

# Nutrient Management Update 2018

Sue Porter

WI Dept. of Agriculture, Trade and  
Consumer Protection

# WI Agricultural Water Quality Performance Standards

NR151 & ATCP 50 Wis. Admin. Codes

ATCP 50 SETS HOW to implement PS  
using conservation technical standards

## 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**

**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

2018 Preliminary layers for Silurian dolomite areas Turn on/off all

Thickness of Unconsolidated Materials over Silurian Bedrocks

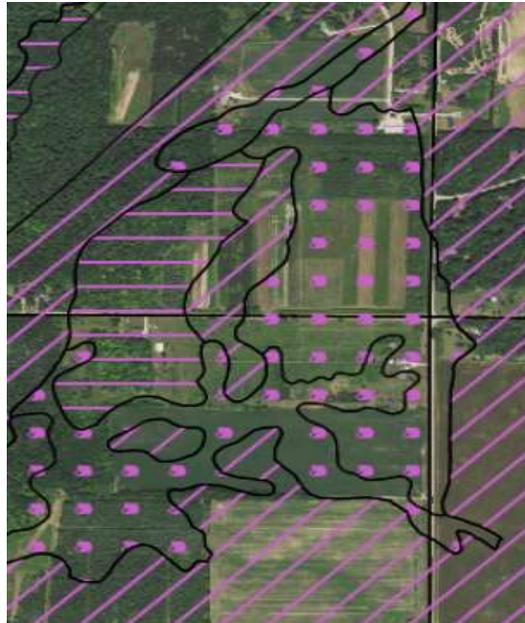
0-2 ft

2-5 ft

5-20 ft (5-16 ft in Door County)

Thickness to Water Table over Silurian Bedrock

0-2 ft



- 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

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  $\geq 6\%$  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.

## Silurian Bedrock Performance Standards NR 151.075 and NR 243.143

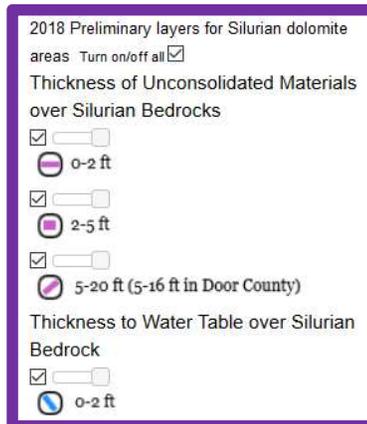
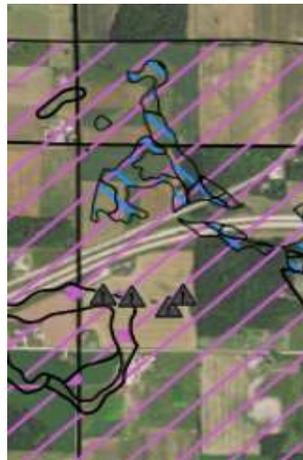
Applies to mechanical manure applications

### 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:

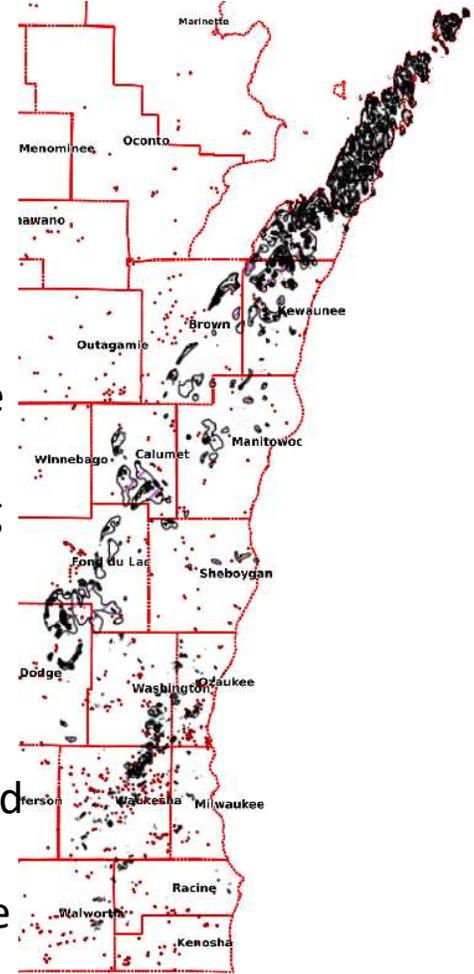
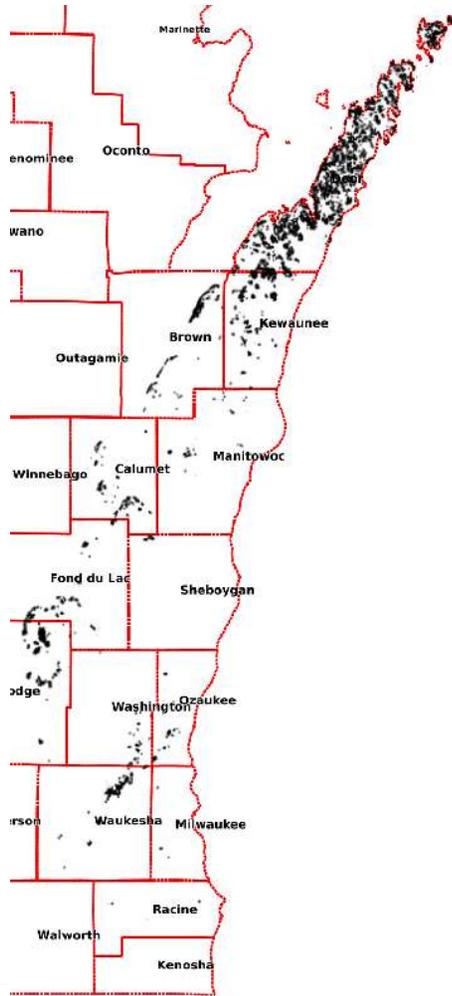
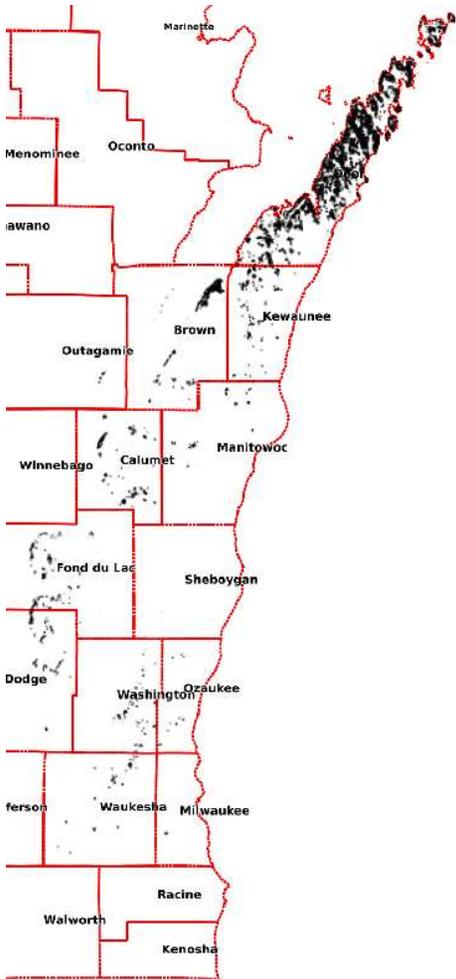
- 6.75K-13.5K Gal/A ~ 81-162 lbs N/A
- Use A2809 rates on est crop or within 10 days of planting
- ≤ 500,000 CFU

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.

