United States Department of Agriculture
Natural Resources Conservation Service

Nutrient Management

Wisconsin Conservation Practice Job Sheet 590

Definition

Managing the amount, source, placement, form, and timing of the application of nutrients and soil amendments.

Purpose

The purpose of this practice is to effectively budget nutrients for plant production. All nutrient sources, including soil reserves, commercial fertilizer, manure, organic by-products, legume crops, and crop residues shall be accounted for and properly utilized. These criteria are intended to minimize nutrient entry into surface water, groundwater, and atmospheric resources while maintaining and improving the physical, chemical, and biological condition of the soil.

Where Practice Conditions Applies

Nutrient management is applicable to all lands where plant nutrients and soil amendments are applied.

Plans and Specifications

Nutrient management is most effective when used with other agronomic practices, such as cover and green manure crops, residue management, conservation buffers, irrigation water management, pest management, and crop rotation.

Nutrient management components of the conservation plan will include the following information:

- Field map and soil map
- Crop rotation or sequence
- Results of soil, water, plant, and organic material sample analyses
- Expected yield, based on realistic yield goals
- Sources of nutrients to be applied
- Nutrient budget, including credits of available nutrients
- Recommended nutrient rates, form, timing, and method of application
- Location of designated sensitive areas
- Guidelines for operation and maintenance

Nutrient Management Considerations

- Consider seeding and stabilization of concentrated flow channels, installation and maintenance of vegetative filter strips, riparian buffers and other buffer strips adjacent to surface water and wetlands in conjunction with other conservation practices in order to reduce the amounts of sediment and nutrients that reach surface water and/or groundwater.
- To minimize N leaching on medium and fine-textured soils, avoid fall commercial N applications for crops to be seeded the following spring. When commercial N is applied in the fall, use ammonium forms of N and delay N application until soil temperatures drop below 50°F. Use of a nitrification inhibitor with fall-applied N is recommended.
- Irrigated fields should use irrigation scheduling strategies with the intent of minimizing leaching losses and improving water use efficiency and not exceeding intake/infiltration capacity of the soil.
- Consider delaying surface applications of manure or other organic byproducts if precipitation capable of producing runoff is forecast within 24 hours of planned application.
- For fields directly adjacent to, or with areas of concentrated or channelized flow that drain directly to, outstanding, exceptional or nutrient impaired surface waters, avoid raising soil test P levels beyond crop sufficiency levels to the extent practicable. Consider implementing conservation practices that reduce delivery of nutrients to these waters.

- Consider the effects of drought or excess moisture on quantities of available nutrients.
- Use a water budget to guide timing of nutrient applications.

Operation and Maintenance

Document the actual nutrient application including the rate, form, timing, and method of application. Revise the plan to reflect any changes in crops, tillage or management, soils conditions, and manure test results.

- Review nutrient management component of the conservation plan annually and make adjustments when needed.
- Calibrate application equipment to ensure uniform distribution and accurate application rates.
- Protect nutrient storage areas from weather to minimize runoff and leakage.
- Observe setbacks required for nutrient applications adjacent to waterbodies, drainageways, and other sensitive areas.
- Maintain records of nutrient application as required by state and local regulations.
- Clean up residual material from equipment and dispose of properly.
- 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.
- Minimize operator exposure to potentially toxic gases associated with manure, organic wastes, and chemical fertilizers, particularly in enclosed areas. Wear protective clothing appropriate to the material being handled.
- For livestock operations manure should be stored or stacked when weather and/or soil conditions do not permit land application.
- When cleaning nutrient application equipment re-use or safely dispose of rinsate containing high concentrations of nutrients. Do not clean equipment in areas where there is a risk of contaminated runoff reaching surface waters or conduits to groundwater such as wells.

References

- USDA, NRCS, Wisconsin Field Office Technical Guide (FOTG), Section IV, Practice Standard 590 Nutrient Management.
- University of Wisconsin-Extension (UWEX) Publication A2809, Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops, revised 2012. http://learningstore.uwex.edu/Nutrient-Application-Guidelines-for-Field-Vegetable-and-Fruit-Crops-in-Wisconsin-P185.aspx
- University of Wisconsin-Extension (UWEX) Publication A3769, Recommended Methods of Manure Analysis, 2003 http://learningstore.uwex.edu/Recommended-Methods-of-Manure-Analysis-P106.aspx
- Wisconsin Phosphorus Index: http://wpindex.soils.wisc.edu/
- University of Wisconsin-Extension (UWEX), NPM Program, Know How Much You Haul!, http://ipcm.wisc.edu/downloads/nutrient-managment/

Certification Requirements for Practice Standard 590-Nutrient Management BASIC PLAN

Use the following checklist as guidance to review and certify 590 nutrient management plans. An electronic copy of the SNAP+ database (where available) shall be submitted upon request to facilitate completion of the plan review.

