

Wisconsin Nutrient Management Update

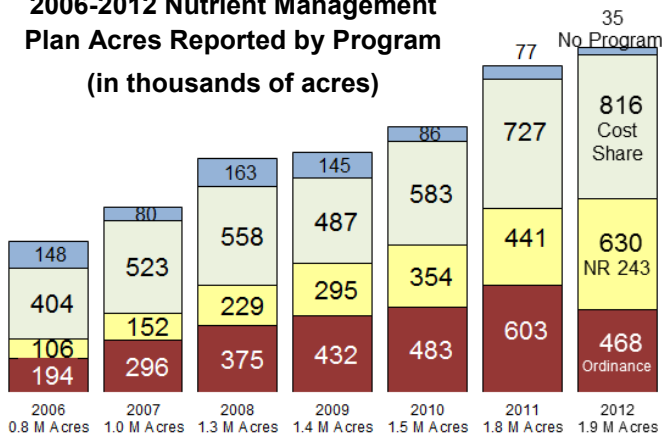
Prepared by the WI Department of Agriculture, Trade and Consumer Protection

& Quality Assurance Team Review of 2012's Nutrient Management Plans

November 2012

2006-2012 Nutrient Management Plan Acres Reported by Program

(in thousands of acres)



Source and percent of total NM acres planned in 2012: County manure storage (23%) and livestock siting (1%) ordinances; DNR permitted farms under NR243 (32%); DATCP cost sharing program (31%), DNR cost sharing program (1%), USDA (10%) cost share, and no program reason (2%). Compared to 2011, DATCP and NR243 programs saw 24% and 30% increases in acres respectively, with all other categories lower in 2012 than in 2011.

Wisconsin's Dept. of Agriculture, Trade and Consumer Protection tracks nutrient management (NM) planning progress through NM Plan Checklist forms submitted by farmers, agronomists, and public agency staff. In 2012, 3,867 NM plans were submitted covering 1,949,856 acres, which represents 22% of WI's 9 million cropland acres.

Farmers who implement their 590 NM plan use one of the best practices for reducing water quality problems like algae in lakes and nitrate in groundwater. These farmers are stewards of our soil and water. By reducing excess nutrient losses by controlling soil erosion, following the 590 NM standard, being aware of environmentally sensitive areas on their farms, and applying nutrients to UW crop recommendations, farmers become more profitable and better stewards of the land.

Nutrient Management Reporting by County

67 of 72 WI Counties Reported NM Plans in 2012

- Most cropland acres under NM plans: Fond du Lac (136,000); Marathon (134,000); Manitowoc (121,000); Brown (110,000); Kewaunee (100,000); Clark (98,000); Dodge (82,000); Shawano (73,000); Calumet (69,000); Dane (68,000).
- 7 counties have over 50% of their cropland under NM plans: Adams, Brown, Door, Calumet, Fond du Lac, Kewaunee, and Manitowoc, compared to 6 in 2011
- 30 counties have 10-50% of their cropland with NM plans, compared to 25 in 2011
- 35 counties have less than 10% of their cropland acres with NM plans, compared to 41 in 2011

