Implementing P-based nutrient management Strategies

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Counties Implement Agriculture Performance Standards through County & DATCP approved LWRM plans

- Control erosion to meet tolerable soil loss (T) \text{RUSLE 2}
- Construct manure storage facilities to standards
- Divert clean water around feedlots close to streams
- No overflowing manure storage facilities
- No unconfined manure piles near surface water
- No direct feedlot or manure storage runoff
- Restrict livestock access to maintain adequate sod cover (vegetation) near water
- Apply nutrients to crop needs

ALL STANDARDS BECOME EFFECTIVE Oct. 1, 2002 EXCEPT NM
For the purpose of complying with WI water quality standards:

• Effective 2005, in Source Water Protection Areas, Impaired, Outstanding, and Exceptional Resource Waters WI’s NM performance standard requires the NM plan to document & manage soil nutrient levels to limit or reduce nutrient delivery potential and not alter background water quality.

• Effective 2008, in the other parts of the state
Wisconsin's DNR WPDES Permitted Confined Animal Feeding Operations

NR 243 Technical Advisory committee meets in 03-04 to update Wis. Admin. Code
P based 590 Technical Standard

- June 2000 National NRCS HQ ruled that WI’s 590 (1999) is inconsistent with National NRCS 590 std.

- Does not limit P applications if manure is incorporated.

- WI NRCS approved P based 590 (July 2002) to provide nutrient application requirements for all farm types and sizes. DATCP will codify the P-base standard in ~2006.
ATCP 50 Code Revisions

- **After 2005 or 2008**, farmer “shall” have a NM plan for mechanically applied nutrients if an offer of at least 70% cost sharing is offered.

- **Requires qualified planners to**
  - Approve plans for NM PS
  - Follow the 590 std. & UW soil test recommendations from a DATCP certified lab with soil test updates every 4 years
  - Make plans available for DATCP inspection if requested
  - DATCP will track farmer planners on *Checklist* & provide *NM Briefings* newsletter to all qualified planners
ATCP 50 Code Revisions

- **Bulk fertilizer dealers survey WI farmers:**
  - “Do you have a NM plan written for the current growing season that meets the WI 590 NM standard?”
  - If yes, record the planner’s name, address - keep for 2 years. Report number of plans and acres.
  - **1,412 plans on 611,405 ac in fertilizer survey (7% of WI crop acres)**
    - **883 plans on 405,572 ac from Checklists**

### Nutrient Management Acres by Program and Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Farms practicing NM &amp; not in programs</th>
<th>Cost Sharing Programs</th>
<th>WPDES</th>
<th>County Ord.</th>
</tr>
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<tbody>
<tr>
<td>2000</td>
<td>23</td>
<td>130</td>
<td>60</td>
<td>25</td>
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<tr>
<td>2001</td>
<td>14</td>
<td>188</td>
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<td>2002</td>
<td>230</td>
<td>50</td>
<td>79</td>
<td>116</td>
</tr>
<tr>
<td>2003</td>
<td>222</td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>Total Reported Acres</th>
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<tbody>
<tr>
<td>2000</td>
<td>236,326</td>
</tr>
<tr>
<td>2001</td>
<td>302,070</td>
</tr>
<tr>
<td>2002</td>
<td>366,581</td>
</tr>
<tr>
<td>2003</td>
<td>611,405</td>
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</tbody>
</table>

**Total reported acres:** 236,326, 302,070, 366,581, 611,405
ATCP 50's NM cost share requirements

Existing, out of compliance operations, must be offered at least 70% cost share.

NM ($7/ac x 4 years) or $28/ac

EQIP pays $7 x 3 years plus 1 year without $ plus $5-$7/ac TSP or about $40-$50/ac in most counties in 2003 rates.

(www.techreg.usda.gov)
New 590 Nutrient Management Std.

