

Summary of the 2015 Proposed 590 NM Standard version 8-17-2015

new important items are underlined

Nutrient Limits to All Fields Nitrogen (N), Phosphorus (P2O5), Potassium (K2O):

Develop, implement, and annually update when necessary a field-specific nutrient application plan. Account for the source, rate, timing, and method of application for all major nutrients consistent with: this standard; soil tests taken every 5 acres every 4 years; and nutrient application guidelines found in University of Wisconsin-Extension Publication A2809 "Nutrient application guidelines for field, vegetable, and fruit crops in Wisconsin." Applications of N are for annual use; while P and K applications can be banked for other years. Available N from all sources shall not exceed the annual N requirement of non-legume crops consistent with UWEX Publication A2809, or the annual N removal by a legume crop. When crop N deficiency caused by excessive rainfall is documented by the planner, supplemental N may be applied as an in season rescue N application. Rates shall be limited to 40 lbs. available N/ac unless the need for additional N can be documented by two or more of the tools found in Technical Note WI-1, Appendix 3 "Guidelines for Adaptive Nutrient Management." Corn is the only crop allowing up to 23 lbs. of P2O5 as a starter fertilizer even when the soil test recommendation is zero. All other crops have the starter fertilizer included in the soil test recommendation. Do not apply N and P commercial fertilizer when soil is frozen/snow covered unless needed for grass pastures and on winter grains. The plan must show adequate acreage is available for all manure nutrients. If an adequate land base is NOT present, then plan shall document the use of the remaining nutrient source produced on the farm. If the applied nutrients, ponds, runs off, infiltrates to subsurface tiles, or flows toward wells or direct conduits to groundwater immediately after application, take corrective action to prevent offsite movement. Notify the Wisconsin Department of Natural Resources when required by the Agricultural Spill Law (s.289.11, Wis. Stats.). V.A.1.a.-o.

All Seasons Manure and Other Nutrient Applications Are Prohibited on:

- Surface water; saturated soils; areas of active snow melt where water is flowing, concentrated flow channels except for the establishment of perennial vegetation; land where vegetation is not removed mechanically or by grazing; direct conduits to groundwater such as a well, sinkhole, or nonmetallic mine. V.A.2.a.(1),(2),(4)
- A potable well; direct conduits to groundwater; area within 50 feet of direct conduits to groundwater, unless directly deposited by gleaning or pasturing animals; within 8 feet of irrigation wells; land where vegetation is not removed mechanically or by grazing, except to provide nutrients for establishment and maintenance of a conservation practice. V.A.1.i., V.A.2.a.(3),(4),(5)
- Fields exceeding tolerable soil loss (T). Erosion controls shall be implemented so that tolerable soil loss (T) over the crop rotation will not be exceeded on fields that receive nutrients. V.A.2.a.(6)
- Areas within 1000 feet of a public water supply designated as a Community potable water well; Or areas within 250 feet of a Non-community potable water well (church, school, and restaurant) unless manure which is treated to substantially eliminate pathogens. V.A.2.c.
- 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. V.A.2.b.

Fall, Spring, Summer Manure and Other Nutrient Are Applied in the Surface Water Quality Management Area (SWQMA), use one or more of the following:

- Install/maintain vegetative buffers or filter strips. Use ATCP 48 for drainage districts. V.A.3.a.(1)
- Maintain \geq 30% crop residue or vegetative cover after nutrient application. V.A.3.a.(2)
- Effective incorporation within 72 hours of application while meeting tolerable soil loss. V.A.3.a.(3)
- Establish crops prior to, at, or promptly following application. V.A.3.a.(4)
- Apply nutrients within 7 days of planting on long term no-till ground with < 30% residue. V.A.3.a.(5)

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Fall, Spring, Summer Mechanical Applications of Unincorporated Liquid Manure 11.0% or less dry matter in the SWQMA, OR Where Tiled, use one or more of the following: V.A.3.b.

- Limit applications of liquid manure to 12,000 gallons per acre per application.
- No applications are allowed on saturated soils.
- No ponding of manure is allowed at the application site.
- Follow V.A.1.n. to address ponding, drainage to subsurface tiles, or runoff of applied manure.

