Wisconsin’s Improving Nutrient Management

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2011 NM Highlights

• 1.8 M acres planned in 2011 up 23%
• 238 more farmers wrote their own plans in 2011 than in 2010
• We reviewed 65 plans on more than 50,000 acres:
  – 56 used Snap Plus (86%)
  – 12 plans were farmer written and only 4 did not use Snap Plus
  – 11 plans were written by agronomists that were reviewed previously and most showed improvements
Farmers total, 266,242, 14%
Farmers new, 61,572

Agronomists total, 1,582,383, 86%
Agronomists new, 280,443

2007 Plan Writers of 1.05 Million NM Plan Acres
Agronomists 928,636, 92%
Farmers 77,706, 8%
21% of WI’s Cropland with NM plans

1.8 million acres reported in 2011

Planning increased in every region
A WI Nutrient Management Plan is Updated Annually

Follows NRCS 590 standard

Soil tested by a DATCP certified lab every 4 years every 5 acres

Accounts for all N-P-K applied to fields each year of the crop rotation

Farms can be required to follow a NM Plan with a $28/ac cost share offer or when:

- Regulated under a County Ordinance for manure storage or livestock siting
- Participating in a Farmland Preservation Zoned District or AEA
- Regulated under a DNR WPDES permit
- Causing a pollution discharge to waters of the state
How do you manage your data?

- Do you notice where you store your files?
  
  Your file’s location is on the GREEN stripe on every page in Snap Plus

- Are you using the current 1.132.8 version of Snap Plus?
  
  - First stages of tying the map to the database to check spreading restrictions against applications
  - Clone and split fields
  - Combine fields using soil test import file & edit field numbers for each samples
  - Old versions will not transfer into Ver. 2 update today

[Image: Nutrient Management - It’s a SNAP]

[Website: www.snapplus.net]
Developing or Reviewing Plans in Snap Plus

- Link to restriction maps and restrictions for each field
- Select the field’s dominant critical soil type covering 10% or more of the field.
- **Below Field Slope and Distance to Water** follow the soil types from edge of field down hill to solid blue line.

Orange Flags

Click on flags to see why

Explanations show on the “Compliance Check Report”
Nitrogen and Soil Loss Flags

1. Flags red if fields exceed T over rotation

2. Flags excess annual N application
   - “Over application of manure or fertilizer N of XXX lbs N/acre.”
   - “This field has fall or late summer N applications in excess of what is allowed for soils with a high N leaching potential.”
Well Flags

Identify wells on the restriction map Field Screen’s Restriction Features:

1. Flags for **mechanical manure** applications within 50 feet of **drinking water wells**

2. Flags unincorporated **solid N fertilizer manure** or **grazing** applications upslope conduits to groundwater

**Liquid N commercial fertilizer** applications within 200’ of groundwater conduit **will not Flag** in Snap Plus. These applications are considered **effectively incorporated through infiltration** regardless of spread method.

**590 Definition of Effectively Incorporated** means mixing with the topsoil or residue or subsurface placement of nutrients with topsoil by such means as injector, disc, sweep, mold-board plow, chisel plow, or other tillage/infiltration methods. Nutrients will not run off the field or drain to subsurface tiles during application.

**590 Gleaning / Pasturing definition** says...Manure deposited near a well by grazing of livestock **does not** require incorporation.

**590 A.2. a.(3)** The area within 50 feet of a potable drinking water well shall not receive **mechanical** applications of manure.
Flags **commercial P2O5** if the total P2O5 Rec. for the rotation has already been applied.

**Only corn can get 20 lbs. P2O5/ac if 0 lbs. Recommended**
Winter Flags

**Flags for applications on frozen & snow covered ground**

- **Winter mechanical** applications within SWQMA
- **Local** areas delineated in a conservation plan as contributing nutrients to **direct conduits to ground water or surface water** as a result of runoff.
- On **slopes** from 9% to 12% that are not contoured or contour strip cropped.
- **Winter manure rates**
  - P2O5 applications must be less than crop removal.
  - liquid manure rate must be less than 7000 gallons/acre.

Winter Grazing in SWQMA will not flag 590 A.2. b.(1) Do not apply nutrients within the SWQMA except for manure deposited through winter gleaning/pasturing of plant residue.