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'.

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  $\geq 6\%$  slope and CFC to closed depression:

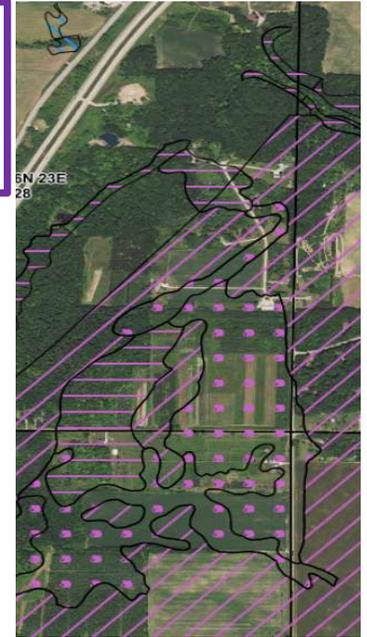
1. Incorp 24 hrs or prior to precip producing runoff, or
2. Use 3 or more years of no tillage.

Prohibited mechanical applications

No mechanical winter applications, stacking, or when  $>1''$  rainfall is forecast to occur within 24 hrs

# 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.

2018 Preliminary layers for Silurian dolomite areas Turn on/off all

Thickness of Unconsolidated Materials over Silurian Bedrocks

0-2 ft

2-5 ft

5-20 ft (5-16 ft in Door County)

Thickness to Water Table over Silurian Bedrock

0-2 ft



## ATCP 50 Admin. Code approved Jan. 2018

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  $\leq 6$  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

ARM-400-800 (REV. 06/22/17)



Wisconsin Department of Agriculture, Trade and Consumer Protection  
 Division of Agricultural Resource Management  
 Bureau of Land and Water Resources  
 PO Box 8911, Madison WI 53708-8911, Phone: 608-224-4605

Use this form to check nutrient management (NM) plans  
 for compliance with the WLNCRS 2015-590 Standard.

## Nutrient Management Checklist Wis. Stat. §92.05(3) (k), Wis. Admin. Code §ATCP50.04(3) and Ch. 51

COUNTY	DATE PLAN SUBMITTED	GROWING SEASON YEAR PLAN IS WRITTEN FOR (from harvest to harvest)	
TOWNSHIP: (T. N.) RANGE: (R. E., W.)	CHECK ONE: <input type="checkbox"/> Initial Plan or <input type="checkbox"/> Updated Plan		
NAME OF FARM OPERATOR RECEIVING NM PLAN First Name Last Name	FARM NAME (OPTIONAL)		BUSINESS PHONE { } -
STREET ADDRESS	CITY	STATE	ZIP
REASON THE PLAN WAS DEVELOPED: <u>Click and choose.</u> (Ordinance, NR 243 WPDES or NOD, DATCP-FP or cost share (cs), DNR-cs, USDA-cs, Other)		CROPLAND ACRES (OWNED & RENTED)	
RENTED FARM(S) LANDOWNER NAME(S) AND ACREAGE: add sheet(s) if needed			
WAS THE PLAN WRITTEN IN SNAPPLUS? <input type="checkbox"/> YES <input type="checkbox"/> NO If yes, which software version, if known?			
CHECK PLANNER'S QUALIFICATION: <u>Click and choose.</u> (1. NAICC-CPCC, 2. ASA-CCA, 3. SSSA-Soil Scientist, 4. DATCP approved training course, 5. Other approved by DATCP)			
NAME OF QUALIFIED NUTRIENT MANAGEMENT PLANNER First Name Last Name	BUSINESS PHONE { } -		
STREET ADDRESS	CITY	STATE	ZIP

Use header sections to add comments. Mark NA in the shaded sections if no manure is applied.

1. Does the plan include the following nutrient application requirements to protect surface and groundwater?			
<i>This section applies to fields and pastures. If no manure is applied, check NA for 1.c., 1.h., 1.i., 1.n., 1.o., 1.q., 1.s.</i>	Yes	No	NA
a. Determine field nutrient levels from soil samples analyzed by a DATCP certified laboratory.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. For fields or pastures with mechanical nutrient applications, determine field nutrient levels from soil samples collected within the last 4 years according to 590 Standard (590) and UWEX Pub. A2809, <i>Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin</i> (A2809) typically collecting 1 sample per 5 acres of 10 cores. Soil tests are not required on pastures that do not receive mechanical applications of nutrients if either of the following applies: 1. The pasture average stocking rate is one animal unit per acre or less at all times during the grazing season. 2. The pasture is winter grazed or stocked at an average stocking rate of more than one animal unit per acre during the grazing season, and a nutrient management plan for the pasture complies with 590 using an assumed soil test phosphorus level of 150 PPM and organic matter content of 6%.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. For livestock siting permit approval, collect and analyze soil samples meeting the requirements above in 1. b., excluding pastures, within 12 months of approval and revise the nutrient management plan accordingly. Until then, either option below maybe used: 1. Assume soil test phosphorus levels are greater than 100 ppm soil test P, OR 2. Use preliminary estimates analyzed by a certified DATCP laboratory with soil samples representing > 5 ac/sample.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Identify all fields' name, boundary, acres, and location.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Use the field's previous year's legume credit and/or applications, predominant soil series, and realistic yield goals to determine the crop's nutrient application rates consistent with A2809 for ALL forms of N, P, and K.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Make no winter applications of N and P fertilizer, except on grass pastures and winter grains.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Document method used to determine application rates. Nutrients shall not runoff during or immediately after application.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Identify in the plan that adequate acreage is available for manure produced and/or applied.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Apply a single phosphorus (P) assessment using either the P Index or soil test P management strategy to all fields within a tract when fields receive manure or organic by-products during the crop rotation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Use complete crop rotations and the field's critical soil series to determine that sheet and rill erosion estimates will not exceed tolerable soil loss (T) rates on fields that receive nutrients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Use contours; reduce tillage; adjust the crop rotation; or implement other practices to prevent ephemeral erosion; and maintain perennial vegetative cover to prevent reoccurring gullies in areas of concentrated flow.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Make no nutrient applications within 8' of irrigation wells or where vegetation is not removed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Using the NM Checklist to Review a SnapPlus Nutrient Management (NM) Plan

The information found on the NM Checklist is used to show the plan meets the WI NRCS 2015-590 NM Technical Standard and it is recorded to track the progress of Wisconsin NM planning. NM planning is one of the best practices farmers can use to ensure profitability, reduce excess nutrient applications to cropland, and reduce water quality impacts. Any NM Checklist submitted to your local agency may be selected for a quality assurance review.

