

# WISCONSIN NUTRIENT MANAGEMENT UPDATE

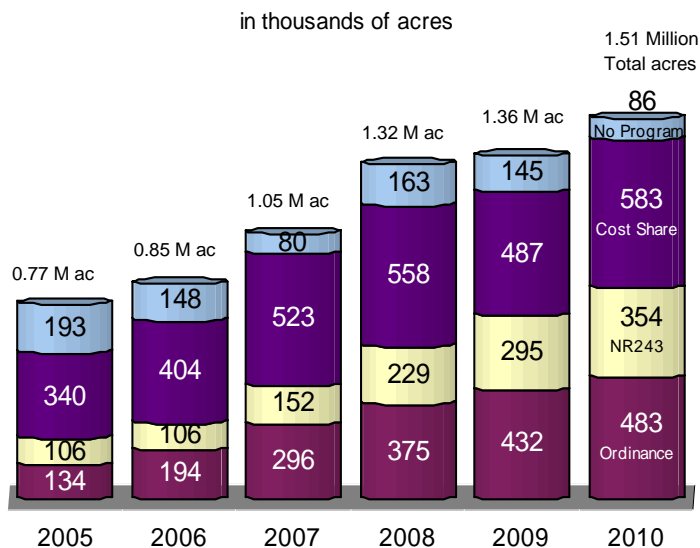
Prepared by the WI Department of Agriculture, Trade and Consumer Protection

& Quality Assurance Team Review of 2010's Nutrient Management Plans

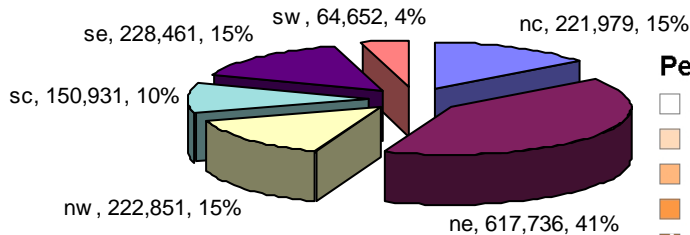
November 2010

## 2005-2010

### Nutrient Management Plan Acres by Program



### 2010 NM Plan Acres by Region



Compared to 2009, NM planning has increased in every region of WI by the following amounts: 20% in the south east; 15% in the south central; 14% in the north central; 11% in the north east; 8% in the north west; and 1% in the south west.

### Who is writing the plans?

**695 farmers** wrote their own plans on 204,670 acres (14% of total acres) in 2010; 77 more farmers and 23,989 (12%) more acres than in 2009. Farmers are writing 23% of the total plans. Of the 48 plans reviewed for compliance with the 590 standard in 2010, 9 were farmer developed and 7 of those used Snap Plus.

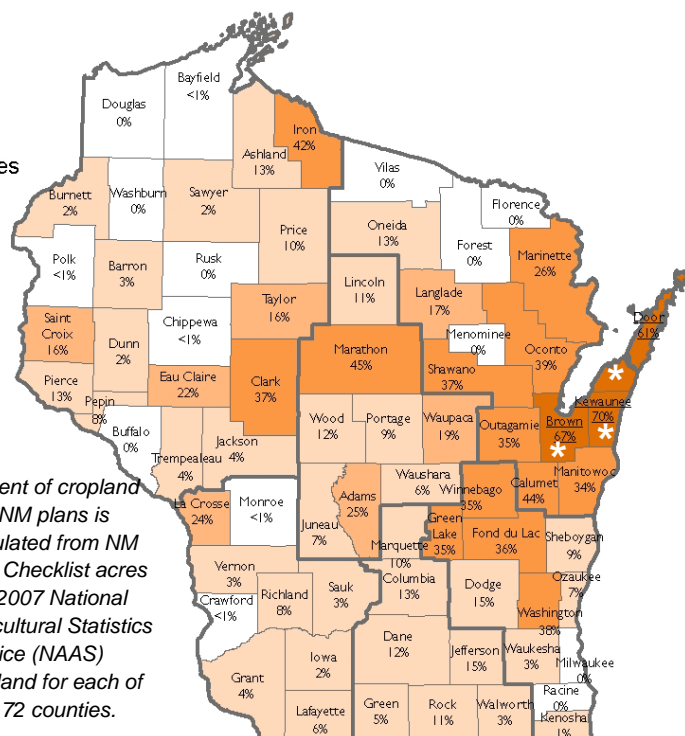
**278 agronomists** were hired by farmers to assist them with NM planning. Agronomists reported 1,301,940 acres (86% of total acres) from 2,383 plans, 71 more agronomists and 158,851 (14%) more acres than in 2009. Agronomists wrote 77% of the total plans.

