

2015 updates: Wisconsin Nutrient Management 590 Standard



July 28, 2016

- This bullet highlights changes to the 2005 version of the NRCS 590 Nutrient Management Standard. *Not all of the changes, additions, or deletions made to the 590 Standard are noted in this summary sheet.*
- This bullet notes items that have not changed.

REQUIREMENTS FOR SURFACE AND GROUNDWATER PROTECTION

Guidelines for all fields where manure, organic by-products, or fertilizer nutrients are applied:

- The source, rate, timing and method of application for all major nutrients — nitrogen (N), phosphorus (P₂O₅), and potassium (K₂O)— should be accounted for and should be consistent with UWEX A2809 recommendations. Applications must not run off the intended application site; erosion must not be greater than tolerable soil loss (T) over the crop rotation; use perennial vegetation to protect areas of concentrated flow resulting in recurring gullies.
- Control ephemeral erosion using reduced tillage, adjust the crop rotation, or implement other practices such as contouring to control this erosion.
- Show adequate acreage and a winter spreading plan for all farms with mechanically applied manure or organic by-products.
- Where excessive rain has caused crop N deficiency, apply up to 46 lb per acre **rescue N** and document the need for this additional N using one of the methods listed in Tech Note WI-1. Appendix 3. If more than 46 lb N per acre is applied, the documentation must include two of the listed methods.
- Estimate available manure nutrients with **book values** or **manure samples**. If sampling, establish a baseline by averaging samples collected for at least 3 consecutive years. Later samples can be 1 every 4 years unless the farm's operation changes.
- Account for N and P₂O₅ deposited by pastured or gleaning animals. Pasturing is allowed within 50 feet of a well or direct conduit to groundwater, in SWQMA in the winter, and on all slopes in the winter.
- If manure or organic by-products are applied during a crop rotation (8 years or less), use a P management strategy: **Phosphorus Index of 6 or less** or **Soil test P thresholds**:
 - **Greater than 50 ppm soil test P:** Balance the total P applications with P removed by crops.
 - **Greater than 100 ppm soil test P:** Total P applications from **all** sources shall not exceed guidelines from UWEX A2809. If manure P applications above these guidelines are necessary due to lack of suitable application sites, P applications shall be 25% less than the cumulative annual crop removal over a maximum rotation length of 8 years.

Applications are prohibited on:

- Concentrated flow channels; surface water; **saturated soils**; areas of active **snow melt** where water is flowing; land where vegetation is not removed — unless needed for establishment and maintenance of a **conservation practice**.
- Direct conduits to groundwater, a potable well, or within 8 feet of irrigation wells.
- Areas within 50 feet of direct conduits to groundwater, unless directly deposited by gleaning or pasturing animals or **as starter fertilizer to corn**.
- Areas near **public water supplies** within 1000 feet of a community potable water well; or areas within 100 feet of a non-community potable water well (church, school, and restaurant) unless **manure is treated** to substantially eliminate pathogens.
- 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.

Nutrients applied within Surface Water Quality Management Area (SWQMA) 1,000 feet of lakes/ponds or 300 feet of rivers use one or more of the following:

- 1. Install/maintain vegetative buffers or filter strips; 2. Maintain > 30% cover after nutrient application; 3. Incorporate within 72 hours of application; 4. Establish crops prior to, at, or promptly following application.
- 5. Have a minimum of 3 consecutive years no-till when making applications to fields with **< 30% residue**, such as silage fields, and apply nutrients within 7 days of planting.
- Mechanical applications of **unincorporated liquid manure 11% or less dry matter** within the SWQMA, or where subsurface drainage is present — limit applications to 12,000 gal/acre and visually monitor accessible tile outlets before, during, and after applications for discharge of liquid manure or organic by-product.
 - If a discharge is observed, stop applications. Sequential applications may be made to meet the nutrient need. Wait a minimum of 7 days between sequential applications.