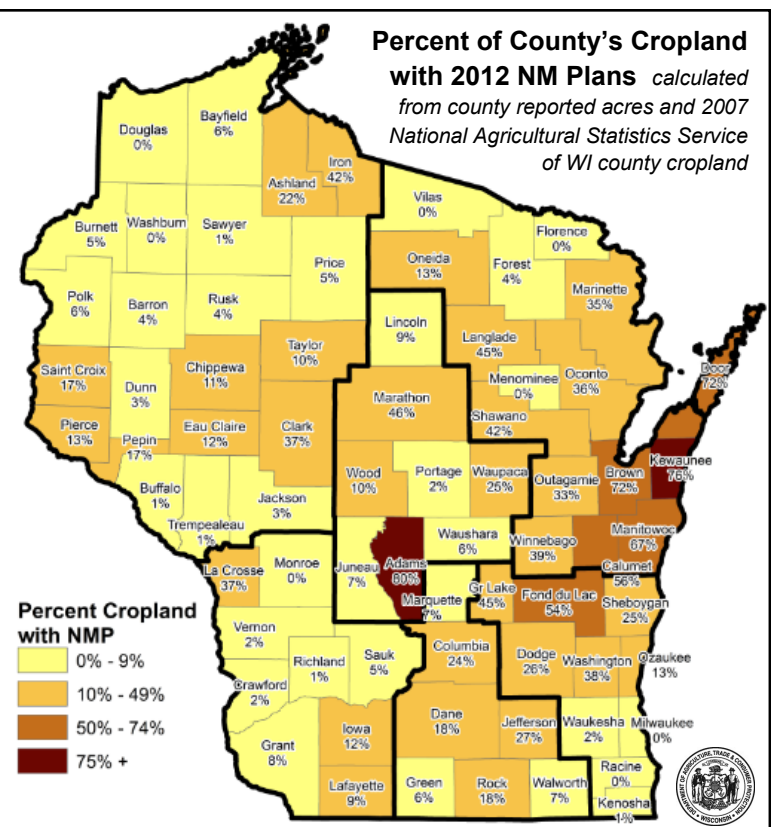
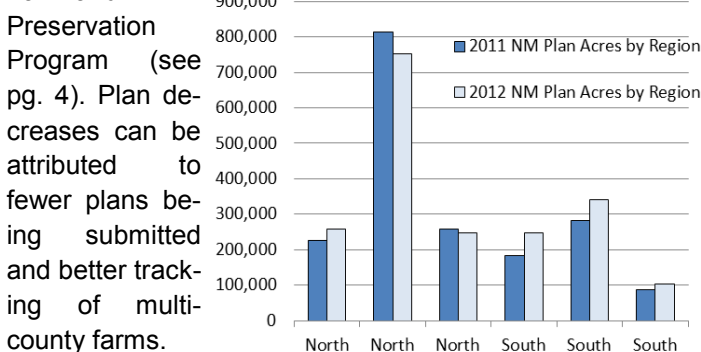
Who wrote plans?

876 farmers wrote their own plans on 258,369 acres, a 6% decrease in acres from 2011. In 2012, farmer-written plans accounted for 23% of all NMPs on 13% of Wisconsin's total cropland acres.

2,991 farmers hired 275 agronomists to assist them with nutrient management planning on 1,691,487 acres. Agronomists produced 77% of the total plans covering 87% of total acres. Compared to 2011, agronomist-written plan acres increased by 7%.

NM Acres by Region

Documented NM planning has increased by 63,000 acres in the South Central region, 60,000 acres in the South East, 32,000 in the North Central, and 16,000 in the South West region. Conversely, acres dropped by 63,000 acres in the North East and 9,000 in the North West. Much of the increase in NM plan acres in Southern WI can be credited to the performance standards required under the Farmland



2012 QAT Nutrient Management Plan Review Summary

For the last 17 years, the Quality Assurance Team (QAT), comprised of agency conservationists and private sector agronomists, conducts quality assurance reviews of NM plans with the goal of improving planning and stewardship of our soil and water resources. The 2012 QAT assessed 53 plans covering 50,689 acres. These plans were selected from the pool of *NM Plan Checklist* that represents the 590 plan. These *Checklists* are submitted each spring to county conservation departments from agronomists and farmers.

General Findings


Most Improved:

Rotational phosphorus management and mapping field features such as boundaries, wells, waterways, and soil types. Compared to 2011, 2012 we saw a 22% improvement in both.

Most Problematic:

Inconsistent manure allocation and not using calibrated rates, down 4% from last year.

Again this year we see many improvements over last year's plans! Every NM plan should be annually reviewed and updated when necessary to track season's crops, yields, tillage, nutrient applications, and rates. If an item does not comply with the standard, planners should explain in the narrative when the problem will be resolved.


 In 2012, 87% of the plans reviewed were written with Snap Plus software. Of the farmer developed plans reviewed, 8 of 10 used Snap Plus. **Snap Plus** (Soil Nutrient Application Planner) is a nutrient management computer program that works with farmers to ensure that they properly credit manure and plant material as sources of nitrogen and phosphorus. The software aids with economically planning manure and fertilizer applications to cropland while reducing the risk of soil loss and water pollution. It uses the $[\text{soil test crop need}] - \text{minus } [\text{nutrient credits from manures and legumes}] = \text{equals the } [\text{amount of fertilizer to apply}]$. Snap Plus NM software makes this available to anyone free of charge from www.snapplus.net. Nutrient management planning with Snap Plus addresses the **4 Rs**: the **right source**; **right rate**; **right time**; and **right place**.

Plan Review Questions

Are concentrated flow areas protected with perennial vegetation?

Result: 51% (27 of 53) of plans mentioned concentrated flow channels were protected from erosion, a 12% improvement of the most problematic issue in 2011.