On the NM Checklist, circle the planner's qualification found in ATCP 50.48. Certified planners can be verified through the NAICC, CCA, and SSSA. Farmers can sign off on their own plan if they received training within the last four years. For a livestock siting permit, a qualified nutrient management planner other than the farmer must sign-off on the plan.

To review any item and determine compliance with the 590 Standard do the following:

1. Pair the NM Checklist item number with the corresponding sections below.
2. Run the SnapPlus reports abbreviated in each section and defined on the bottom of page 2.

Shaded sections 1.c., 1.h., 1.i., 1.n., 1.o., 1.q., 1.s. and all of 2. are for farms with manure or organic-by-product applications. Skip these shaded sections if no manure or organic by-products are applied.

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

1a. FM6 shows the soil testing laboratory used. These are the current DATCP certified soil testing labs: A & L Great Lakes Laboratories (Iowa, WI, WI, WI), AgSource Laboratories (Berkley, WI), Dairyland Laboratories (Kewaunee and Stratford, WI), Rock River Laboratory (Watertown, WI), UW Soil & Forage Lab (Marshfield, WI), Minnesota Valley Testing Laboratories-MVTL (New Ulm, MN), and Midwest Laboratories (Omaha NE).	1f. Winter fertilizer applications are not an option in SnapPlus. FM8 and NM5 shows application seasons by year. Open FM8 in Excel to sort by applications, season, crop, or rates.
1b. NM2 flags if soil samples are not current or exceeding sampling requirements. For fields or pastures with mechanical nutrient applications, soil samples should be collected within the last 4 years according to Std. 590 and UW Pub. A2809 typically collecting 1 sample per 5 acres. Non-responsive fields for P and K can have more than 5 acres per sample. See A2809 for specifics. Soil samples can be grouped for contour strips. Tested samples are then copied into the respective fields to meet the 5 acres per sample. Open FM6 in Excel and sort by P or K levels to correlate the soil test reports to the sampled field. Soil tests are not required on pastures that do not receive mechanical applications of nutrients if either applies: 1. The pasture average stocking rate is one animal unit per acre or less at all times during the grazing season. 2. The pasture is winter grazed or stocked at an average stocking rate of more than one animal unit per acre during the grazing season, and a nutrient management plan for the pastures complies with 590 using an assumed soil test phosphorus level of 150 PPM and organic matter content of 6%.	1g. NM2 flags if no method is selected for determining nutrient application rates. Calibration methods may be mentioned in the farm screen's narrative that is printed in NM1. NM4 shows the Nutrient screen's manure production, storage, spreaders, loads hauled, calibration methods, and equipment. NM5 shows application method and rates for nutrients sorted by crop. Rates should be realistic.
1c. NM2 flags if soil tests are not meeting Std. 590 and UW Pub. A2809 requirements. For plans not meeting these requirements and seeking livestock siting permit approval, the applicant must collect and analyze soil samples meeting the requirements in UW	1h. All manure needs to be allocated for each year of the rotation, up to eight years, to show that the farm has adequate acres to comply with 590. NM2 will flag if applications do not meet 590 and UW Pub. A2809. NM4 shows if all the manure has been allocated every year and the percent of manure collected. If not 100% collected, the plan should explain where the rest is going. The manure estimator can be used for the first year of the plan, updating the plan with actual volumes produced.
	1i. NM2 and NM3 provide 590 compliance checks. When fields receive manure or organic by-products during the crop rotation, all sources of P need to be applied in each year of the rotation for an accurate P assessment. These reports show compliance for both P management strategies. Only 1 strategy is required for each farm. PI Strategy: The average PI values for up to an 8-year rotation in each field shall be 6 or lower and may not exceed a PI of 12 in any individual year. Soil test P: SnapPlus calculates P target levels for the rotation length set by the planner for each field using these

### Core 590 Reports:

- NM1: Narrative & Crops Report
- NM2: Compliance Check
- NM3: Field Data & 590 Assessment
- NM4: Manure Tracking
- NM5: Spreading & NM Sorted by Crop
- NM6: Winter Spreading Plan
- NM7: Guidance

# NM Checklist

## Section 2 for Winter

- Core 590 Reports:**  
 NM1: Narrative & Crops Report  
 NM2: Compliance Check  
 NM3: Field Data & 590 Assessment  
 NM4: Manure Tracking  
 NM5: Spreading & NM Sorted by Crop  
 NM6: Winter Spreading Plan  
 NM7: Guidance

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.*

*If no manure is applied, check NA for 2.a. through 2.g.*

	Yes	No	NA
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Identify manure storage capacity for each type applied and stacking capacity for manure ≥ 16% DM if permanent storage does not exist.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Show on map and make no applications within the SWQMA.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Show on map and make no applications of manure within 300 feet of direct conduits to groundwater.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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      NAIOC-Certified Professional Crop Consultant, ASA-Certified Crop Adviser, or SSSA-Soil Scientist

Date

Qualified NM Farmer-planner or Authorized farm operator signature  
 receiving and understanding the plan