Sequential applications may be made to meet the desired nutrient additions consistent with this standard. Wait a minimum of 7 days between sequential applications.

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All Farms Mechanically Applying Manure or Process Wastewater Must Have a Winter Spreading Plan

Identifying:

V.A.2.d.(1)-(7)

- Application areas in compliance with 590 criteria. Manure may be deposited through winter gleaning or pasturing of plant residue on all slopes, within 50 feet of ground water conduits, and in SWQMA.
- Quantity and storage/stacking capacity for each manure type generated and/or applied on the farm.
- A minimum of three temporary manure stacking sites for manure that is 16% or more solids without permanent storage. And have no more than two stacking sites per 40 acres per year, to provide an alternative to spreading manure during frozen or snow-covered ground, consistent with stacking requirements within the NRCS 313 standard.

When frozen or snow-covered soils prevent effective incorporation at the time of application:

- Do not apply within the Surface Water Quality Management Area.
- Do not exceed the P removal of the following growing season's crop when applying manure. Liquid manure applications are limited to 7,000 gallons per acre. All winter manure applications are not to exceed 60 lbs. of P2O5 per acre. The balance of the crop nutrient requirement may be applied the following spring or summer.
- Do not apply nutrients to fields where concentrated flow channels are present unless 2 of the following are implemented:
 - a. Contour buffer strips or contour strip cropping;
 - b. Leave all crop residue and no fall tillage;
 - c. Apply manure in intermittent strips on no more than 50% of the field;
 - d. Apply manure on no more than 25% of the field during each application waiting a minimum of 14 days between applications;
 - e. Reduce manure application rate to 3,500 gallons or 30 lbs. of P2O5, whichever is less;
 - f. No manure application within 200 feet of all concentrated flow channels; or
 - g. Fall tillage is on the contour and slopes are lower than 6%.
- Do not apply nutrients to fields with slopes greater than 6% unless the plan documents that no other accessible fields are available for winter spreading AND 2 of the following are implemented:
 - a. Contour buffer strips or contour strip cropping;
 - b. Leave all crop residue and no fall tillage;
 - c. Apply manure in intermittent strips on no more than 50% of the field;
 - d. Apply manure on no more than 25% of the field during each application waiting a minimum of 14 days between applications; or
 - e. Reduce manure application rate to 3,500 gallons or 30 lbs. of P2O5, whichever is less.
- Do not apply N and P in the form of commercial fertilizer. An exception is allowed for grass pastures and on winter grains that do not fall within a prohibition area.
- Do not surface apply liquid manure during February and March on areas depicted on the 590 spreading restriction maps as areas where DNR Well Compensation funds provided replacement water supplies for wells contaminated with livestock manure or where Silurian dolomite within 60 inches of the soils surface.
- Do not apply manure within 300 feet of direct conduits to groundwater.

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Limit Nutrients to Groundwater On N restricted soils which 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), or areas within 1,000 feet of a community potable water well, use guidelines from UW Pub. A2809 or rates specified below: V.B.1.

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 lbs. N per acre and all nutrients must be credited towards the requirement of the crop. V.B.1.a.(1)

When manure with > 4.0% solids is applied on W soils or combination W soils, use rates that will not smother crops and limit the available N to no more than 120 lbs. per acre. V.B.1.a.(2)

Manure with < 4.0% solids or less reduce applications to 90 lbs. per acre of available N; Or apply no more than 120 lbs. of N per acre and at least one of the following practices:

- Use a nitrification inhibitor.
- Apply on an established cover crop, or an overwintering annual, or perennial crop.
- Establish a cover crop within 14 days of application.
- Surface apply and do not incorporate for at least 3 days.
- Delay application until October 1 or soil temperatures are less than 50°F.

When manure with > 4.0% solids is applied on P and R soils

Prior to October 1 and soil temperatures are greater than 50°F V.B.1.a.(3)

For perennial or overwintering annual crops, including cover crops, use rates that will not smother these crops and limit available manure N to 60 lbs. per acre.

For annual crops, delay applications until after soil temperatures are less than 50°F and follow V.B.1.a.4.