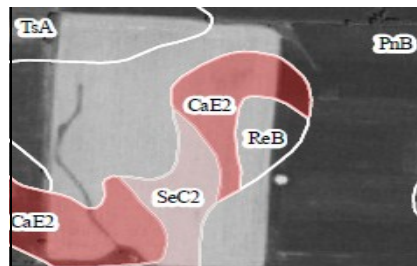
Tip: *Established concentrated flow channels can not have nutrients applied in them.*


 Use Snap Plus' farm **narrative** in the **Farm Screen** to explain which fields have or will have waterways installed to control erosion and when installation will occur. Showing these areas on the field maps will also help to keep manure applications out of these conduits to surface water.

Is the correct soil type chosen?

Result: 72% (38 of 53) of the plans used proper soil map symbols, a 7% improvement from last year.

Tip: *To correctly calculate soil erosion, pick the soil type from the hill that covers 10% or more of the field. The 3rd capital letter of the soil map unit designates % slope. The A slopes are the flattest and F slopes very steep. In the example map below, even though much of the field is a PnB 2-6% slope, the "Dominant Critical Soil" (hill) that covers 10% or more of the field is CaE2 12-30%.*




 Use Snap Plus' **Field Screen** link to the 590 Standard's application restriction maps to select the field's dominant critical soil type ensuring that soil loss is kept below tolerable rates.

Were the soils properly tested?

Result: 42% (22 of 53) of the plans followed the 5 acre per sample, every 4 years soil testing requirement on every field, equal to last year.


Tip: *Soil sample every 5 acres by mixing 10 representative soil cores and filling your sample bag. Label the sample bag and your sample map with the same unique numbers so you will know which sample goes with which field.*

 Use the New Snap Plus Ver. 2 for improved soil testing flexibility based on SAMPLE area rounded to the nearest acre, not FIELD size. Snap Plus will calculate the number of soil samples needed for each field by dividing the field acres by 5 and rounding to the nearest whole number.

- ◇ For example, a 27-acre field will require 5 samples ($27/5 = 5.4$ rounded to 5).
- ◇ Fields that have tested very high or excessively high for both P and K in the last four years need fewer samples according to UW-Extension sampling guidelines.
- ◇ Snap Plus' **Soil Sample Log Report** indicates the recommended number of samples per field and helps maintain the exact field names for the new results when resampling.

Soil Testing Laboratories

Nutrient management plans must be based on soil tests performed by DATCP certified soil testing laboratories, which must follow specific testing procedures to ensure accurate results for WI's soils.

 Ask your DATCP certified soil lab to email your soil test results in Snap Plus format. Import the file into Snap Plus to save time and to reduce entry errors.

[UW Soil & Plant Analysis Laboratory](#)

Verona, WI (608) 262-4364

[UW Soil & Forage Lab](#)

Marshfield, WI (715) 387-2523

[A & L Great Lakes Laboratories, Inc.](#)

Fort Wayne, IN (260) 483-4759

[AgSource Cooperative Services](#)

Bonduel, WI (715) 758-2178

[Dairyland Laboratories](#)

Arcadia, WI (608) 323-2123

[Rock River Laboratory](#)

Watertown, WI (920) 261-0446

2012 QAT Nutrient Management Plan Review Summary

Were fields with 590 restricted areas identified and nutrient applications planned correctly?

The following categories improved 5% to 13% from 2011 QAT results.

Result: 94% (50 of 53) of plans highlighted surface waters.

Tip: Nutrient applications on unfrozen ground in Surface Water Quality Management Areas adjacent to surface waters (SWQMAs) require one of the following:

1. application incorporation,
2. 30% plant cover on soil surface,
3. cover crops, or
4. filter strips.

Unincorporated liquid applications also have rate limits which Snap Plus calculates from crop residue and soil texture.


 Use Snap Plus' **Field Screen-Restriction Features** column to add seasonal field restrictions for nutrient applications:

- On nitrogen restricted soils,
- On steep slopes,
- Near surface waters,
- Near wells or
- Near other groundwater conduits.

Then, check for 590 Standard compliance using the **Nutrient Management Plan Reports**.

Result: 92% (49 of 53) of the plans correctly addressed soil N restrictions helping to reduce nitrate losses to groundwater. The 590 standard prohibits fall commercial N in most cases and limits fall manure applications. The remaining N need is applied in the spring.

Result: 89% (47 of 53) of plans followed winter spreading restrictions on steep slopes and areas near surface waters.


 Use Snap Plus' **Cropping Screen** and the **Nutrient Management Plan Reports** to show if the crop rotation, soil loss rates, tillage, phosphorus (P), or nitrogen (N) exceed UW recommendations or the 590 NM standard.

