Wisconsin's Nutrient Management

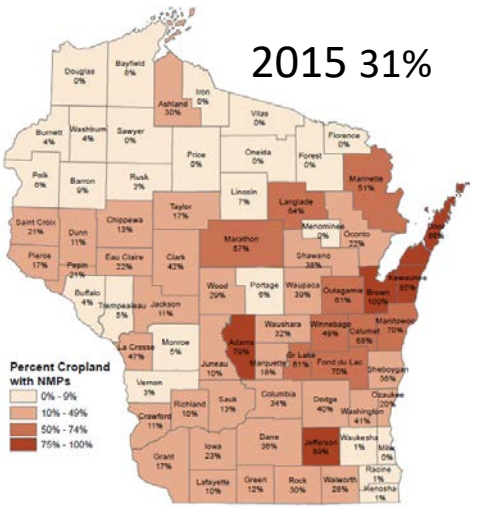
Nutrient Management – DATCP Sue.Porter@wi.gov 608-224-4605

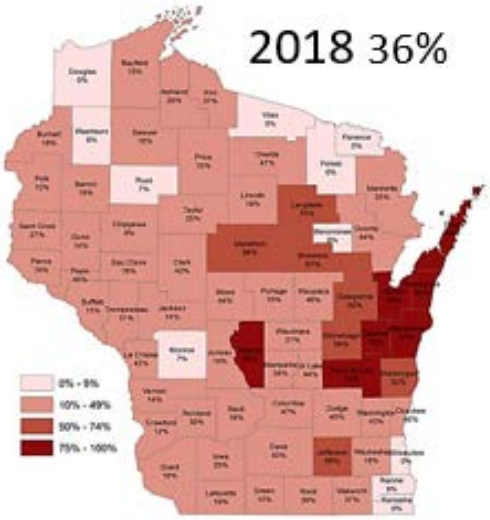
ATCP 50 Admin. Code approved Jan. 2018

1. How to do Nutrient Management (NM). Requires NM planners to follow ATCP 50.04(3).
   - Follow 2015-590 NM Standard and UWEX Pub. A2809 *nutrient application guidelines.*
   - Use certified soil test labs.
2. Sets cost share for compliance @ $40/ac for non-WPDES farms ATCP 50.42.
3. Requires NM planners to complete **NM plan checklist**…have reasonable documentation to substantiate each response…and provide it to the department or its agent upon request ATCP 50.48(6).

