closed depressions** and what scale are they mapped? Will FPP require it?

- DATCP and Standards Oversight Council to begin the bedrock mapping technical standard process.
1. How to do Nutrient Management (NM). Follow 2015-590 NM Std. Sets cost share for compliance @ $40/ac for farms. Not available for WPDES farms.

2. When applying **manure or organic by-products** choose one phosphorus (P) strategy:
   - P INDEX ≤ 6 or
   - SOIL TEST P balance 50-100, draw down >100 PPM soil test P.

3. Requires NM planners to follow ATCP 50.04(3). Complete **NM plan checklist** annually, explain responses to DATCP or DATCP’s agent if requested.

4. DATCP request NM plan checklists from counties June 15. Please help your clients by submitting those signed checklists in the spring.
Use SnapPlus 18 and this checklist now

Nutrient Management Checklist

Use this form to check nutrient management (NM) plans for compliance with the WI NRCS 2015-580 Standard.

**COUNTY:**
**DATE PLAN SUBMITTED:**
**GROWING SEASON YEAR PLAN IS WRITTEN FOR:**
**TOWNSHIP:**
**NAME OF FARM OPERATOR RECEIVING NM PLAN:**
**BUSINESS PHONE:**
**STREET ADDRESS:**
**REASON THE PLAN WAS DEVELOPED:**

- Click and choose
- Click and choose
- (Ordinance, NR 254 WPDES or NCD, DATCP-PP or cost share) (cs), DRP-cs, USDA-cs, Other

**REVISED:**
**APPROVED:**
**SIGNATURE:**

**WAS THE PLAN WRITTEN IN ENGLISH:**
- Yes
- No

If yes, what software was used, if known?

**NAME OF QUALIFIED NUTRIENT MANAGEMENT PLANNER:**
**First Name Last Name**
**BUSINESS PHONE:**
**STREET ADDRESS:**

User header section to add comments. Make NA if shaded sections are not applicable.

1. Does the plan include the following nutrient application requirements to protect surface and groundwater?

   - Yes
   - No

   - a) Determine field nutrient levels from soil samples analyzed by a DATCP certified laboratory.
   - b) For fields or pastures with mechanical nutrient applications, determine the nutrient level from soil samples collected within the last 6 years according to 500 Standard (FS) and NAEII Pub A2820. A nutrient analysis should be made for each field or pasture. Wetland and floodplain moisture levels are 150 ppm and organic content of 6%.
   - c) For fields or pastures without mechanical nutrient applications, determine the nutrient level from soil samples collected within the last 6 years according to 500 Standard (FS) and NAEII Pub A2820. A nutrient analysis should be made for each field or pasture. Wetland and floodplain moisture levels are 150 ppm and organic content of 6%.

   - d) Identify all field names, boundary, acres, and location.

   - e) Use the field's previous year's yield credits and/or application records, soil survey, and available yield results to determine the crop's nutrient application rates consistent with A2820 for all forms of N, P, and K.

   - f) Make no winter applications of N and/or P fertilizer, except for pastures and winter grains.

   - g) Document method used to determine application rates. Nutrients shall not reach land or surface water after application.

   - h) Identify in the plan that adequate acreage is available for manure produced and/or applied.

   - i) Apply a single phosphorus (P) assessment using either the P Index or soil test method to management strategy to all fields within the plan where fields receive manure or other products during the cropping rotation.

   - j) Use complete crop rotations and the field's critical soil series to determine that sheet and tile erosion estimates will not exceed tolerable soil loss rates for fields that receive nutrients.

   - k) Use contouring, tillage, and crop rotation; or implement other practices to prevent erosion and maintain or increase yield.

   - l) Make no nutrient applications within 10 feet of irrigation wells or where vegetation is not removed.

   - m) Make no nutrient applications within 50 feet of all direct conduits to groundwater, unless directly deposited by gleaning, pasturing, or applied as starter fertilizer to corn.

**Using the NM Checklist to Review a Nutrient Management Plan**

The information found on the NM Checklist is used to show the plan meets the WI NRCS 2015-580 NM Technical Standard. It is intended to track the progress of Wisconsin NPM planning. NPM planning is one of the best practices farmers can use to conserve profitability, reduce erosion, and improve water quality. Any farmer or local entity who is interested in applying for a nutrient management plan may be interested in reviewing this checklist.