Wisconsin's Dept. of Agriculture, Trade and Consumer Protection tracks nutrient management (NM) planning progress through bulk fertilizer suppliers and NM Plan Checklist forms submitted by farmers, agronomists, and public agency staff. For the first time since the suppliers of bulk fertilizer started reporting these acres in 2006, more acres were reported through NM Plan Checklists in 2010. This means more plans are being recorded with the county as part of ordinances and programs and not just part of a crop management plan. In 2010, 62 counties reported 3,078 plans covering 1,506,610 acres. This is a 12% increase from last year covering 17% of WI's cropland. Suppliers of bulk fertilizer to WI farmers reported 3,394 plans covering 1,483,919 acres, a 7% increase from last year.

For the last 15 years, the Quality Assurance Team (QAT), comprised of agency and private nutrient management specialists, has conducted quality assurance reviews of NM plans. The plans are improving their compliance with the NRCS 590 NM Standard when we looked at nutrient applications near surface water, and limiting fall applications on soils that are likely to leach nitrate to ground water.

*The QAT reviews current plans written mostly by un-reviewed or new NM planners with the goal of improving planning and stewardship of our soil and water resources.*

### Percentage of Cropland Reported from NM Plan Checklists 2010

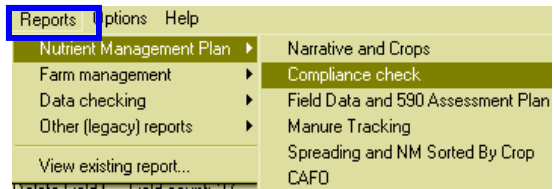


Percent of cropland with NM plans is calculated from NM Plan Checklist acres and 2007 National Agricultural Statistics Service (NAAS) cropland for each of WI's 72 counties.

NM acreage increased in 2010 compared to 2009 in 39 of 62 counties reporting. Counties reporting the most acres under a NM plan in 2010 were Marathon County with 131,123 acres, followed by Brown 102,769 acres, and Clark 97,050 acres.

# 2010 Quality Assurance Team (QAT) NM Plan Review Summary

The 2010 NM plan reviews found properly soil testing, identifying the dominant critical soil, spreader calibration, and phosphorus management to be the most problematic issues. We found substantial improvement in planning for all nutrient application restrictions. This is probably due to state-wide availability of spreading restriction maps.



UW Soils, our Snap Plus developers, are helping NM planners address basic planning needs with improvements in linking spreading restriction maps to NM plans, restriction feature tagging, and reports in the Snap Plus computer software. The new Snap Plus program (v.1.132) was tested on 48 NM plans in the 2010 Quality Assurance Team review. Of the 48 plans, 39 plans were written using Snap Plus. Nine were hand written but entered into Snap Plus as part of the review process for determining compliance with the 590 standard regarding soil loss calculations, P balancing, and nutrient limits flagging.