2019 % of County Cropland Under NM Plan

3.4 million acres 36.9% of WI's 9 million acres of cropland





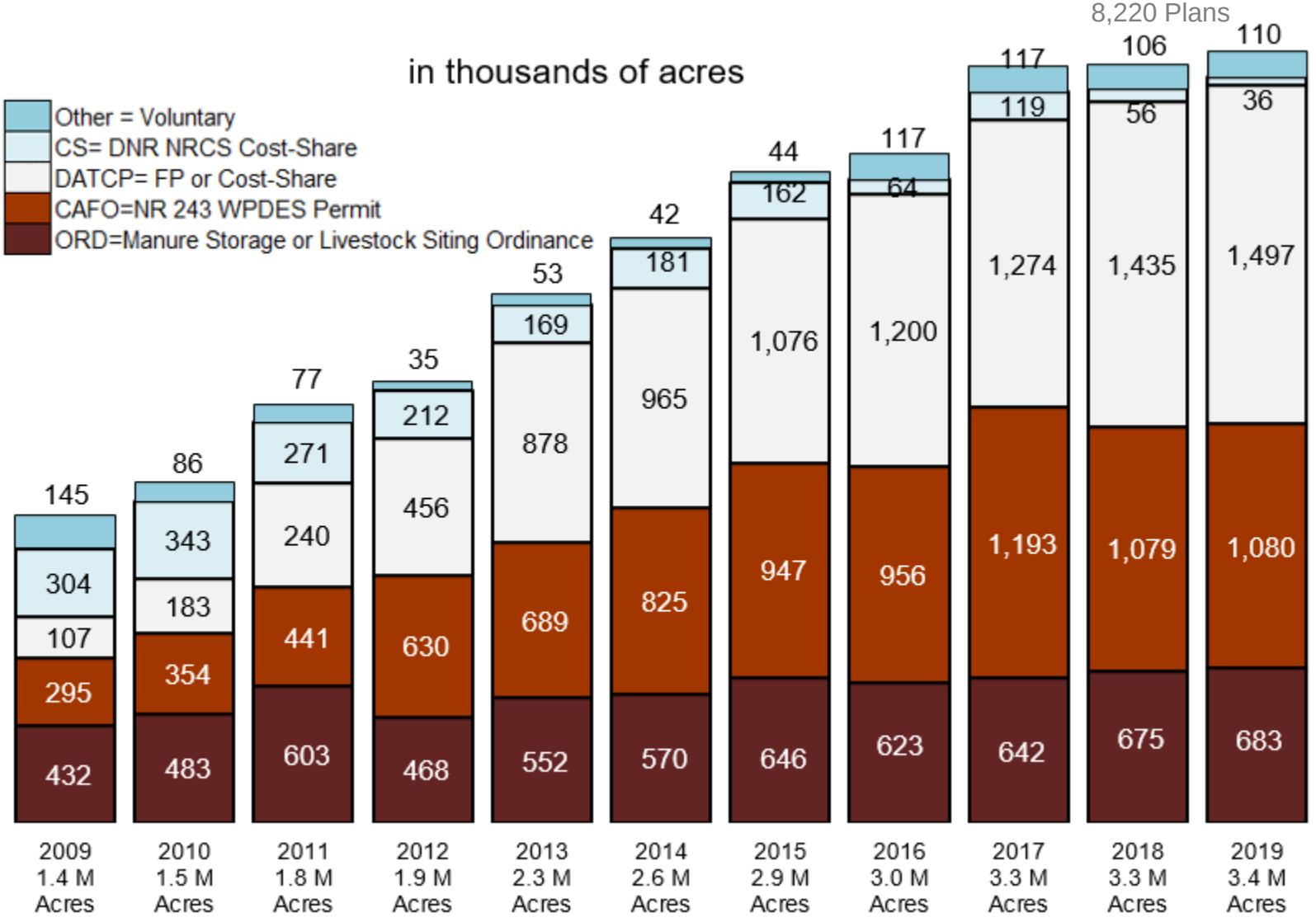
Douglas 0%
Bayfield 8%
Iron 33%
Ashland 14%
Washburn 7%
Sawyer 20%
Burnett 11%
Price 14%
Vilas 0%
Florence 0%
Oneida 0%
Forest 0%
Marinette 45%
Polk 9%
Barron 31%
Rusk 12%
Lincoln 20%
Langlade 83%
Taylor 23%
Saint Croix 25%
Dunn 26%
Chippewa 10%
Menominee 0%
Oconto 44%
Marathon 57%
Shawano 49%
Door 95%
Pierce 18%
Pepin 44%
Eau Claire 25%
Clark 41%
Kewaunee 79%
Wood 43%
Portage 9%
Waupaca 52%
Brown 83%
Outagamie 56%
Buffalo 14%
Jackson 17%
Trempealeau 26%
Winnebago 53%
Manitowoc 89%
Adams 61%
Waushara 38%
Calumet 71%
La Crosse 45%
Monroe 8%
Juneau 8%
Green Lake 59%
Marquette 45%
Fond du Lac 75%
Sheboygan 49%
Vernon 13%
Columbia 57%
Dodge 46%
Ozaukee 40%
Richland 22%
Sauk 20%
Washington 43%
Crawford 12%
Dane 43%
Waukesha 21%
Jefferson 67%
Milwaukee 0%
Iowa 28%
Grant 18%
Racine 8%
Lafayette 21%
Green 15%
Rock 38%
Walworth 30%
Kenosha 0%