- **1.** Print the NM Checklist number with the following sections:
  - 1. Print the NM Checklist number and the checklist version.
  - 2. Print the checklist reports elaborated in each section and outlined on the bottom of each page.

- **3.** Print the checklist reports elaborated in each section and outlined on the bottom of each page.

- **3.** Print the checklist reports elaborated in each section and outlined on the bottom of each page.

**4.** Print the checklist reports elaborated in each section and outlined on the bottom of each page.

5. All nutrient needs are calculated for each year of the rotation, up to 10 years, to determine if the farm has adequate acres to comply with 580. The nutrient flow diagram shows the total amount of nutrients applied over time and the organic matter content of the soil.

6. NM and NPM policies are intended to reduce nutrient runoff and ensure compliance with the WI NRCS 2015-580 NM Technical Standard. It is intended to track the progress of Wisconsin NPM planning. NPM planning is one of the best practices farmers can use to conserve profitability, reduce erosion, and improve water quality. Any farmer or local entity who is interested in applying for a nutrient management plan may be interested in reviewing this checklist.

7. NM and NPM policies are intended to reduce nutrient runoff and ensure compliance with the WI NRCS 2015-580 NM Technical Standard. It is intended to track the progress of Wisconsin NPM planning. NPM planning is one of the best practices farmers can use to conserve profitability, reduce erosion, and improve water quality. Any farmer or local entity who is interested in applying for a nutrient management plan may be interested in reviewing this checklist.

8. NM and NPM policies are intended to reduce nutrient runoff and ensure compliance with the WI NRCS 2015-580 NM Technical Standard. It is intended to track the progress of Wisconsin NPM planning. NPM planning is one of the best practices farmers can use to conserve profitability, reduce erosion, and improve water quality. Any farmer or local entity who is interested in applying for a nutrient management plan may be interested in reviewing this checklist.
2. When frozen or snow-covered soils prevent effective incorporation, does the plan follow these requirements for winter applications of all mechanically applied manure or organic by-products? This section doesn’t apply to winter cleaning/pasturing meeting 590 N and P requirements.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>NA</th>
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<tr>
<td>If no manure is applied, check NA for 2.a. through 2.g.</td>
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<tr>
<td>a. Identify manure quantities planned to be spread during the winter, or the amount of manure generated in 14 days, whichever is greater. For daily haul systems, assume 1/3 of the manure produced annually will need to be winter applied.</td>
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<td>b. Identify manure storage capacity for each type applied and stacking capacity for manure ≥ 16% DM if permanent storage does not exist.</td>
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<td>c. Show on map and make no applications within the SWQMA.</td>
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<tr>
<td>d. Show on map and make no surface applications of liquid manure during February and March where Silurian dolomite is within 60 inches of the soils surface OR where DNR Well Compensation funds provided replacement water supplies for wells contaminated with livestock manure.</td>
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<tr>
<td>e. Show on map and make no applications of manure within 300 feet of direct conduits to groundwater.</td>
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<tr>
<td>f. Do not exceed the P removal of the following growing season’s crop when applying manure. Liquid manure applications are limited to 7,000 g/acre. All winter manure applications are not to exceed 60 lbs. of P2O5/acre.</td>
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<tr>
<td>g. Make no applications of manure to fields with concentrated flow channels unless using two of the following: 1. Contour buffer strips or contour strip cropping; 2. Leave all crop residue and no fall tillage; 3. Apply manure in intermittent strips on no more than 50% of field; 4. Apply manure on no more than 25% of the field waiting a minimum of 14 days between applications; 5. Reduce manure app. rate to 3,500 gal. or 30 lbs. P2O5, whichever is less; 6. No manure application within 200 feet of all concentrated flow channels; 7. Fall tillage is on the contour and slopes are lower than 6%. Make no applications to slopes greater than 6% (soil map units with C, D, E, and F slopes) unless the plan documents that no other accessible fields are available for winter spreading AND two of the options 2.g.1. through 2.g.5. are used.</td>
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</table>

I certify that the plan represented by the answers on this checklist complies with Wisconsin’s NRCS 2015-590 NM Standard or is otherwise noted.

Qualified NM planner signature | NAICC-Certified Professional Crop Consultant, ASA-Certified Crop Adviser, or SSSA-Soil Scientist | Date |
---|---|---|
Qualified NM farmer-planner or Authorized farm operator signature | Date | Signature if reviewed for quality assurance | Date |
Reason for NM plans and Acres

in thousands of acres

6K more acres than last year
Farmland Preservation
Certificates of Compliance issued by counties to 13,000 landowners for ag-use & meeting WI soil and water conservation standards

Farmland Preservation Zoning protects ag use and prevents conflicting land uses from locating too close together.