- Do not apply nutrients to fields > T or in waterways
- Establish waterways where needed
- Nutrients shall not runoff the field during application

Federal Conservation Compliance

- Re-occurring Ephemeral Erosion caused by the uncontrolled concentrated flow of water is required to be treated:
  - Vegetate flow area and slow or spread flow where needed to and reduce runoff from uplands.
New 590 Application Restrictions on frozen or snow covered ground

- Do not apply in **excess of P removal** (liquid manure applications > 7000 gallons per acre)
- **Do not apply within 1000’ of lakes & 300’ of perennial streams**
- Do not apply within 200’ upslope of wells, sinkholes, gravel pits, fractured bedrock (must incorporate in 72hrs)
- Do not apply to slopes > 9 %, except up to 12% only if conservation measures are in place (residue, contoured, waterways, etc.)
- No commercial fertilizer applications to frozen soils except for grass pastures & on winter grains
New 590-Application restrictions
on frozen or snow covered ground

May restrict all winter applications if associated drainage areas of concentrated flow channels contribute to water and are identified on-site; approved in a conservation plan; & are > 1/3 of field
New 590 P Restrictions by farm or tract

Soil Test P Values or P Index

- **< 50 ppm soil test P** - crop removal for P 4 yr rotation
- **50-100 ppm soil test P** - crop removal for P 4 yr rotation
  - Potato P applications shall not exceed rotational crop removal if soil tests are optimum or higher
- **>100 ppm soil test P**
  - Stop manure applications or apply less than removal, apply one of the practices to limit P loading
    - Leave 30% residue on the soil surface after planting or
    - Establish fall cover crops or
    - Establish contour strips or buffer strips
- **Nutrients on non-frozen setback** (300’ streams & 1,000’ lake) must have buffers, 30% residue, incorporation, or cover crops
Jan. 04 beta release SNAP Plus PI, RUSLE 2, UW recommendations
Particulate P too High

• Decrease & Trap erosion
  – USE MORE WATER INFILTRATING PRACTICES such as in-field diversions and buffers
  – CONTOUR TILL
  – LEAVE MORE RESIDUE by less tillage, take less bedding, plant cover crops

• Lower Soil test P
  – FEED LESS P
  – APPLY LESS NUTRIENTS to high P fields
  – PLANT HIGH P NEED CROPS like corn silage and alfalfa
Soluble P too High

- Change manure applications
  - STORE MANURE IN WINTER
  - LOW DISTURBANCE INCORPORATION
  - APPLY TO LOW RISK SITES APPLY AT LOW RISK TIMES
  - INFILTRATE WATER with in-field diversions and buffers

- Lower Soil test P
  - FEED LESS P
  - APPLY LESS NUTRIENTS to high P fields
  - PLANT HIGH P NEED CROPS like corn silage and alfalfa
Planning for implementation

Cost for 9 million acres @ $7 per acre

600,000 acres/yr (12,000 new acres/county)
Costs $16.8 million/yr (4 year cost $28/ac)
Will take at least 15 years

<table>
<thead>
<tr>
<th>Year</th>
<th>Funding in millions</th>
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<tbody>
<tr>
<td>2003</td>
<td>$ 9.5 ($9.5 million) (DATCP cash)</td>
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<tr>
<td>2004</td>
<td>$ 8.8 ($8.8 million) (DATCP cash)</td>
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<td>$ 13.7 ($13.7 million) (DATCP/DNR bond revenue)</td>
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<td>$ 15.7 ($15.7 million) (DATCP/DNR bond revenue)</td>
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<td>$ 0.2 ($0.2 million) (NM Research)</td>
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<td>$ 0.1 ($0.1 million) (NM Research)</td>
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<td>$ 0.12 ($0.12 million) (MALWEG NRCS &amp; UW)</td>
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<td>$ 2.6 ($2.6 million) (DNR in 44 counties)</td>
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<td>$ 2.3 ($2.3 million) (DNR in 44 counties)</td>
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<td></td>
<td>$11.5 ($11.5 million) (USDA EQIP in every co.)</td>
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<tr>
<td></td>
<td>$13.0 ($13.0 million) (USDA EQIP in every co.)</td>
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