0% - 9%
10% - 49%
50% - 74%
75% - 100%

Reason for NM plans and Acres

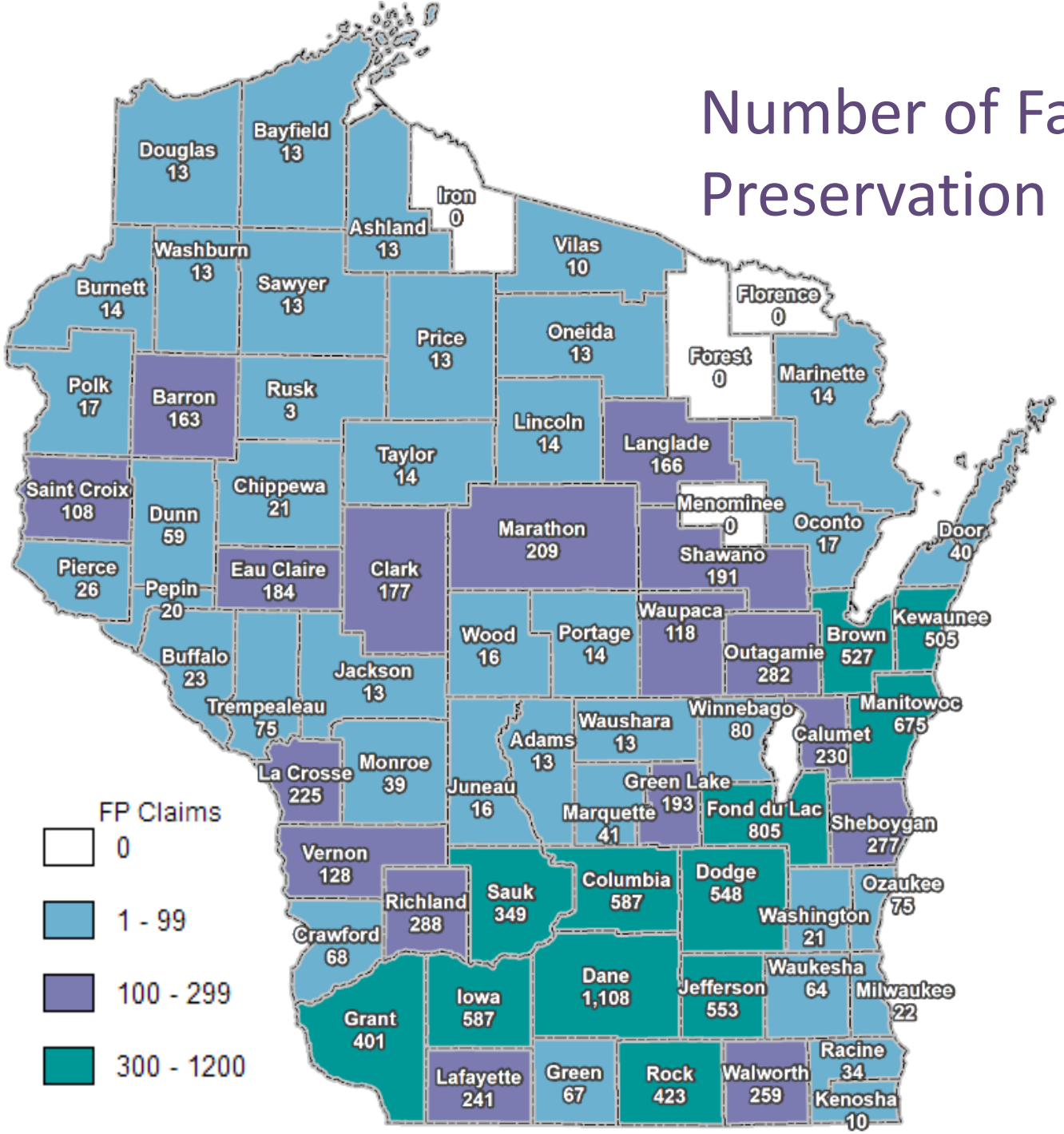
8,399 Plans

8,220 Plans



2019 NM Plans 36.9% of WI's 9 million cropland acres

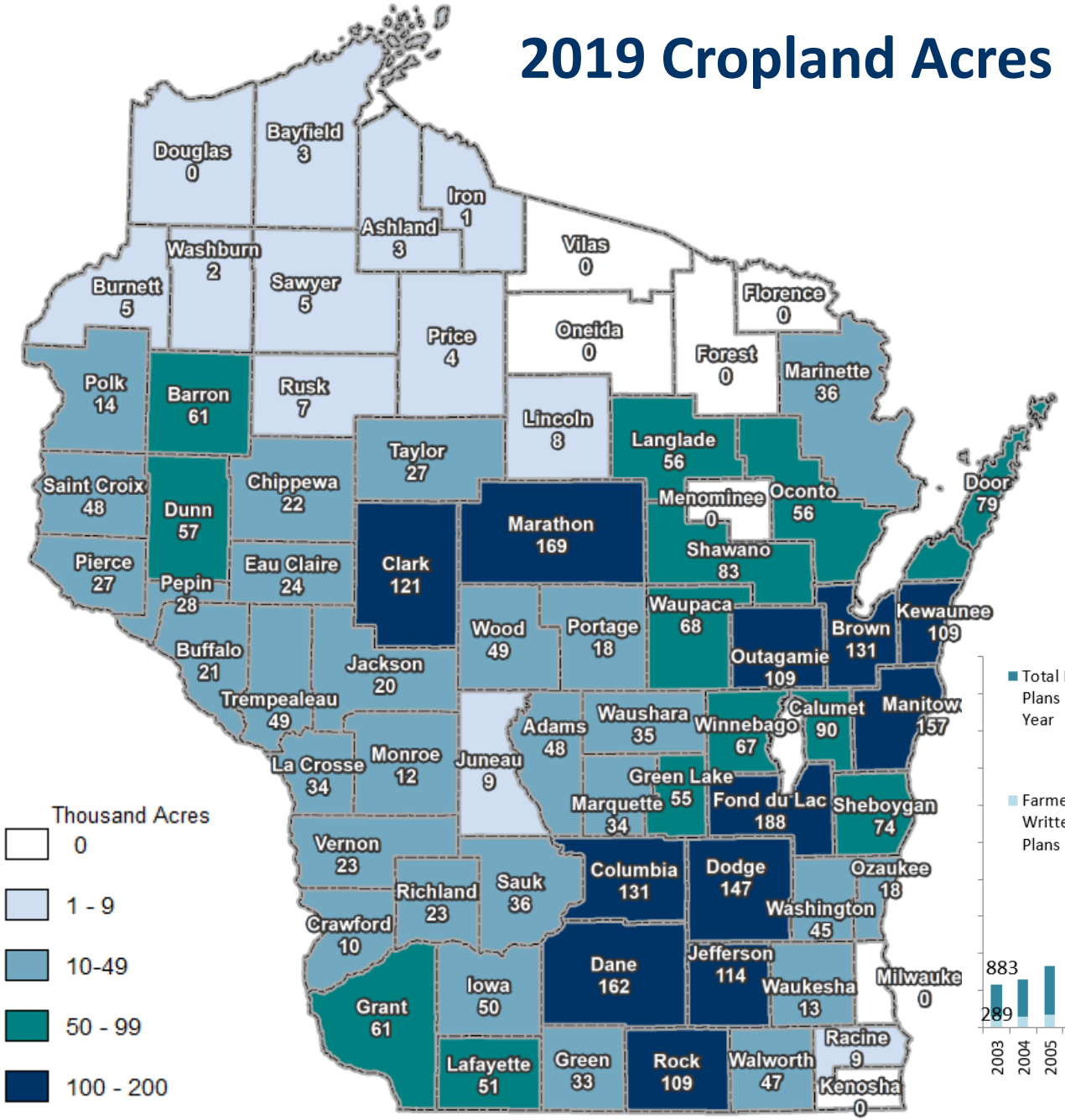