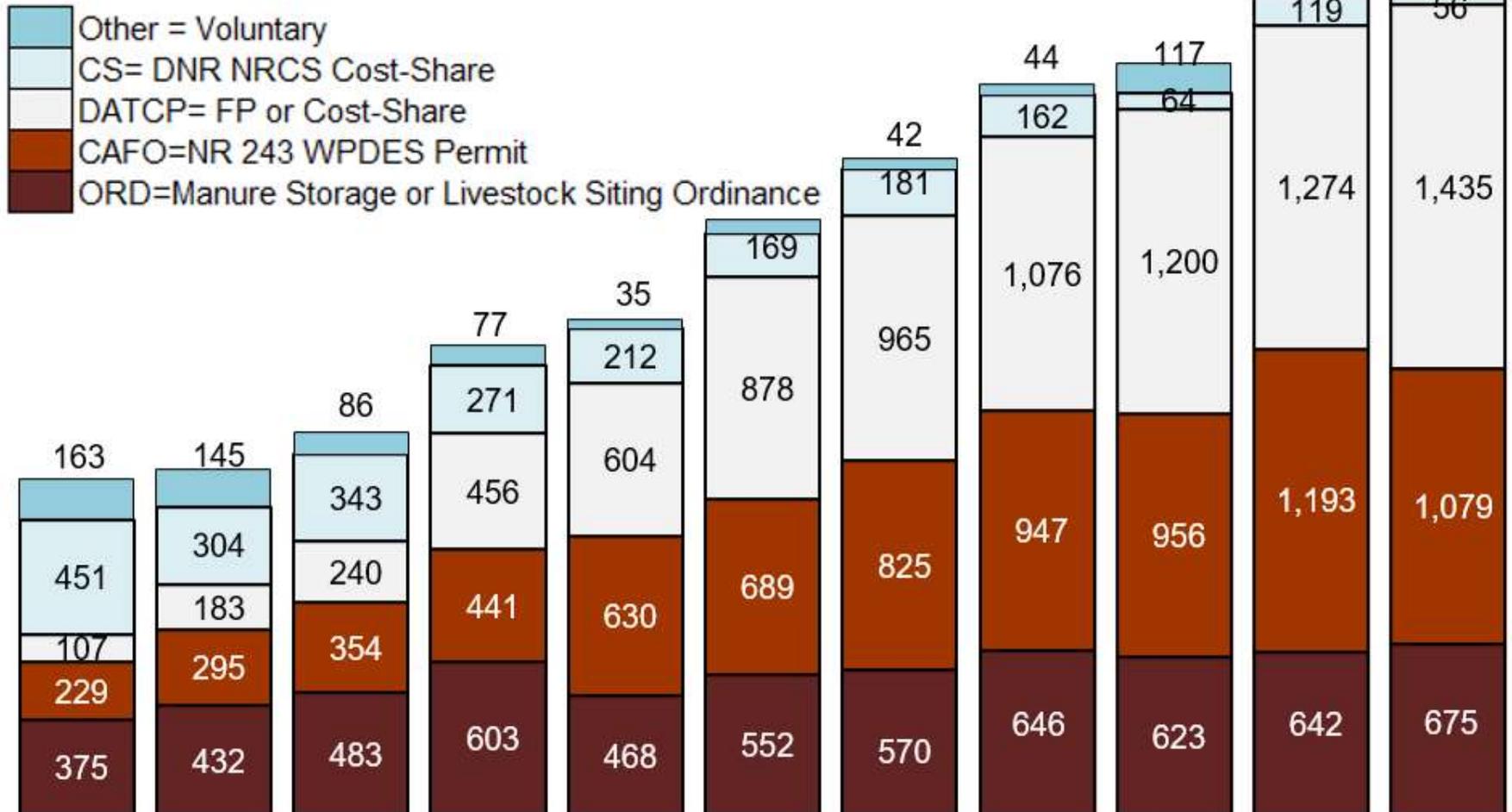
Date

Signature if reviewed for quality assurance

Date

# Reason for NM plans and Acres

in thousands of acres



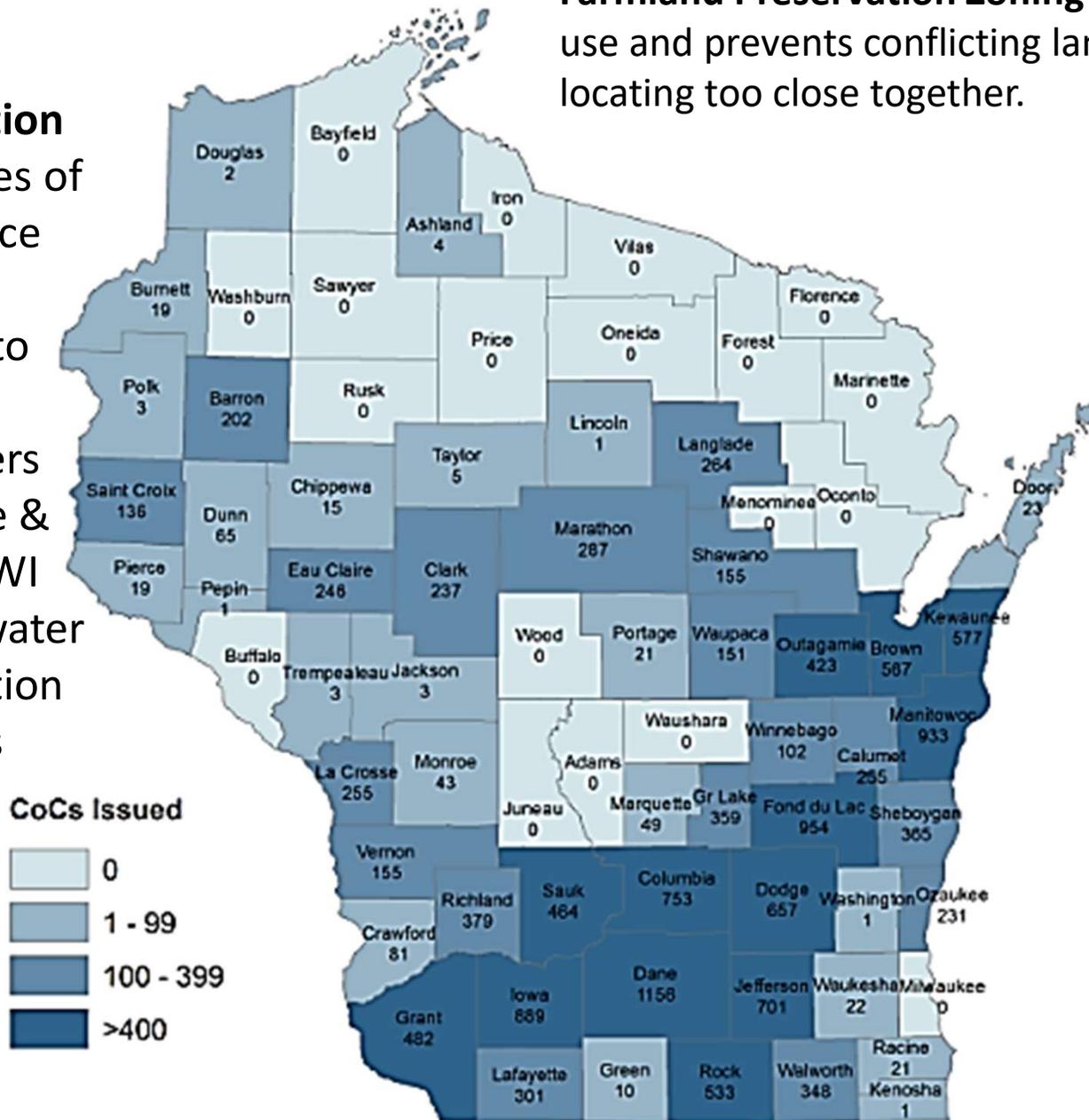
6K more acres than last year

**Farmland Preservation Certificates of Compliance** issued by counties to 13,000 landowners for ag-use & meeting WI soil and water conservation standards