The following SNAP+ reports (where available) shall be submitted with the 590 checklist: Compliance Check, Field Crop Report, Field Data and 590 Assessment, Manure Tracking (where applicable).

CROP YEAR: _____

_____ Initial Plan or _____ Annual Update

NMP prepared by: _____ NMP approved by: _____

Signed Checklist Present

_____ Current version of the 590 checklist signed by a qualified nutrient management planner. Current checklist link below: http://datcp.wi.gov/Farms/Nutrient_Management/Planning/index.aspx

Planner Credentials

_____ Planner signing the checklist has been verified as a "qualified" 590 Nutrient Management Planner (circle the applicable credential). Professional Agronomist (CCA, ARPACS), NRCS Certified Conservation Planner, Farmer Training Graduate, OTHER (approved by ARC/State Agronomist).

_____ **ALL EQIP FUNDED 590 PLANS** - The planner signing the checklist MUST be TechReg certified as a 590 Nutrient Management Planner TSP.

Eligible Acreage Criteria

_____ Verify acreage eligible for payment - Cross-reference 590 plan fields/acreage with the NRCS contracted tract(s)/fields. The financial assistance payment is limited to the total acres verified to meet the 590 practice standard and the smaller of:

- The total acreage reported by the planner.
- The total acreage by tract(s) contracted.

NOTE: EQIP payment is ONLY authorized for acres that fully comply with the 590 practice standard as certified by this review document.

Plan Narrative Criteria

_____ Verify that the plan contains a detailed introductory narrative describing implementation of the nutrient management plan on the overall farm operation. The narrative shall include a summary of crops by total acres grown, typical crop rotation(s), tillage practices by crop and a summary of any nutrient sources applied other than commercial fertilizer. For livestock farms the livestock type, number, size classes, typical manure land application schedule and application method shall be addressed.

_____ Verify the narrative addresses planning factors that may affect nutrient recommendations such as prior year drought, premature hay death, emergency winter application of manure or failure of an initial crop planting due to flooding, crusting etc.

_____ Verify the use of a single Phosphorus management strategy: (Circle selected strategy)

Phosphorus Index Soil Test Phosphorus

_____ Verify deficiencies in the plan and known by the planner were documented in the narrative and a strategy provided to address the deficiency during the development of the next annual plan update.

Soil Test Criteria

_____ Verify soil tests were conducted by a DATCP certified lab.

_____ Verify a minimum of one composite soil sample per 5 acres.

_____ Verify soil test analysis was conducted within the last 4 years. Note: For initial plans, soil test print-outs from the lab shall be included.

Where Gleaning/Pasturing of Livestock Occurs

_____ Verify that when nutrients are mechanically applied the rate, timing and form is recorded in the nutrient management plan, based on soil test recommendations and complies with the 590 practice standard.

_____ Verify that when nutrients are deposited by grazing animals an estimate of nutrients deposited as manure within a field are credited and do not exceed N and P requirements for the crop. The 590 plan shall include an assessment of animal units per acre, over the entire grazing season. Pastures stocked at greater than 1 AU/acre must have a nutrient management plan and a calculated PI. The location of feeding areas and the duration of feeding on each site must be documented in the plan.

Plant Tissue Analysis Criteria

Verify the following:

_____ DATCP approved laboratory used.

_____ Nutrient application recommendations (rate, timing, form) were based on a UW recommendation for the plant tissue analysis results. When UW recommendations are not available cite the basis for the nutrient application recommendation.

_____ The actual nutrient applications were done according to the tissue analysis recommendation.

Crop Management and Nutrient Application Criteria for Each Field

_____ Verify documentation of current and prior year crops and projected yield goals per crop. Planned yield goals substantially above regional averages must be supported by prior year yield data.

_____ Verify the presence of a record of planned nutrient application recommendations and documentation of an “actual” applied rate for all major nutrients by form and source.