Number of Farmland Preservation Claims



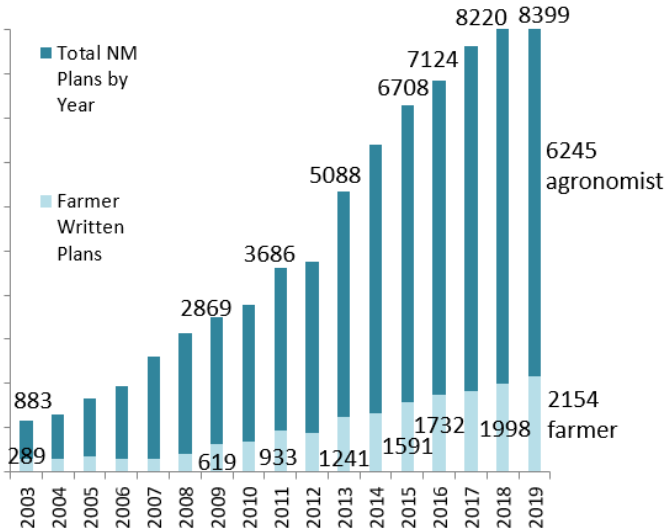
2017 DOR reports 2.2 M acres claiming $16M income tax credits

Certificates of Compliance issued to 13,000 landowners for ag-use & meeting soil and water conservation standards