A winter spreading plan is required for all farms mechanically applying manure or organic by-products:

- Identify quantities of **manure spread during winter, or generated in 14 days**, whichever is greater; **storage/stacking capacity** for each manure type applied on the farm — manure that is ≥ 16% solids without permanent storage, complete an evaluation to determine if stacking sites consistent with NRCS 313 standard are available.

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When frozen or snow-covered soils prevent effective incorporation:

- Do not apply nutrients within the SWQMA or apply N and P fertilizer, except on grass pastures and winter grains.
- Do not exceed the P removal of the following growing season's crop when applying manure. Liquid manure applications are limited to 7,000 gal/acre. All winter manure applications are not to exceed **60 lb** of P_2O_5 /acre.
- Do not surface apply **liquid manure during February and March** on areas depicted on the 590 spreading restriction maps where DNR Well Compensation funds provided replacement water supplies for wells contaminated with livestock manure or where Silurian dolomite is within **60 inches** of the soils surface.
- Do not apply manure within **300 feet** of direct conduits to groundwater. (in version 2005, 200 feet).
- Do not apply nutrients to fields with **slopes** greater than 6% (C,D,E,F) unless the plan documents that no other accessible fields are available for winter spreading and two of the following are implemented:
 - 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 during each application, waiting a minimum of 14 days between applications.
 - 5. Reduce manure application rate to 3,500 gal/acre or 30 lb P_2O_5 /acre, whichever is less.
- Do not apply nutrients to fields where **concentrated flow channels** are present unless two of the following are implemented:
 - Options 1-5 above.
 - 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%.

ADDITIONAL REQUIREMENTS FOR GROUNDWATER PROTECTION

On N restricted soils that include high permeability soils (P), or rock soils with less than 20 inches to bedrock (R), or wet soils with less than 12 inches to apparent water table (W):

- **In late summer or fall:** No commercial N applications should be applied on areas identified as having **soil depth of 5 feet or less over bedrock**, P, R, W soils, areas within **1,000 feet of a community potable water well**, except where needed for establishment of fall seeded crops or

blended commercial **fertilizer materials are needed** to meet UWEX Pub. A2809 guidelines. For these exceptions, the N application rate shall not exceed **36 lb N** per acre, and all nutrients must be credited towards the crop requirement.

- **In spring or early summer:** When commercial N is applied on R, W, and combination soils, do not exceed the crop N A2809 rates from all sources. On P soils, for full season crops, do not exceed the crop N rate guidelines and apply one of the following management strategies:
 - A split or delay N application to apply a majority of crop N requirement after crop establishment.
 - Use a nitrification inhibitor with ammonium forms of N.
- Use slow and controlled release fertilizers for a majority of the crop N requirement applied near the time of planting.
- **In late summer or fall:** When **manure and/or organic by-products** are applied, use rates of available N that do not smother the crop; do not exceed UWEX Pub. A2809; do not exceed Part III. B.4. Table 2 of the Technical Note WI-1; or do not exceed the rate listed below, whichever is less:

Use ≤ 120 lb available N/acre on:

P and R soils

- Applications > 4.0% dry matter (DM) on all crops, except single annual crops.
- Applications ≤ 4.0% DM on all crops, except single annual crops wait until after soil temp. < 50°F or Oct. 1, use either a nitrification inhibitor, or surface apply and do not incorporate for at least 3 days.

W soils or combination W soils

- Applications > 4.0% DM on all crops.
- Applications ≤ 4.0% DM on all crops use at least one of the following practices:
 - Use a nitrification inhibitor.
 - Apply on an established cover crop, an overwintering annual, or perennial crop.
 - Establish a cover crop within 14 days of application.
 - Surface apply & do not incorporate for at least 3 days.
 - Delay application until October 1 or soil temperatures are less than 50°F.

Use ≤ 90 lb available N/acre on:

P and R soils (wait until after soil temp. < 50°F or Oct. 1)

- Applications > 4.0% DM on single annual crops; or
- Applications ≤ 4.0% DM on all crops use either a nitrification inhibitor, or surface apply and do not incorporate for at least 3 days.

W soils or combination W soils

- Applications ≤ 4.0% DM on all crops.