- **Field Restrictions**
  - Field in SWQMA
  - Drinking water well within 50 ft of field edge
  - Local prohibitions for winter applications
  - Slope restriction for winter applications
For all nutrient applications on non-frozen soil within a SWQMA use 1 or more practices:
  • permanent buffer.
  • >30% crop cover after application
  • Incorporate nutrients within 72 hrs
  • Est. cover crops after application

1. Flags *unincorporated liquid manure* rate is higher than 590:
   • Potential excess rate for single application without incorporation in SWQMA. Calculate soil loss to get better information.

2. Flags *unincorporated manure or N or P2O5 fertilizer* applications:
   • Calculate soil loss
   • Inadequate runoff management flag “Field has at least one unincorporated application with no filter strip and inadequate surface residue or canopy cover.”

*Snap checks SWQMA practices and RUSLE2 for > 30% cover*
Does the NM plan have properly tested soil?

42% (27 of 65) soil tested every 4 year every 5 acres up 23%, most improved

Does the NM plan have the correct soil type?

65% (42 of 65) NM plans used the “Dominant Critical Soil” type on all fields, most erosive soil that covers 10% or more of the field up 32%

2011 NM plan review

65 plans on 50,310 acres

Does the NM plan have properly tested soil?

48 plans 28,423 acres in 2010

most problematic issues

- 19% Properly soil testing
- 33% Identifying the dominant critical soil
- Nutrient spreading restrictions

most improvement
Does the NM plan have the correct soil type and meet T?

66% (43 of 65) had every field meeting tolerable soil loss (T) for sheet and rill erosion up 12%

Field Data and 590 Assessment Plan Report shows P target, P balance, soil loss....

Does the NM plan have protected concentrated flow areas?

38% (25 of 65) had established grassed waterways protecting areas of concentrated flow with perennial cover where nutrients are not applied, most problematic issue

Narrative and Crops Report shows narrative, planned crops, and yields for rotation

Use the narrative to explain compliance issues and when they will be resolved.
Does the NM plan have enough land for all the phosphorus & follow N recs?

69% (45 of 65) followed UW N recs for every field
48% (31 of 65) accounting for all the manure produced annually & P fertilizer necessary for the crop rotation

Compliance Check Report shows both the Soil Test P option and the P Index. Cropping Screen tracks soil-banked P & K in years between soil tests.

Does the NM plan have a spreader calibration?

55% (36 of 65) used calibrated manure applications, up 20%

Manure Tracking Report shows annual manure: production, use by source, livestock numbers, storage capacity, and spreader calibrations.
Does the NM plan have correct application restrictions?

- 200’ setback from wells, sinkholes, fractured bedrock at the surface - nutrient applications must be incorporated within 72 hours.

**Blue** No winter apps 300’ from perennial streams, 1,000’ from lake and ponds. Other non-winter application restrictions required.

**Red** No winter apps.

**Pink** and **clear** can have winter manure apps if contoured or if slopes are 9% or less. Winter manure apps can not exceed 7,000 gals/acre or P removal of the crop.

**Yellow Dots** No fall apps of fertilizer N. Fall manure apps limited. Best to Spring apply.

**Compliance Check Report** shows orange & Red application flags.

- **89% (58 of 65)** surface water
- **82% (53 of 65)** N soils
- **75% (49 of 65)** winter spreading
- **62% (40 of 65)** wells
Runoff Risk Advisory Forecast Maps from National Weather Service's flood forecasting

Assess the risk for each field before an application, fields can be saturated and still have a low risk of runoff if no rainfall is predicted.

Liquid manure applications increase soil moisture so runoff risk of liquid manure will be higher than what is shown on the risk map.

Winter Runoff Risk

Soils are frozen or snow-covered and not yet forecasted for runoff. Caution - applications will have limited soil contact and infiltration.