2019 Cropland Acres 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.



Producer-Led Projects

2020: $750K, 27 groups funded

2019: $750K

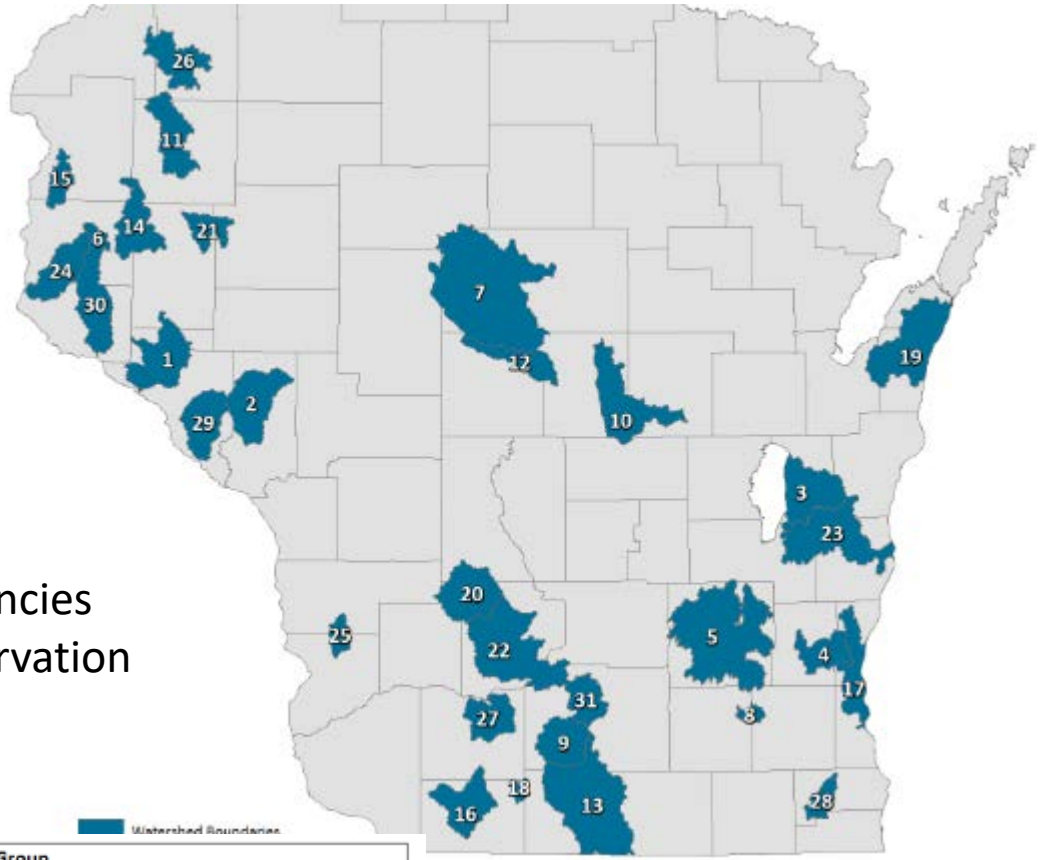
2018: $558K

2017: $197K

2016: $242K

- 31 groups now, started with 14
- All projects are led by farmers in collaboration with local partner agencies and organizations to increase conservation activities in their watersheds.

Producer-Led Grant Recipients 2016-2020



Map ID	Producer-Led Group	Map ID	Producer-Led Group
1	★**Bear Creek/Chippewa Farmer Groundwater Group**	17	**Milwaukee River Watershed Clean Farm Families (CFF)**
2	**Buffalo-Trempealeau Farmer Network**	18	Pecatonica Pride
3	★**Calumet County Agricultural Stewardship Alliance**	19	**Peninsula Pride Farms (PPF)**
4	**Cedar Creek Farmers - Improving Land for Cleaner Waters**	20	**Producers of Lake Redstone**
5	**Dodge County Farmers for Healthy Soil & Healthy Water**	21	**Red Cedar Conservation Farmers**
6	Dry Run Creek Farmer-Led Council	22	★**Sauk Soil and Water Improvement Group (SSWIG)**
7	Eau Pleine Partnership for Integrated Conservation (EPPIC)	23	**Sheboygan River Progressive Farmers**
8	**Farmers for Lake Country**	24	**South Kinni Farmer-Led Watershed Council**
9	**Farmers for the Upper Sugar River**	25	**Tainter Creek Farmer-Led Watershed Council**
10	**Farmers for Tomorrow**	26	**The Shell Lake - Yellow River Farmer-Led Watershed Council**
11	**Farmers of Barron County**	27	**Uplands Watershed Group**
12	**Farmers of Mill Creek**	28	**Watershed Protection Committee of Racine County**
13	**Farmers of the Sugar River**	29	Waumandee Watershed
14	**Hay River Farmer-Led Watershed Council**	30	**Western Wisconsin Conservation Council**
15	**Horse Creek Farmer-Led Watershed Council**	31	**Yahara Pride Farms**
16	**Lafayette Ag Stewardship Alliance (LASA)**	Bolded Producer-Led Groups received grant funding for 2020, Stars indicate new groups	

SnapPlus 19 NM8 Checklist Report

ARM-LWR-460.docx (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 t
for compliance

Nutrient Management Checklist *Wis. Stat. §92.05(3) (k), Wis. Ac*

COUNTY	DATE PLAN SUBMITTED	GROWING SEASON YEAR PLAN IS WRITTEN FC
TOWNSHIP: (T. N.) RANGE: (R. E., W.).		CHECK ONE: ☐ Init

NAME OF FARM OPERATOR RECEIVING NM PLAN	FARM NAME (OPTIONAL)	BUSINESS PHONE
First Name LastName		( ) -

STREET ADDRESS	CITY	STATE	ZIP

REASON THE PLAN WAS DEVELOPED: Click and choose. (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? ☐ YES ☐ NO If yes, which software version, if known?

CHECK PLANNER'S QUALIFICATION: Click and choose.
(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	BUSINESS PHONE
First Name Last Name	( ) -

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?

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.