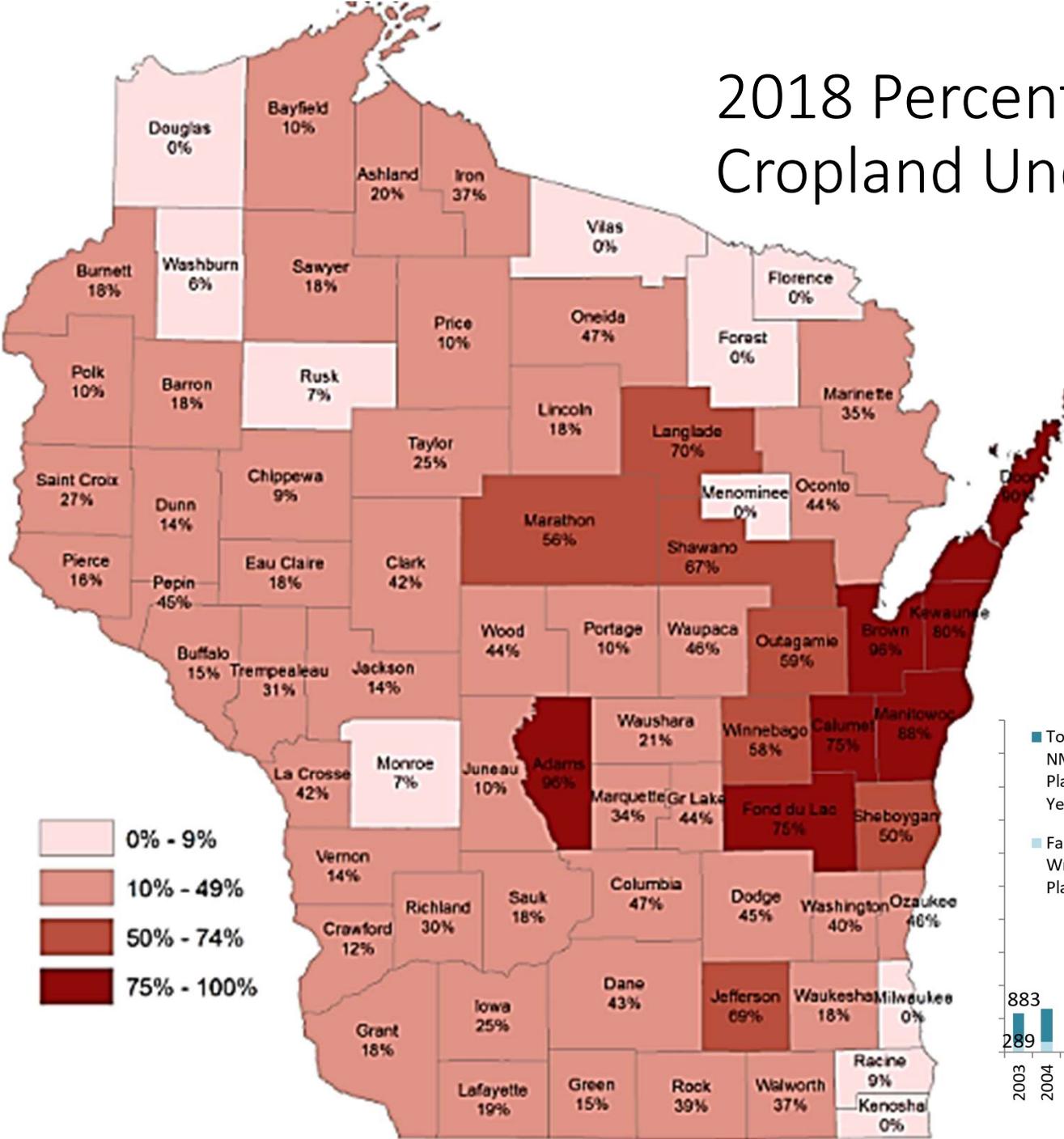
**Farmland Preservation Zoning** protects ag use and prevents conflicting land uses from locating too close together.

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.

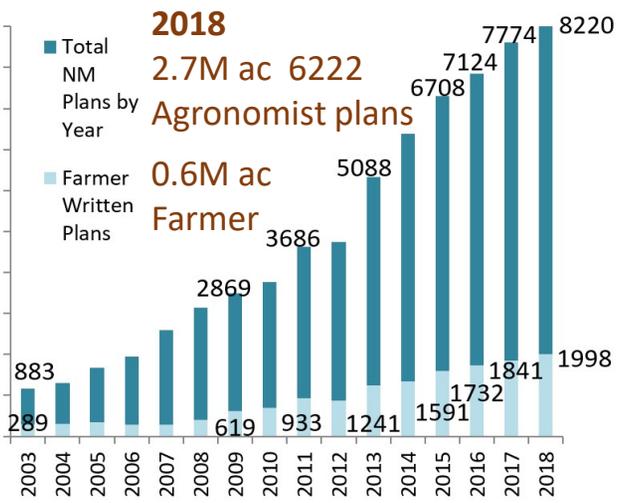
Agriculture generates more public revenues than are returned to them in public services.



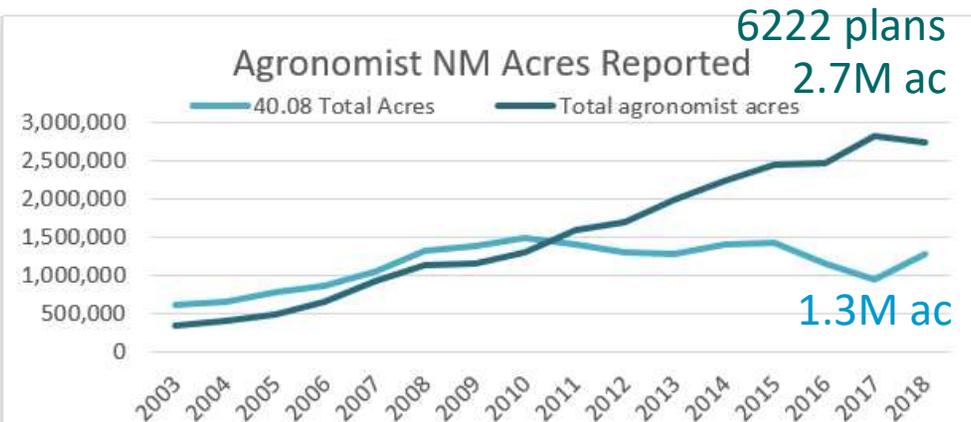
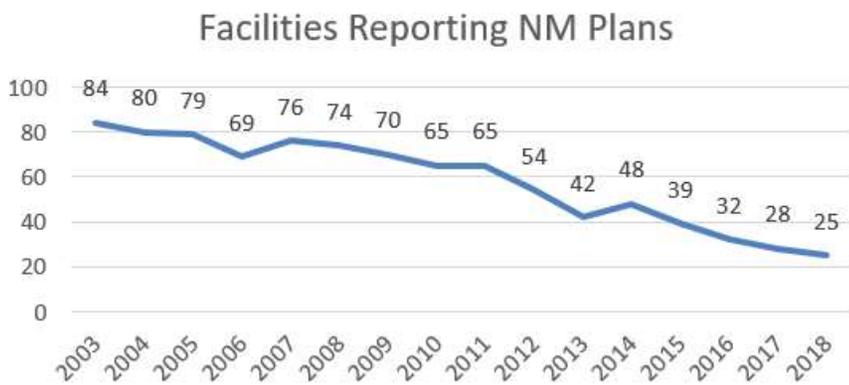
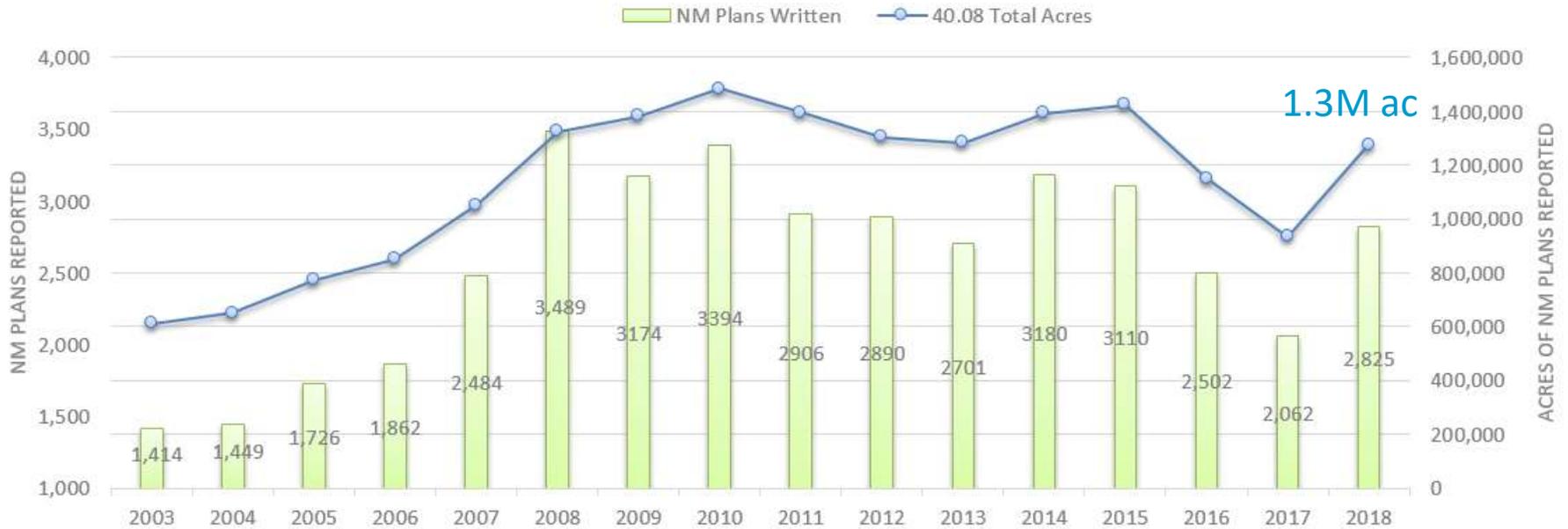
# 2018 Percent of County Cropland Under NM Plan