Result: 74% (39 of 53) of the plans had wells identified, helping to incorporate applications 200' up slope of these conduits to groundwater.

Does the NM plan maintain tolerable soil loss "T" on every field across the crop rotation?

Result: 79% (42 of 53) of the plans had every field meeting tolerable soil loss (T) for sheet and rill erosion, a 13% increase from 2011.

Tip: Soil conservation planning starts with the soil map and selecting the "Dominant Critical Soil".


 Use Snap Plus' flexibility to update fields with what really occurred and plan future crops and applications to maintain compliance with the 590 standard.

**Know How Much
You Haul**
**Fill it, Weigh it, Spread it,
Weigh it again**
Loads/ac X manure/load = Tons/ac

Are manure application rates consistent with calibrated rates?

Result: 51% (27 of 53) of the plans used calibrated manure applications, most problematic this year, a 4% decrease from 2011.

Tip: It is important to know how much manure is being applied. The plan should use the calibrated rate so nutrients are properly credited. Contact your UWEX or conservation office for assistance with spreader calibration. Use manure production book values or a manure analysis when establishing the NM plan. Subsequent plans should track all manure applied by counting loads or storage volume.


 Use Snap Plus' **Manure Tracking Report** to show livestock numbers, storage capacity, spreader calibrations, and annual manure production and use by source.


Does the NM plan have complete phosphorus (P) management?

Result: 70% (37 of 53) of plans properly managed all the manure produced annually and allocated additional P fertilizer for each year of the rotation, most improved this year, a 22% increase from 2011.

Tip: Planners should identify safe places to go with manure in the winter and summer that will not exceed restrictions.

The **NR 151 performance standards requires an average rotational P Index of 6 and an annual PI of <12** for DNR nonpoint source programs now. This is likely to be required for other programs, like the Farmland Preservation Program, when adopted in ATCP 50 Wis. Admin. Code.


 Use Snap Plus' flags to find where applications exceed the 590 standard by clicking on the flag in the **Cropping Screen** or by running reports. Snap Plus reports show compliance for both Soil Test P management option and the P Index (PI) or either method.

 Snap Plus tracks soil-banked P & K in the years between soil tests on the Cropping Screen so farmers do not apply more than they need.

Are nitrogen (N) applications planned within the allowances of the 590 standard and UW recommendations?

Result: 79% (42 of 53) of plans had N recommendations that complied with the 590 standard for every field, a 10% increase from 2011.

Tip: N applications are for a single year and should follow UW recommendations (UWEX Pub. A2809).

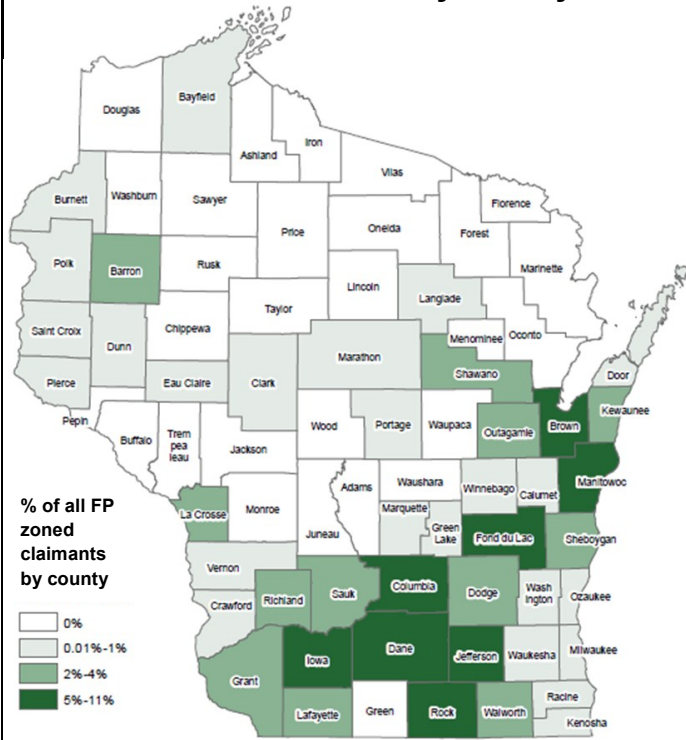
 Snap Plus will flag excess applications by turning the application red in the Cropping Screen. To learn more about compliance flags, go to the Help menu from the F1 key and search for "restriction flags."