Field Name	Field group (subfarm)	FSA Tract #	FSA Field #	Size acres	County	Soil Map Symbol	Soil Series Name	Restriction Features	Field Slope (%)	Field Slope Length (ft)	Below Field Slope to Water (%)	Distance to Perennial Water (ft)
01		2548	7	7	Wl-Waushara	PfC	PLAINFIELD	yes	9	151	2.1 - 6	1001 -
02		2548	5	5	Wl-Waushara	RfD	RICHFORD	yes	16	98	6.1 - 12	1001 -
03		2548	10	10	Wl-Waushara	RfD	RICHFORD	yes	16	98	6.1 - 12	1001 -
04		2548	7	7	Wl-Waushara	HrB	HORTONVILLE	yes	4	200	2.1 - 6	1001 -

*Tips to help planners develop and re-view 590 NM Plans are provided throughout this document.*

*To review plans we compare the field's soil types and restriction features on the application restriction map's from <http://www.manureadvisorysystem.wi.gov/> to those selected in the NM plan and make adjustments to the plan database copy.*

## Does the NM plan have Tolerable soil loss, T, on every field?

We found 54% (26 of 48) of the plans had every field meeting **tolerable soil loss (T)** for sheet and rill erosion, a 26% decrease from 2009. Of the 22 plans found with fields exceeding T soil loss levels, 11 of the planners had incorrectly chosen the predominant soil type and not the more erosive, "Dominant Critical Soil" type on one or more fields. The other 11 of 22 plans exceeded soil loss because of crop and tillage choices.

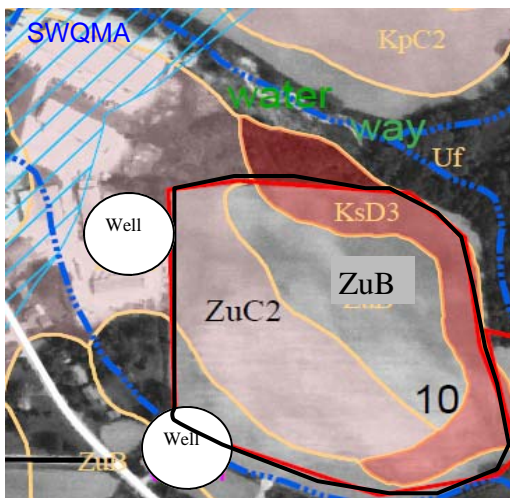
*Tip: With Snap Plus, farmers & planners are able to update crops, tillage, and calculate soil loss over the crop rotation, making it an excellent tool for conservation planning and to meet 590. Snap Plus NM software is available free of charge from <http://www.snapplus.net/>.*

## Does the NM plan have the correct soil type?

Only 33% (16) of the (48) NM plans used proper soil map symbol on all fields, a **3% increase** from last year. If the flatter, less erodible portion of the field is the selected soil map symbol, erosion control may not be adequate to protect the steeper portion of the field.

**Example: What is the "Dominant Critical Soil" for field 10?**  
**KsD3, ZuB, or ZuC2**

*Tip: The 3rd capitol letter designates slope with A slopes being the flattest and F slopes very steep.*



*If you selected KsD3 you are correct. Planners need to select the most erosive "Dominant Critical Soil" that covers 10% or more of the field to ensure future crop productivity and properly calculate soil loss using RUSLE2, the federal soil erosion model that is contained within Snap Plus.*

2010 QAT Members		
Paul Backhaus—Washington Co LWCD	Brad Holtz—Brown County Land Conservation	Tom Petrie—United Cooperative
Jon Bahrke—Winnebago Co LWCD	Terence Kelly—NRCS, Madison	Brent Tessmer—Heartland Cooperative
Kim Meyer—Frontier FS	Paul Kaarakka—UW Madison, Soil Science	Kenneth Jahnke—Premier Cooperative
Andrew Craig—WI DNR, Madison	Paul Kivlin—UW NPM	Wayne Solinsky—Jay-Mar, Inc
John Easter—Jay-Mar, Inc	Matt Ruark—UW Madison Soil Science	Sara Walling—DATCP, Madison
Daniel McMahon—Agronomist	Lucas Conmey—Iowa Co Land Conservation	Laura Ward Good—UW Madison, Soil Science
Tim Boerner—Ag Ventures	Paul Knutzen—Knutzen Crop Consulting	Ben Wojahn—Vernon County Land Conservation
Scott Petges—Landmark Services Cooperative	Bruce Ostenson—Agronomist	Mauricio Avila—UW Soil & Plant Analysis Laboratory
	Kirk Langfoss, Marathon Co. Conservation, Ping & Zng	Sue Porter—DATCP, Madison