**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.



# ATCP 40.08 NM Plans and Acres



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 participants

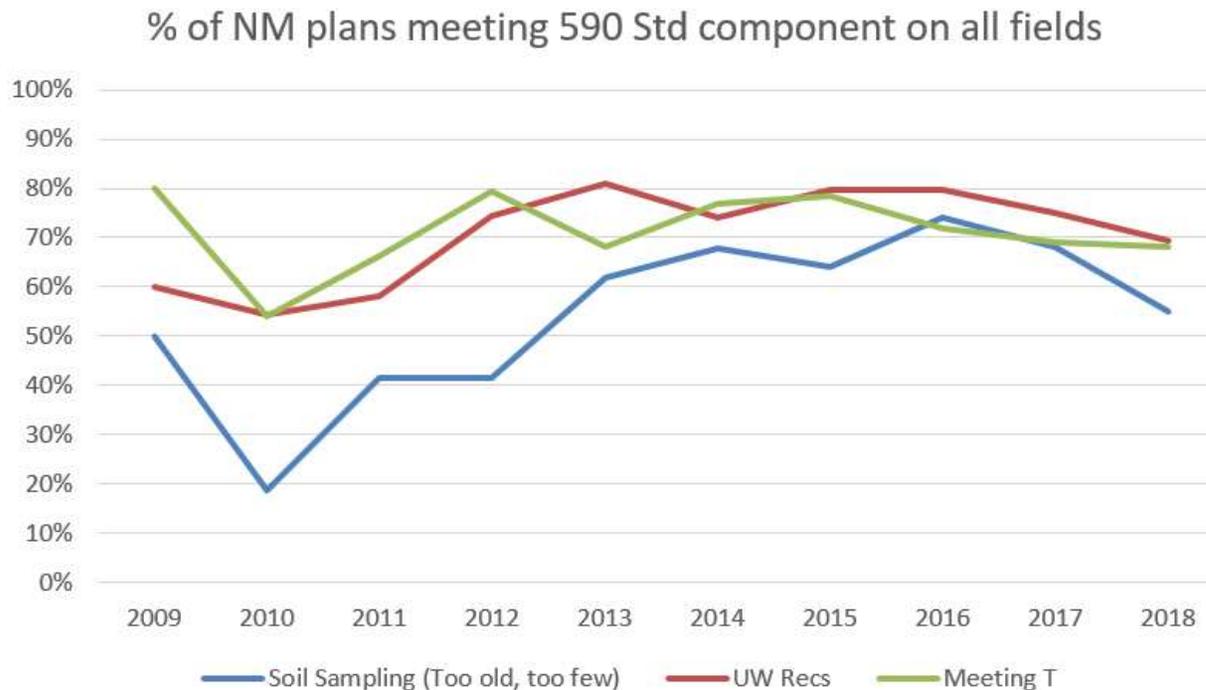
# Core Nutrient Management Principles

- 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



# Up since 2010 but can improve



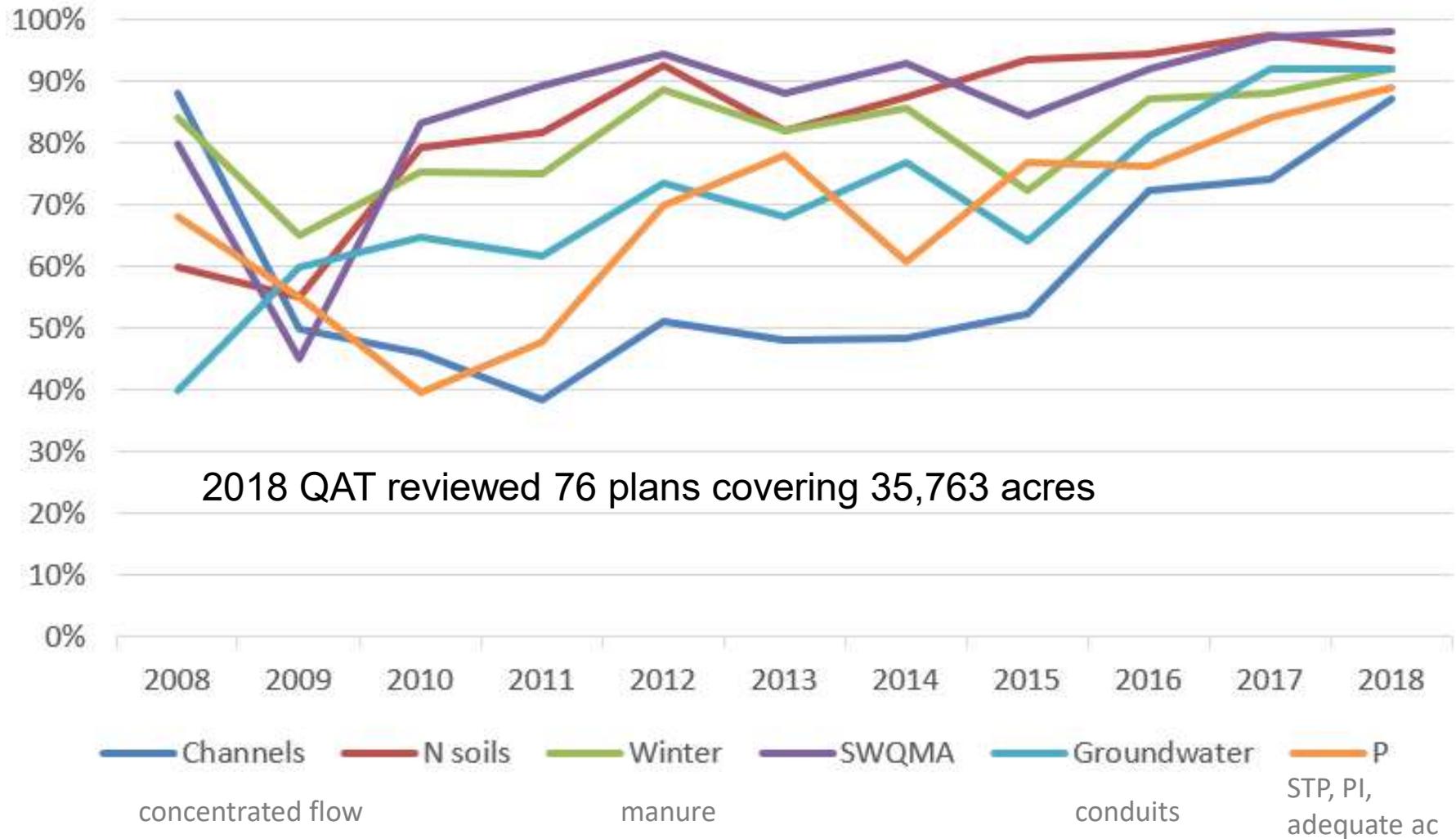
Many farms were only missing a few samples while others had **soil tests** older than 4 years.

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

% of NM plans meeting 590 Std component on all fields



# 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

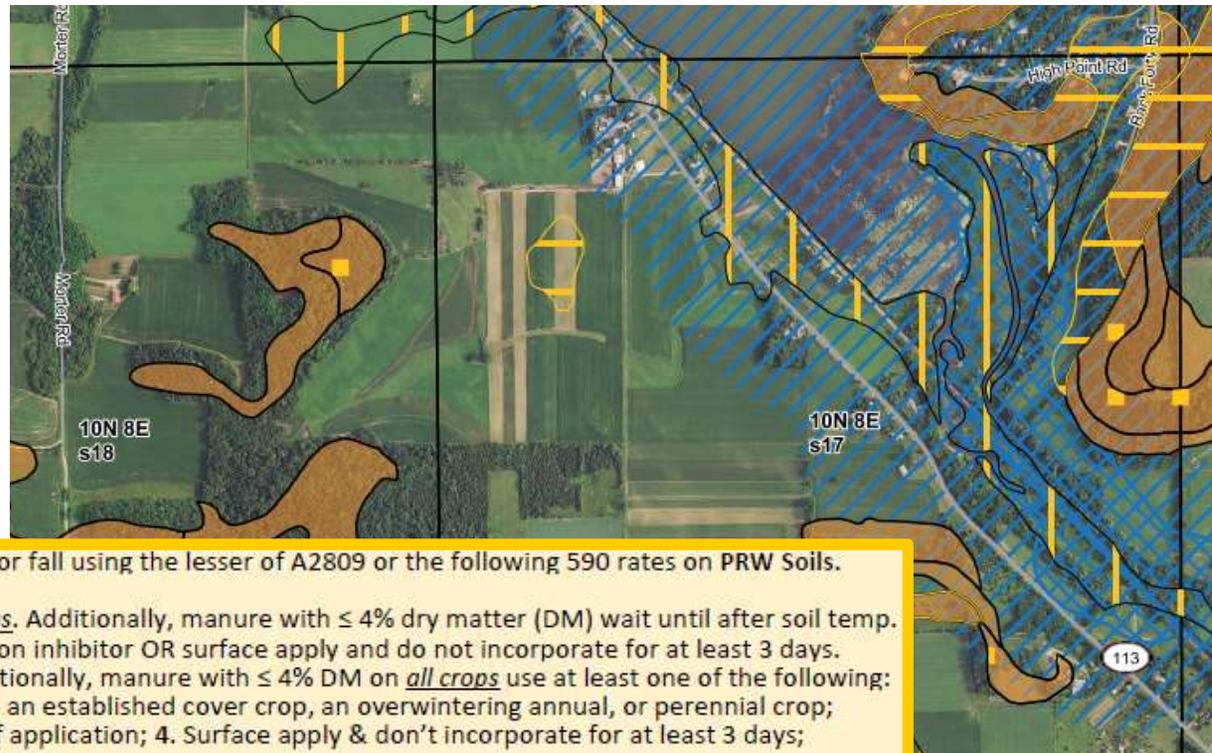
100' of a *Non-community potable water well – Public* (church, school, restaurant...)

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

- Bedrock depth <5ft
- N Restricted (P,R,W soils)*
- P - High Permeability
- R - Bedrock <20"
- W - Wet <12" to Watertable



q. Limit manure applications in late summer or fall using the lesser of A2809 or the following 590 rates on PRW Soils.  
 Use ≤ 120 lbs. available N/acre on:  
 P and R soils on *all crops, except annual crops*. Additionally, manure with ≤ 4% dry matter (DM) wait until after soil temp. < 50°F or Oct. 1, and use either a nitrification inhibitor OR surface apply and do not incorporate for at least 3 days.  
 W soils or combo. W soils on *all crops*. Additionally, manure with ≤ 4% DM on *all crops* use at least one of the following:  
 1. Use a nitrification inhibitor; 2. Apply on an established cover crop, an overwintering annual, or perennial crop;  
 3. Establish a cover crop within 14 days of application; 4. Surface apply & don't incorporate for at least 3 days;  
 5. Wait until after soil temp. < 50°F or Oct. 1.  
 Use ≤ 90 lbs. available N/acre on:  
 P and R soils on *annual crops* wait until after soil temp. < 50°F or Oct. 1. Additionally, manure with ≤ 4% DM use either a nitrification inhibitor OR surface apply and do not incorporate for at least 3 days.  
 W soils or combination W soils receiving manure with ≤ 4% DM on *all crops*.