_____ Verify that lime applications are planned to maintain soil pH within the range for optimal nutrient uptake for the most PH sensitive crop in the rotation OR the narrative documents that client has decided that liming to achieve optimum pH is not desired.

_____ Verify that Potassium (K) nutrient applications are planned to maintain levels in the optimum range OR the plan narrative documents that the client has decided fertilizing to achieve optimum K levels is not desired.

Nitrogen (N) application rates (select all applicable responses below):

_____ Verify that the agronomically predominant soil map unit was selected to reflect the relative productivity of the entire field.

_____ Verify N starter fertilizer applied at rates greater that 20lbs./ac. for corn or 40lbs./ac. potatoes was included in the total N annual recommendation.

_____ Verify N application rates did not exceed the N requirements of the crop to be grown by more than 20% when legumes, manures or other organic sources are used to meet the entire N requirements of the crop.

_____ Verify that when commercial or a combination of commercial plus organic sources of N are applied the total N applied did not exceed the annual N requirements of non-legume or legume crops based on the guidelines outlined in UW Publication A-2809 *Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin—Chapter 6.*

_____ Verify that supplemental in-season N applications during the growing season in excess of the UW recommendation were based on pre-side dress soil nitrate test, tissue analysis or OTHER documentation.

_____ Verify the appropriate legume credits were applied to the Nitrogen recommendations.

Phosphorous Management Strategy Criteria

_____ Identify fields that have soil test P levels in the "non-responsive" range for the highest P demanding crop in the rotation and verify that commercial P fertilizer applications were limited to 20 lbs./ac. of P205 starter fertilizer annually for corn or UW starter fertilizer recommendations for other crops.

Verify the following where a Phosphorous Index P management strategy has been adopted (select the appropriate response below):

_____ The PI calculated by SNAP+ does not exceed 6 (or a lower value established as the plan target).

_____ The field slope, slope below the field and distance to surface water used to calculate the Pl have been reviewed and verified as valid (remote sensing or in field verification).

Verify the following when the Soil test P strategy is used:

_____ Less than 50 ppm soil test P - nutrient application rates does not exceed the total P corrective fertilizer recommendation for the crop rotation and the N needs of the following crop or the N removal for the following legume crop.

_____ 50-100 ppm soil test P - P application does not exceed the total crop P removal for crops to be grown over the rotation (maximum length of 8 years).

_____ Greater than 100 ppm soil test P - no P applications, unless required by the highest P demanding crop in the rotation. When P applications occur, the application rate shall be 25% less than the cumulative annual crop removal over the planned rotation (maximum length of 8 years).

_____ For land with potatoes in the rotation, total P applications shall not exceed crop removal over a maximum rotation length of 8 years when soil tests are in the optimum, high, or excessively high range for potatoes.

Manure Management Criteria

_____ Verify liquid manure applied within a Surface Water Quality Management Area on non-frozen soils does not exceed the soil infiltration rate based on soil surface texture class and surface residue cover per field.

_____ Verify documentation of the manure type (solid/slurry/liquid), nutrient analysis results by source as applied, application methods, rates, locations, timing and method of incorporation are documented for livestock operations.

_____ Verify first year available manure nutrient credits were appropriately applied to crop nutrient recommendations based on manure analysis by an approved DATCP lab. (UW approved book values may be used for development of an initial plan).

_____ Verify organic nutrient sources other than manure applied to fields were analyzed for nutrient content and properly credited in the plan.

_____ Verify calibration of manure/organic nutrient source application equipment is documented in the plan.

_____ Verify that an estimate of the quantity of manure generated annually is included in the plan and that estimates of manure production and application volumes are relatively comparable. Significant differences or removal of manure from the farm not documented in the land application plan shall be addressed in the plan narrative.

Soil Erosion Control Criteria

_____ Verify that concentrated flow channels are vegetated. A review of aerial photos, soil and topographic maps shall be conducted to determine areas where concentrated flow channels are likely to occur.

_____ Verify the soil loss estimates for the "entire declared" rotation for each field are at tolerable levels or below for the **dominant critical** erosion planning soil map unit. Documentation shall include computation results utilizing SNAP + /RUSLE2 or WEPS planning tools. Review the tillage and residue management by crop to validate the soil loss calculation.

Plan Map Criteria

_____ Field boundaries for crop field maps, nutrient application restriction maps and soil maps shall be clearly defined and consistent between maps. Field acreage and field identification number shall be clearly labeled and consistent. A map key explaining symbols, coloration or other features displayed on the maps shall be included.