More Nutrient Management Information and Forms can be found at:

http://datcp.wi.gov/Farms/Nutrient_Management/Planning/index.aspx

For more information about the QAT, the content of this newsletter, or general NM questions, please contact Sue Porter, DATCP at (608) 224-4501 or sue.porter@wi.gov

Percent of All 2010 Claimants in Farmland Preservation Zoned Areas by County



Nutrient Management Planning & Farmland Preservation

Much of the increase in nutrient management planning can be attributed to the requirement of implementing conservation practices in exchange for claiming a \$7.50 per acre income tax credit each year for all of their land, not just the acreage that is farmed. In 2010, almost 13,000 of the 15,000 total claimants had land in Farmland Preservation Zoned areas.

Dane, Fond du Lac, Jefferson, Rock, Iowa, Manitowoc, Brown, and Columbia Counties had the highest number of claimants based on zoning and are the darkest on the map above.

- Together they have 6,600 or 53% of the total Farmland Preservation program participants in these zoned areas.
- In 2012 these eight counties collectively reported 600,000 acres of NM plans, a 143,000 acre increase from 2011.
- Wisconsin has 45 counties with this type of zoning.

The counties reporting the largest increases in NMP acres this year are: Manitowoc (57,000 acres), Columbia (27,000 acres), Sheboygan (25,000) and Rock (23,000).

What is a Nutrient Management Plan (NMP)?

A Wisconsin NMP is a crop practice record that is *annually reviewed, and when necessary, updated*. A NMP follows WI's USDA Natural Resources Conservation Service's 590 Nutrient Management Standard and is *prepared by a qualified planner*, which may be the farmer or certified crop adviser. A NMP *accounts for all N-P-K nutrients applied*, and planned to be applied, to each field over the crop rotation. Following a NMP helps farmers allocate nutrients economically while helping to ensure they are not over applying nutrients, which could create water quality impacts.

When can a NMP be Required?

Farms can be required to implement nutrient management with a \$28/ac cost share offer or if:

1. participating in the *Farmland Preservation Program*,
2. regulated by *local manure storage or livestock siting ordinances*, or by a *DNR WPDES permit*,
3. accepting manure storage cost share funds, or
4. causing a discharge.

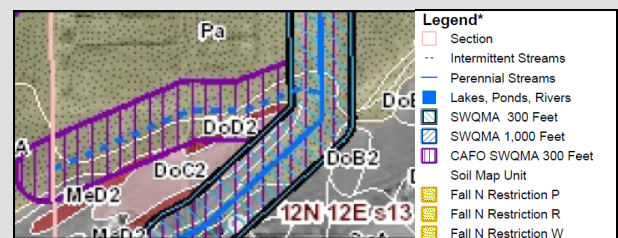
Tools to Make NM Planning Easier!

Snap Plus version 2 is on its way with improvements that:

- Put all farm information into a single file and allow multiple farm files to be open at once
- Allow fields to be grouped by crop, soil, or other features making planning faster and easier
- Allow soil erosion to be calculated from the dominant critical soil type and N need based on the predominant soil type
- Include a more user-friendly grazing manure application rate calculator
- Contain a daily manure application log that can be used to automatically update field application records
- Match new map soil survey layers available from the Manure Advisory System (see below)

590 interactive maps from www.manureadvisorysystem.wi.gov help farmers identify sensitive field areas with updates that include:

- Soil and water restrictions for DNR permitted Confined Animal Feeding Operations
- DATCP web service for GIS users with individual county layers on [ftp://ftp.datcp.state.wi.us/GIS/590/](http://ftp.datcp.state.wi.us/GIS/590/)



2012 QAT Members		
Adam Abel—NRCS, Waupaca	Paul Kivlin—UW NPM	Terence Kelly—NRCS, Madison
Andrew Craig—WI DNR, Madison	Gini Knight—WI Land & Water Conservation Assoc.	Laura Ward Good—UW Madison, Soil Science
Scott Evans—Frontier FS	Scott Koth—Frontier FS	Dirk Herr Hoyman—UW Madison, Soil Science
Scott Flemming—Rock River Laboratory	Kyle Minks—Dane County Land Conservation Division	Joe Wolter—UW Madison, Soil Science
Josh Johnson—Northside Elevator	Todd Morris—Green Lake County Land Conservation	Stephanie Schneider—DATCP, Eau Claire
Marian Jordan—NRCS, Westfield	Paul Sturgis—Cromptech Agronomics LLC	Mark Jenks—DATCP, Waukesha
	Dave West—West Agronomics	Sue Porter—DATCP, Madison