# 2010 QAT NM Plan Review Summary

**Tip:** Planners can look at each field on the restriction map and mark in the new **Restriction Features** box any of the items that are present in the field. Snap Plus will check the nutrient applications for each field to ensure compliance with the 590 standard.

**Map areas highlighted in blue cross-hatch** show a Surface Water Quality Management Area or SWQMA where winter mechanical nutrient applications are prohibited. The 590 standard defines the areas draining to lakes and ponds within 1,000 feet, or parts of the field, within 300 feet, draining to perennial rivers and streams. Applications on unfrozen ground in SWQMAs require application incorporation, 30% vegetative cover, cover crops, or filter strips along the field's and water's edge. Unincorporated liquid applications also have rate limits.

## Does the NM plan have properly tested soil?

We found 19% (9 of 48) of the plans strictly followed the 5 acre per soil sample every 4 years requirement on every field, a 31% decline from last year.

Of the farms that did not soil test properly:

Twenty of the farms needed to add another sample on 1 to 5 fields; 14 farms were missing samples on more than 5 fields;

Three farms only provided the average soil test with no sample data;

Eleven farms had old tests.

**Tip:** Ask your DATCP certified soil testing laboratory to email you the soil test in Snap Plus format and import them into Snap Plus. It will save you time and the samples are needed to provide the correct lime recommendations in Snap Plus.

## Does the NM plan have concentrated flow areas protected with perennial vegetation?

**Concentrated flow channels** were correctly planned to be protected with perennial cover and not have nutrients applied in them on 46% (22 of 48) of plans, a 4% decline from last year.

**Tip:** *The Narrative and Crops Report shows comments for concentrated flow channels protections that may also be shown on maps.*

*This report also shows planners the updated and planned crop yields for the rotation.*

*Updating the NM plans with the nutrient applications and crop management that really occurred, allows the farmer to maintain compliance with the 590 NM standard now and into the future.*



## Does the NM plan have properly planned applications on fields with restricted areas?

New in 2009 were Wisconsin 590 NM Application Restrictions maps for all of Wisconsin. These maps highlight **surface waters**, helping 83% (40 of 48) of plans to include these spreading restrictions a 38% increase from last year. The aerial photos also show farms and houses that are likely to have wells, helping 65% (31 of 48) of the plans to incorporate applications 200' up slope of **wells**, a 5% improvement from 2009.

The maps highlight **winter spreading restrictions** on steep slopes and areas near surface waters, helping 75% (36 of 48) of plans properly apply nutrients in the winter, a 10% increase from last year. Unrestricted areas can have winter applications, but applications are limited to 7,000 gallons/ac and cannot exceed the next year's crop P removal. **Tip:** *Planners should identify safe places to go with manure in the winter and summer that will not exceed restrictions.*

The maps highlight **N soil restrictions** helping 79% (37 of 48) of the plans properly plan for reducing nitrate losses to groundwater, a 24% improvement from 2009. The 590 standard prohibits fall commercial N in most cases and limits fall manure applications to 120 pounds of N/acre or the crop's N need, whichever is less when soil temperatures are lower than 50° F. The remaining N need is applied in the spring.

**Does the NM plan have nitrogen (N) applications within the allowances of the 590 standard and UW recommendations?**

**N recommendations** complied with the 590 standard for every field in 69% of plans (33 of 48), a 4% improvement from last year. N applications are for a single year and cannot exceed UW recommendations (UWEX Pub. A2809). Snap Plus will flag excess applications, helping to reduce this problem, by turning the application red in the Cropping screen.