After October 1 or soil temperatures are less than 50°F V.B.1.a.(4)

For perennial or overwintering annual crops, including cover crops, use rates that will not smother these crops and limit available manure N to 120 lbs. per acre.

For annual crops, limit available manure N to the lesser of 90 lbs. per acre or N applications rate guidelines specified in UW Pub A2809.

Manure with 4.0% solids or less, add either practice to the above rates:

- use a nitrification inhibitor
- Or surface apply and do not incorporate for at least 7 days.

In spring and summer: On R, W, and combination soils, when commercial N is applied, do not exceed the crop N rate guidelines from all sources. V.B.1.b.(1)

On P soils, when commercial N is applied for full season crops, do not exceed the crop N rate guidelines and apply one of the following management strategies: V.B.1.b.(2)

- 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.

Where P enrichment of groundwater is identified as a conservation planning concern, implement practices to reduce delivery of P to groundwater. V.B.2.

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Limit Nutrients to Surface Water:

V.C.1.

- a. Avoid building soil test P values, when possible, beyond the non-responsive soil test range for the most demanding crop in the rotation. For most agronomic crops in Wisconsin, the non-responsive soil test range is 30 to 50 parts per million (ppm) Bray P-1 soil test.
- b. Establish perennial vegetative cover in all areas of concentrated flow resulting in reoccurring gullies.
- c. In crop fields where ephemeral erosion is an identified problem, a minimum of one of the following runoff-reducing practices shall be implemented:
 - Install/maintain contour strips and/or contour buffer strips. Refer to NRCS FOTG, Section IV, Standard 585, Strip Cropping, and/or Standard 332, Contour Buffer Strip.
 - Install/maintain filter strips (NRCS FOTG, Section IV, Standard 393, Filter Strip) along surface waters and concentrated flow channels that empty into surface waters.
 - Maintain greater than 30% crop residue or vegetative cover on the soil surface after planting.
 - Establish fall cover crops.

Develop a P management strategy when manure or organic by-products are applied during the crop rotation to minimize surface water quality impacts. Use either the Phosphorus Index (PI) or Soil Test Phosphorus Management Strategy on all fields within a farm or tract.

V.C.2.

PI Strategy – The planned average PI values for up to an 8-year rotation in each field shall be 6 or lower. P applications on fields with an average PI greater than 6 may be made only if additional P is needed according to UWEX soil fertility recommendations. Strategies for reducing the PI, algorithms, and software for calculating the Wisconsin PI can be found at <http://wpindex.soils.wisc.edu/>.

Soil Test Phosphorus Strategy - Management strategies based on soil test phosphorus may be used. Operations using this strategy shall have a conservation plan addressing all soil erosion that is consistent with the current crops and management or use the erosion assessment tools included with the Phosphorus Index model. Available phosphorus applications from all sources shall be based on the following soil test P values (Bray P-1).

- Less than 50 ppm soil test P: nutrient application rates allowed up to the N needs of the following crop or the N removal for the following legume crop.
- 50-100 ppm soil test P: P application shall not exceed the total crop P removal for crops to be grown over a maximum rotation length of 8 years.
- 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.

Protect Air and Soil

V.D.&E.

Do not apply when there is a high probability that wind will blow poultry litter, manure, or organic by-products of similar dryness/density when there is a high probability that wind will blow the material offsite.

Apply one or more of the following management strategies: Slow or controlled release fertilizers; Nitrification inhibitors; Urease inhibitors; Nutrient enhancement technologies; Immediate incorporation or injection; Stabilized nitrogen fertilizers; Residue and tillage management; No-till or strip-till; In-field and edge-of-field wind breaks; NRCS Wind Erosion Prediction System (WEPS) to confirm fields meet tolerable soil loss; Other technologies that minimize the impact of these emissions. Nutrients shall be applied in a manner that does not permanently degrade the soil's structure, chemical properties, or biological condition.

Operation and Maintenance

VIII.

Visually monitor accessible tile outlets before, during, and after liquid manure applications for potential discharge of manure or organic by-products. If a discharge is observed implement spill response. Evaluate the need to modify field operations to reduce the risk of large nutrient losses during a single runoff event based on current field conditions or forecasted weather events. Review and follow tile/subsurface drainage guidance in the Technical Note WI-1.