High snowmelt risk and runoff is predicted within 10 days.
2011 Farmland Preservation
protecting water resources & soil productivity

Working Lands Initiative Started July 1, 2009

$27M to WI farmers **decreasing tax due or increasing tax refund** in exchange for keeping land in AG use and complying with soil and water conservation requirements

$7.50/acre in a Certified farmland preservation zoning district

$5.00/acre if farmland preservation agreement in Agricultural Enterprise Area AEA (15 year agreements)

$10.00/acre if agreement in AEA and zoning
Farmers with a Farmland Preservation Agreement Prior to July 1, 2009

- Use WI Income Tax Schedule FC with pre-tax year 2010 formula
- 3,500 farms covered by old farmland preservation agreements currently in effect ~6000 farms claimed with this 2010 form
- Attach the agreement
- A Certificate of Compliance is not required for old agreements
Farmland Preservation Zoning Districts & New or Modified agreements 2010 tax year or later

- Use WI Income Tax Schedule FC-A
- No more zoning certificates
- Eligible for $5.00/ac/year with a new or modified agreement
  - DATCP has modified ~ 50 agreements
- Eligible for $7.50/ac/year on all land zoned for Farmland Preservation in a certified ordinance
  - Cropland, pastureland, farmstead, woodland, wetland etc....
- Include a Certificate of Compliance
Farmland Preservation Zoning Districts & New or Modified agreements 2010 tax year or later

farmers that **did not** collect a farmland preservation tax credit in the previous year:

- **Must obtain a Certificate of Compliance** from the County Land Conservation Committee showing compliance with the state agricultural performance standards under NR 151 & ATCP 50
- **Include with the tax return**

farmers that **did** collect a tax credit without a Certificate of Compliance in the previous year:

- **Must obtain a Schedule of Compliance** that enables claimants to comply with state conservation standards by a specific deadline set by the county before 2016
• Locally targeted for agricultural use and preservation

• After July 1, 2009 FPP agreements must be 15 years & within an approved AEA
  agreements will bring 28,000 acres into conservation compliance

• Petitioners to DATCP from at least 5 eligible farm owners located in a contiguous area primarily in agricultural use

• State designates, through Administrative Rule process

AEA in 17 areas either approved or in the process covering 340,000 acres
Existing WI Agricultural Performance Standards
counties will monitor compliance and may suspend eligibility for tax credits

- Meet tolerable soil loss (T) on cropped fields
- Follow 590 NM plan technical standard
- Prevent direct runoff from feedlots or stored manure to waters of the state
- Limit livestock access along waters to maintain vegetative cover
- Maintain manure storage structures to prevent leaking and overflow
- Follow manure storage technical standards for constructing and abandoning

Near surface water or areas susceptible to groundwater contamination
- Do not stack manure in an unconfined pile
- Divert clean water away from feedlots, manure storage, and barnyards
When is NM Required on Pastures?

1. If the pasture has mechanical nutrient applications
2. If the pasture in a SWQMA is winter grazed

ATCP 50 (ATCP 50.04(3)): Follow 590 where nutrients are mechanically applied.

NRCS 590 Std. (A.2.b.(1) page 3&4): Prohibits applications in winter next to surface water – EXCEPT when grazing in the SWQMA and the field is included in the NM plan.

(A.1.m. page 3) Where pasturing occurs, verify through computations that the nutrients...do not exceed the N and P requirements of 590.
If the PI is not available for:

- some soils
- fruit crops like cranberries and others
- some vegetable crop sequences
- crops without a RUSLE2 soil loss estimate
- crops without a UW soil test recommendation

590 currently requires fields with only commercial fertilizer applications to follow UW soil test recommendations. The P Index or soil test P options are currently only used where manure or other organic by-products are applied. Concentrated animal feeding operations (CAFO) allow the use of either option; and in some instances when soil test P levels are above 100 PPM P, both the PI & soil test P are used.
NM Plans Then and Now

1997 WI’s legislature amended Statute 281.16 & 92 requiring NM
2002 NR 151 /ATCP 50 passed NM requirements
2005 590 Std. updated - P management
2008 P management could be required
2009 - New Farmland Preservation Program $7.50/ac/yr EX-Ag zoning, Application Restriction maps available for all WI
2010 QAT tests beta ver. Snap Plus with restriction features/reports to helps planners meet 590
2011 1st crop year with Snap Plus 1.132. restriction flagging and new interactive web restriction maps
Impressive improvements in NM planning

• Thanks to UW Snap Plus developers for improvements to help with 590 compliance
• Thanks to the agronomists and trainers for helping more farmers get better plans every year