**Tip:** To quickly check if your fields are exceeding N recommendations run the **Field Data and 590 Assessment Plan** or the **Compliance Check Report**.

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

**Proper P management accounts for all the manure produced annually** and allocates additional P fertilizer if needed for each year of the rotation. Proper P management planning for each year of the crop rotation occurred in 40% of plans (19 of 48), a 15% decrease from 2009. New Snap Plus flags for excess fertilizer P<sub>2</sub>O<sub>5</sub> show when a field has more than the entire P<sub>2</sub>O<sub>5</sub> recommendation for rotation applied as manure or fertilizer.

**Tip:** Snap Plus tracks soil-banked P & K between soil tests on the Cropping Screen so farmers do not apply more than they need. Use the Snap Plus **Compliance Check Report** to know if the plan follows the 590 Std. for P management.

**Does the NM plan have a spreader calibration?**

Calibrated manure applications were found in 35% (17 of 48) of the plans, a 30% decline from 2009. Spreader calibrating is important to know what 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.

**Tip:** Use manure production book values when establishing the NM plan. Subsequent plans should track all manure applied by counting loads or storage volume. To review plans we use the Snap Plus **Manure Tracking Report** to show annual manure production and use by source, livestock numbers, storage capacity, and spreader calibrations.

**A Wisconsin nutrient management (NM) plan is an annually updated record** that follows WI's USDA Natural Resources Conservation Service's 590 Nutrient Management Standard. A NM plan accounts for all N-P-K nutrients applied, and planned to be applied, to each field over the crop rotation. Soils need to be tested by a DATCP certified laboratory every 4 years, with each field sampled every 5 acres. A NM plan manages nutrient applications to *maximize* farm profitability while *minimizing* degradation of both surface water and groundwater. As of January 1, 2008, all farms can be required to implement nutrient management with a \$28/ac cost share offer or if:

1. required by local manure storage or [livestock siting](#) ordinances;
2. participating in the Farmland Preservation Program / [Working Lands](#)
3. regulated by a [WPDES](#) permit;
4. accepting cost share for manure storage; or
5. causing a discharge.

[Follow the web page links for more information.](#)

**Nutrient management information and forms** can be found at:

<http://www.datcp.state.wi.us/arm/agriculture/land-water/conservation/nutrient-mngmt/planning.jsp>

For more information about the content of this newsletter, contact: Sue Porter (608) 224-4605 [sue.porter@wi.gov](mailto:sue.porter@wi.gov)

**DATCP Certified Soil Testing Labs**

To comply with the WI 590 std. use one of the labs to analyze your soil samples.

[UW Soil & Plant Analysis Laboratory](#)  
Madison, WI  
(608) 262-4364

[UW Soil & Forage Lab](#)  
Marshfield, WI  
(715) 387-2523

[Dairyland Laboratories](#)  
Arcadia, WI  
(608) 323-2123

[A & L Great Lakes Laboratories, Inc.](#)  
Fort Wayne, IN  
(260) 483-4759

[AgSource Cooperative Services](#)  
Bonduel, WI  
(715) 758-2178

[Rock River Laboratory](#)  
Watertown, WI  
(920) 261-0446

[SGS Mowers Soil Testing Plus, Inc.](#)  
Toulon, IL  
(309) 286-2761

**Wisconsin Qualified Planners:**

1. American Society of Agronomy *Certified Crop Advisors* and *Professional Agronomists* and Soil Science Society of America *Soil Scientists* see <https://www.soils.org/certifications/>;
2. National Association of Independent Crop Consultants *Certified Professional Crop Consultants* see the following website <http://www.naicc.org/Dir/bystate.cfm?c=wi> ;
3. *Farmers developing their own NM plans* and submitting a NM Checklist form to DATCP.