	Yes	No	NA
a. Determine field nutrient levels from soil samples analyzed by a DATCP **certified laboratory**.	☐	☐	☐
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%.	☐	☐	☐
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.	☐	☐	☐
d. **Identify all fields'** name, boundary, acres, and location.	☐	☐	☐
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.**	☐	☐	☐
f. Make no **winter applications of N and P** fertilizer, except on grass pastures and winter grains.	☐	☐	☐
g. Document method used to determine **application rates.** Nutrients shall not runoff during or immediately 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 P** management strategy to all fields within a tract when fields receive manure or organic by-products during the crop rotation.	☐	☐	☐
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.	☐	☐	☐
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.			blank
l. Make no nutrient applications within 8' of **irrigation** wells or where **vegetation is not removed**.			blank
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.			blank

n. Make no **untreated manure applications** to areas within 1000' of a **community potable water well** or within 100' of a **non-community potable water well** (ex. church, school, restaurant) unless manure is treated to substantially eliminate pathogens. blank

o. Make no manure applications 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 of application.

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.

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*.

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.

2. When frozen or snow-covered soils prevent effective incorporation, does the plan follow these requirements for winte of all mechanically applied manure or organic by-products? *This section doesn't apply to winter gleaning/pasturing meeting 590 N ar*

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

a. Identify **manure quantities planned to be spread during the winter**, or the amount of manure gener ed in 14 days whichever is greater. *For daily haul systems, assume 1/3 of the manure produced annually will need to be* applied. blank

b. Identify **manure storage capacity** for each type applied and stacking capacity for manure ≥ 16% DM if permanent storage does not exist. blank

c. Show on map and make no applications within the **SWQMA**.

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.

e. Show on map and make no applications of manure within **300 feet** of **direct conduits to groundwater**.

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**.

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.

I certify that the plan represented by the answers on this checklist complies with Wisconsin's NRCS 2015-590 NM Standard or is oth

Qualified NM planner signature NAICC-*Certified Professional Crop Consultant*, ASA-*Certified Crop Adviser*, or SSSA-*Soil Scientist*

Qualified NM farmer-planner or Authorized farm operator signature receiving and understanding the plan | Date | Signature if reviewed for quality assurance

Section 1. Checking nutrient application requirements to protect water quality

	Yes	No	NA
h. Identify in the plan that **adequate acreage** is available for manure produced and/or applied.	X		
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.	X		
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.	X		

NM2 Compliance Check

Rotational Restriction Problems

No Rotational Problems found

Prior year

Known Annual Volume	*Volume Units*
6,000,000	Gallons
500	Tons
1,700	Tons

Available	Applications	Remaining
6,000,000	8,085,670	-2,085,670
500	2,988	-2,488
1,700	4,534	-2,834

Plan year

Known Annual Volume	*Volume Units*
5,600,000	Gallons
350	Tons
1,500	Tons

Available	Applications	Remaining
5,600,000	5,364,089	235,911
350	2,549	-2,199
1,500	2,249	-749

Next year

Known Annual Volume	*Volume Units*
5,600,000	Gallons
450	Tons
1,500	Tons

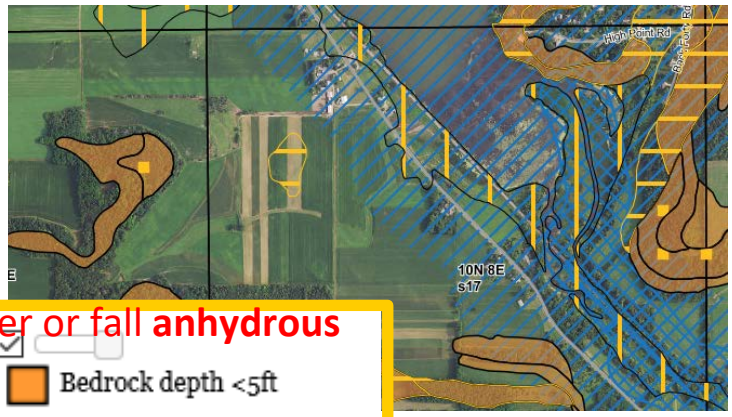
Available	Applications	Remaining
5,600,000	5,768,820	-168,820
450	570	-120
1,500	1,197	303

If at least 90% of the manure produced is applied for each source in each of these 3 years

If "Known Annual Volume" or Planned applications are not entered for each of these years, the answer will be blank

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:

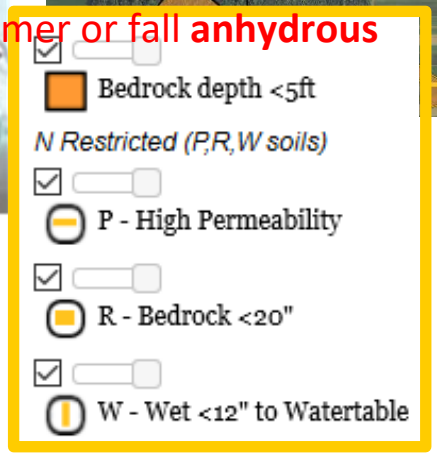


Late summer or fall **anhydrous**

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:

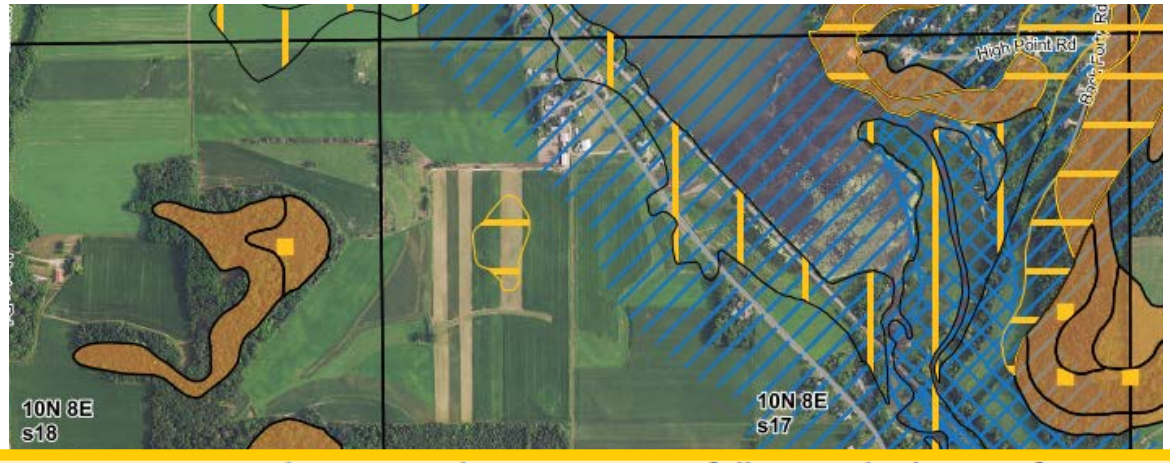
- Sites vulnerable to N leaching **PRW Soils** (P=high permeability, R= bedrock < 20 inches, or W= wet < 12 inches to apparent water table);
- Soils with depths of 5 feet or less to bedrock;
- Area within 1,000 feet of a community potable water well.

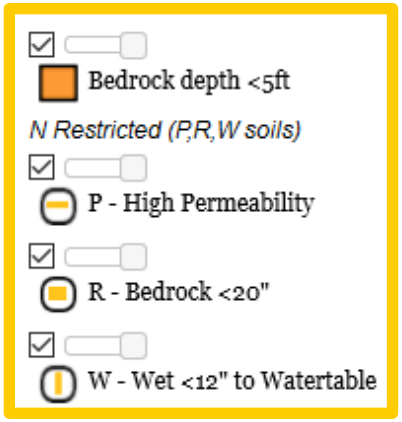
On **P soils, when commercial N is applied** for full season crops in **spring and summer**, follow A2809 and apply one of the following:

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.

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





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*.

Winter produced manure needs to be **stored**, **spread**, or **grazed**

Winter Spreading Plan identifies:

- Quantity of storage and manure spread during winter

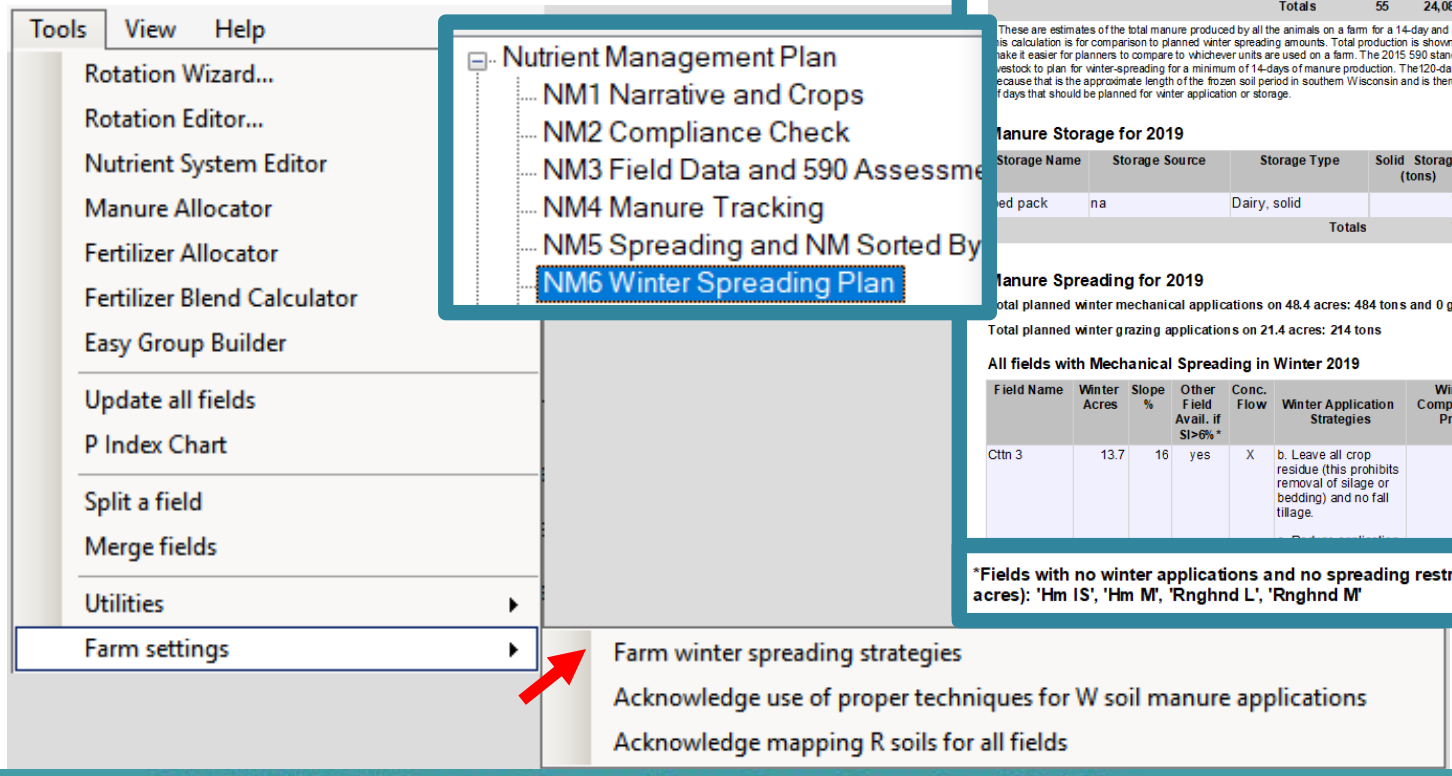
When frozen or snow-covered soils prevent effective incorporation at application:

- Do not apply within the Surface Water Quality Management Area
- 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 P_2O_5 per acre.
- Do not apply manure within **300 feet** of *direct conduits to groundwater*.
- Do not surface apply **liquid manure during February and March** on DNR Well Compensation Areas or where Silurian dolomite is within **60 inches** of the soils surface.

Manure / Biosolid Applications | Winter Practices | Grazing Es

Source name	Season	Spread method	Area	*Acres applied*	Rate
Dairy Liquid	Winter	Unincorpo...	Spreadable	1.5	6,000
Dairy Liquid	Spring	Unincorpo...	Winter manure pro...	4.8	6,000

Tools Farm Settings & NM6 Winter Spread Report



NM6 Winter Spreading Plan - 2019
All fields

Manure Production for 2019

Animal Type and Size	No. of head	lb/day per animal	Liquid gal/day per animal	14-day production as tons*	14-day production as gallons*	120-day production as tons*	120-day production as gallons*
Dairy Dry Cows 1200 lbs	80	98.5	21.5	55	24,080	473	206,400
			Totals	55	24,080	473	206,400

These are estimates of the total manure produced by all the animals on a farm for a 14-day and a 120-day period. The intent of this calculation is for comparison to planned winter spreading amounts. Total production is shown both in tons and in gallons to make it easier for planners to compare to whichever units are used on a farm. The 2015 590 standards requires all producers with livestock to plan for winter-spreading for a minimum of 14-days of manure production. The120-day manure production is shown because that is the approximate length of the frozen soil period in southern Wisconsin and is therefore the very minimum amount of days that should be planned for winter application or storage.

Manure Storage for 2019

Storage Name	Storage Source	Storage Type	Solid Storage (tons)	Liquid Storage (gallons)
ed pack	na	Dairy, solid	73	0
		Totals	73	0

Manure Spreading for 2019

Total planned winter mechanical applications on 48.4 acres: 484 tons and 0 gallons

Total planned winter grazing applications on 21.4 acres: 214 tons

All fields with Mechanical Spreading in Winter 2019

Field Name	Winter Acres	Slope %	Other Field Avail. if Sl>6%*	Conc. Flow	Winter Application Strategies	Winter Compliance Prob.	Problem Exp
Cttn 3	13.7	16	yes	X	b. Leave all crop residue (this prohibits removal of silage or bedding) and no fall tillage.		na

*Fields with no winter applications and no spreading restrictions in 2019 (85 acres): 'Hm lS', 'Hm M', 'Rnghnd L', 'Rnghnd M'

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%.