American Farmland Trust found that on average residential land may not increase the local tax base or cover the cost of public services. Often costs must be subsidized by revenues from other land uses.

Agriculture generates more public revenues than are returned to them in public services.
2018 Percent of County Cropland Under NM Plan

Nutrient Management Farmer Education (NMFE) grants can assist farmers with the cost of soil testing if they participate in a class to write their own plans.

2018
2.7M ac 6222
Agronomist plans
0.6M ac
Farmer

2018 NM Plans by Year
Total Farmer Written Farmer

0% - 9% 10% - 49% 50% - 74% 75% - 100%
ATCP 40.08 NM Plans and Acres

1.3M ac

6222 plans
2.7M ac

1.3M ac
What’s a 590 Nutrient Management Plan?

- Follows USDA NRCS WI 590 Standard and UWEX Pub. A2809 Nutrient application guidelines for field, vegetable, and fruit crops in Wisconsin to protect farm profitability, water, and soil with nutrient application.
- Soil test sample every 5 acres every 4 years using a DATCP certified lab.
- Accounts for ALL N-P-K nutrient applications for the crop rotation showing adequate acreage for manure:
  - N is used or lost annually. P and K can be banked.
  - Nutrients shall not run off the field during or immediately after application.
  - Annually update changes and add future plan.

**Soil test – nutrient credits = fertilizer to apply**

DATCP Certified Soil Testing Laboratories:
1. A&L Great Lakes, Fort Wayne IN
2. AgSource, Bonduel WI
3. Dairyland, Arcadia WI
4. MVTL, New Ulm MN
5. Midwest Laboratories, Omaha, NE
6. Rock River, Watertown WI
7. UW-Madison Soil & Forage Analysis, Marshfield WI

All these labs are Manure Analysis Proficiency program participates.
Core Nutrient Management Principles

- Nutrient applications **must not run off** the intended application site
- Control **sheet and rill soil erosion** to tolerable soil loss rates or “T” over the crop rotation
- Protect reoccurring **gully erosion** areas with perennial vegetative cover

1 TON/A = 0.046 LBS soil/SQ FT
Many farms were only missing a few samples while others had soil tests older than 4 years. Many fields exceeding T were due to RUSLE2 calcs for small grains + straw removal not accounting for the straw removal. SnapPlus 18 corrected this calculation.

Most fields exceeding A2809, were for commercial P fertilizer. Corn P recs are not equal to crop removal unless soil test P is in the optimum range, 16-20 PPM on loamy soils. Soil tests >30 PPM P don’t recommend any, except up to 100 lbs of 9-23-30 corn starter fertilizer as a subsurface starter application is allowed.
Plans have improved

2018 QAT reviewed 76 plans covering 35,763 acres
2015-590 **Surface water and groundwater protection**

- No applications within 50’ of direct conduits to groundwater unless deposited by gleaning or pasturing animals or as corn starter fertilizer.

- Do not apply to areas locally delineated by the Land Conservation Committee or in a conservation plan as areas contributing runoff to direct conduits to groundwater unless manure is substantially buried within 24 hours

- Do not apply to areas near public water supplies unless manure is treated to substantially eliminate pathogens.

  Area within: 1000’ of a *Community potable water well - Municipal*; or 100’ of a *Non-community potable water well – Public* (church, school, restaurant...)

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*m. Make no nutrient applications within 50’ of all direct conduits to groundwater, unless directly deposited by gleaning/pasturing animals or applied as starter fertilizer to corn.*
Late summer or fall **manure or organic by-products** limit rates to 90 or 120 lbs N/ac.

Rate depends on manure dry matter, crops, P W R soil.
Late summer or fall commercial N fertilizer

Rates on fall seeded crops or commercial fertilizers blends based on Pub. A2809. Do not exceed 36 lbs. fall N/ac on these features:

P W R soil
Soil depth 5′ or less over bedrock
Within 1,000′ of a community well

p. Make no applications of late summer or fall commercial N fertilizer to the following areas UNLESS needed for establishment of fall seeded crops OR to meet A2809 with a blended commercial fertilizer. Commercial fertilizer N applications shall not exceed 36 lbs. N/acre on:

- Sites vulnerable to N leaching PRW Soils (P=high permeability, R=bedrock < 20 inches, or W=wet < 12 inches to apparent water table);
- Soils with depths of 5 feet or less to bedrock;
- Area within 1,000 feet of a community potable water well.