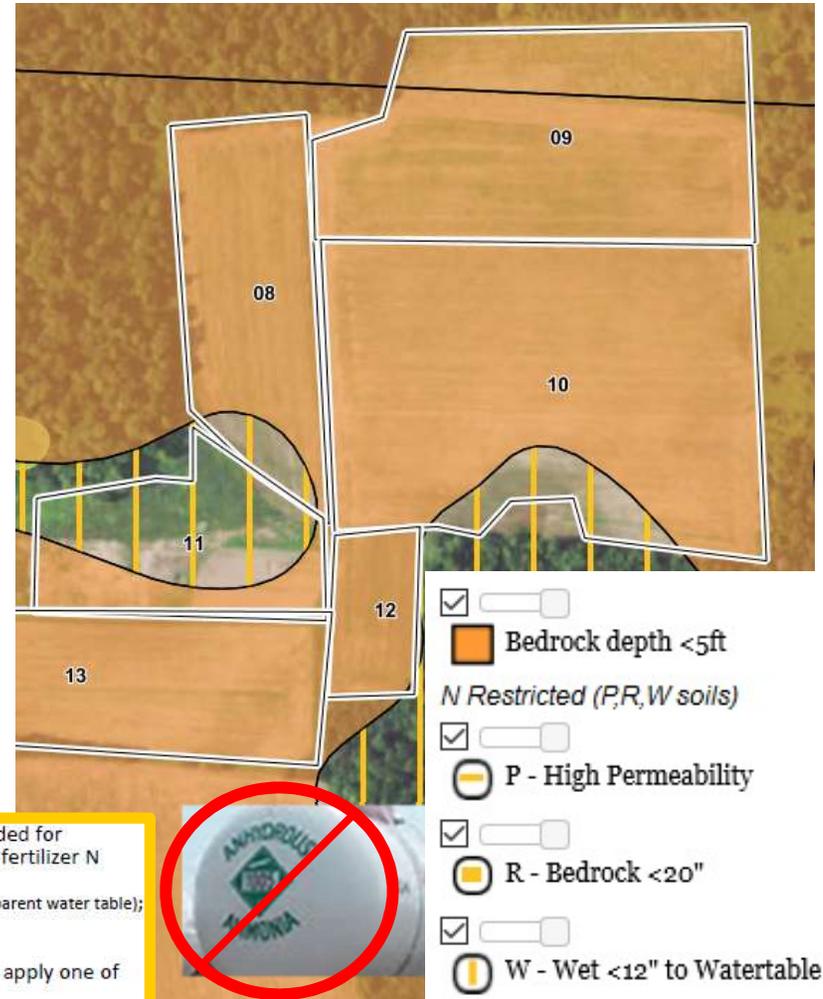
# Late summer or fall commercial N fertilizer

**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  $\geq 30\%$  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.

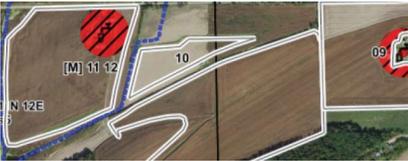
r. Use at least one of the following practices on non-frozen soils for all nutrient applications within Surface Water Quality Management Area (SWQMA) = 1000' of lakes/ponds or 300' of rivers: 1. Maintain  $> 30\%$  cover after nutrient application; 2. Effective incorporation within 72 hours of application; 3. Establish crops prior to, at, or promptly following application; 4. Install/maintain vegetative buffers or filter strips; 5. Have at least 3 consecutive years no-till for applications to fields with  $< 30\%$  residue (silage) and apply nutrients within 7 days of planting.

s. Limit mechanical applications to 12,000 gals/acre of unincorporated liquid manure or organic by-products with 11% or less dry matter where subsurface drainage is present OR within SWQMA. Wait a minimum of 7 days between sequential applications AND use one or more of the practice options on non-frozen soils listed in 1.r.1. through 1.r.5.



# 590 Protecting surface and ground water

## Winter, when temperature or snow prevents effective incorporation



2018 Preliminary layers for Silurian dolomite

areas Turn on/off all

Thickness of Unconsolidated Materials  
over Silurian Bedrocks

- 0-2 ft
- 2-5 ft



- 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%

b. For fields or pastures with mechanical nutrient applications, determine field nutrient levels from soil samples collected within the last 4 years according to 590 Standard (590) and UWEX Pub. A2809, *Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin (A2809)* typically collecting 1 sample per 5 acres of 10 cores. Soil tests are not required on pastures that do not receive mechanical applications of nutrients if either of the following applies:

1. The pasture average stocking rate is one animal unit per acre or less at all times during the grazing season.
2. The pasture is winter grazed or stocked at an average stocking rate of more than one animal unit per acre during the grazing season, and a nutrient management plan for the pasture complies with 590 using an assumed soil test phosphorus level of 150 PPM and organic matter content of 6%.

# Nutrient apps to sub fields



Nutrients | Cropping | Records | Reports

Area	Acres applied	Rate
Entire	21.5	150

Entire field  
Manure prohibited  
Winter manure prohibited

DM %	Available annual volume	Planned applications	Remaining volume
12	0	110	-110
15	1,711	1,809	-98

Soil: ZiA, ZITTAU    Soil Test P: 12    K: 128    Acres: 21.5    Crop: Oat-Pea Forage w/ Alfalfa Seeding Spring    Prev: Corn grain    Field Over(+)/Under(-) Application (lbs/acre) N: 10    P2O5: -30    K2O: 143

Crop Year: 2019

Apply Nutrient System    **Field Restrictions**    Fall 2018 thru Summer 2019

**Manure / Biosolid Applications**

Source name	Season	Spread method	Area	Acres applied	Rate	Units	NO <sub>3</sub> Inh.	Actual
Dairy Semi...	Wi...	Uninc...	Sp...	17.2	10	ton...	<input type="checkbox"/>	<input type="checkbox"/>

Winter    Spreadable

**Fertilizer Applications**

Source name	Season	Spread method	Area	Acres applied	Rate	Units	Time	Actual
Potassium ...	Sp...	Unincor...	Entire	21.5	150	lbs/...	<input type="checkbox"/>	<input type="checkbox"/>

Entire field  
Manure prohibited  
Winter manure prohibited

# 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!

The screenshot shows the SnapPlus software interface. The 'Help' menu is open, and 'Custom Excel Templates' is highlighted. The interface includes a menu bar (File, Import/Export, Tools, View, Help), a 'Subfarm' section with 'Show all fields.' and 'Group' with 'Show all fields.', and a 'Fast Facts' section with a map of Wisconsin. A table shows 'Year' and 'Soil Test' data for 2019 and 2014-10-15. The 'Custom Excel Templates' menu is open, showing options like 'Records Template with Field Dropdowns' and 'Records Template with Pre-filled Field Names/Acres'. Below the menu, there are buttons for 'Update all years' and 'Add/Copy/Delete Years', and a table with columns for 2018 and 2019, showing 'Fall Chisel, no disk' and '2014-10-15'.

# Σ 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



[Sue.porter@wi.gov](mailto:Sue.porter@wi.gov)  
608-224-4605