On P soils, when commercial N is applied for full season crops in spring and summer, follow A2809 and apply one of the following:

1. A split or delayed N application to apply a majority of crop N requirement after crop establishment.
2. Use a nitrification inhibitor with ammonium forms of N.
3. Use slow and controlled release fertilizers for a majority of the crop N requirement applied near the time of planting.
590 criteria for surface water protection

Nutrients Applied In **Surface Water Quality Management Area (SWQMA)** 1000’ from ponds or lakes and 300’ from rivers or streams

In fall, spring, summer use 1 or more of the following:

- Effective incorporation within 72 hours of application
- Establish crops prior to, at, or promptly following application
- Install/maintain vegetative buffers or filter strips
- Maintain ≥ 30% cover after nutrient application
- Apply nutrients within 7 days of planting on fields with < 30% cover and have 3 or more consecutive years of no-till example corn silage

- In the **SWQMA** or where subsurface drainage is present limit mechanical applications of unincorporated liquid manure with 11.0% or less dry matter to **12,000 gals/acre/application**. Sequential applications may be made to meet the nutrient need waiting at least 7 days between applications.
  - Visually monitor accessible tile outlets before, during, and after applications for discharge of liquid manure. If a discharge is observed, stop applications.

Winter - when temperature/snow prevents effective incorporation:

- Do not **mechanically** apply nutrients within the **SWQMA**; but gleaning or pasturing animals are allowed in **SWQMA** and on all slopes in winter while following 590.
590 Protecting surface and ground water
Winter, when temperature or snow prevents effective incorporation

- No N or P commercial fertilizer apps except on pastures and winter grains.
- Farms **mechanically** applying manure or organic by-products must have a Winter Spreading Plan: amount available storage, winter applied, or generated in 14 days, whichever is greater.
- Do not exceed the P removal of the following growing season’s crop. Limit liquid manure applications to **7,000 gal/acre**. All winter manure applications 60 lbs. of P2O5/ac or less.
- Do not apply within **300 feet** of direct conduits to groundwater.
- Do not mechanically surface apply liquid manure during February and March on:
  - **DNR Well Compensation** areas funds provided to replace wells when contaminated with livestock manure or
  - **Silurian dolomite within 5 feet** of soils surface.

**PICK TWO Winter Spreading Practices for Fields with concentrated flow channels or slopes greater than 6%**

*For fields with concentrated flow channels, use 2 of the 7 options. For fields with slopes greater than 6%, use two of options 1-5.*

1. Contour buffer strips or contour strip cropping
2. Leave all crop residue and no fall tillage
3. Apply manure in intermittent strips on no more than 50% of the field
4. Apply manure on no more than 25% of the field waiting a minimum of 14 days between applications
5. Reduce manure application rate to 3,500 gals. or 30 lbs. P2O5, whichever is less
6. No manure application within 200 feet of all concentrated flow channels
7. Fall tillage is on the contour and slopes are less than 6%.
Winter manure to be applied = Amount of winter manure produced - [Winter manure stored + Winter manure grazed]

**Winter Spreading Report (NM6):**
- Calculates winter manure produced, in 14 and 120 days, from the animal numbers entered into the Manure Production Estimator
- Shows manure storage and capacity
- Shows a list of low-risk fields best suited for emergency manure applications
- Lists the two winter mechanical application practices selected for each field in the Cropping screen
- Accounts for manure applied through grazing applications
- Pastures with no mechanical apps use soil tests or default 150 PPM P and OM 6%
Nutrient apps to sub fields

Winter
Spreadable
Daily Log Is Even Easier Use Update Manure, Fertilizer, Lime AND Grazing

Go to Help > Custom Excel Templates >

1. SnapPlus creates a customized daily log template for each farm
2. Send to Phone and fill
3. Import into Snap’s Daily Log page
4. Import to the Cropping Page and viola your plan is updated!
-ing it up

• Use the 2015-590 Checklist and SnapPlus2 V18
• Calculate winter manure applied mechanically and on pastures
• P recs are not equal to crop removal unless soil test P is in the optimum range
• Wait on doing NR 151.075 for mechanical manure applications over Silurian bedrock until ATCP 50 is updated
• Thanks for handing in your Checklists to the county before planting

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