_____ Verify that a cross reference list is provided when soil test record and/or nutrient management plan map field numbers do not match the NRCS conservation plan and/or Financial Assistance contract maps.

_____ Restriction maps shall clearly identify sensitive features including Surface Water Quality Management Areas, wells, highly permeable soils, high water table soils, shallow soils over bedrock, concentrated flow channels, slopes with winter spreading restrictions, non-farmed wetlands, direct conduits to groundwater (sinkholes, non-metallic mines, tile inlets).

General Nutrient Management Restrictions/Prohibitions

Verify that the following general nutrient application restrictions/prohibitions were addressed when writing the plan and identified on a reference map to prevent inappropriate application of nutrients (select **ALL** that apply):

_____ Fields exceeding tolerable soil loss (T)

_____ Surface water, established concentrated flow channels, non-harvested permanent vegetative buffers, non-farmed wetlands, sinkholes, nonmetallic mines and wells

_____ Manure applications within 50 feet of a potable drinking water well

_____ Areas contributing runoff within 200 feet upslope of direct conduits to groundwater such as a well, sinkhole, fractured bedrock at the surface, tile inlet, or nonmetallic mine (nutrients applied within these areas must be effectively incorporated within 72 hours)

_____ Land where vegetation is not removed mechanically or by grazing (except to provide nutrients for establishment and maintenance)

Frozen or Snow-covered Soils Nutrient Application Restrictions:

_____ Nutrients were not applied within a Surface Water Quality Management Area or to locally identified areas as contributing nutrients to direct conduits to groundwater or surface water as a result of runoff. **Restriction Map required.**

_____ No commercial nutrients applied on slopes greater than 9%. Manure application is allowed on slopes up to 12% if the field is contoured or contour strip cropped. **Restriction Map required.**

_____ Rates did not exceed the P removal of the following growing season's crop when manure was applied or 7,000 gallons per acre when liquid manure was applied.

_____ No commercial N or P sources applied except to pastures or winter grains. The pasture/winter grain exclusion DOES NOT apply to areas covered by additional site specific nutrient application restrictions (SWQMA/direct conduit to groundwater).

_____ Verify nutrient application on non-frozen soil within a Surface Water Quality Management Area includes at least one of the following supporting practices (select **ALL** that apply):

- _____ Established vegetative buffers
- _____ 30% or more residue or vegetative cover
- _____ Nutrients are incorporated within 72 hours
- _____ Cover crop applied

Areas With an Identified Risk of Delivery of Nutrients to Groundwater (high permeability soils, soils with < 20 inches to bedrock, soils with <12 inches to apparent water table, fields within 1000 feet of a municipal well. **Restriction Map required.**

Verify on irrigated fields the use of **ONE** of the following management strategies:

- _____ Split or delay N application to apply a majority of crop N requirement after crop establishment.
- _____ On irrigated fields use a nitrification inhibitor with ammonium forms of N was used

_____ Verify no fall commercial N sources applied except for establishment of fall seeded crops. The fall seeded crop exclusion DOES NOT apply to areas covered by additional site specific nutrient application restrictions. Allowed commercial nutrient applications shall be restricted to 30 lbs./ac. of available N per acre. **NOTE:** Sources of Nitrogen that are associated with a corrective application of commercial Phosphorous fertilizer (MAP/DAP) are exempted from this requirement if; the Phosphorus application rate is done according to a current soil test and the planner verifies in the plan narrative that NON-ammonium based Phosphorus fertilizer formulations were unavailable). All fall nitrogen fertilizer applications **MUST** be credited toward the following years crop requirement.

Verify when manure is applied in late summer or fall to meet the fertility needs of next year's crop and **soil temperatures are greater than 50 degrees F, ONE** of the following strategies was implemented:

- _____ Nitrification inhibitor with liquid manure and a maximum N rate of 120 pounds available N per acre was applied.
- _____ Applications of manure occurred after September 15 and a maximum available N rate of 90 pounds per acre was applied.
- _____ Fields with perennial crops or fall-seeded crops and a maximum N application rate of 120 pounds of available N per acre or the crop N requirement, whichever is less was applied.

_____ Verify when manure is applied in the fall when **soil temperatures are 50 degress F or less**, no more than 120 pounds per acre of available N or the crop N requirement of the following year crop, whichever is less, was applied.

I certify that this Practice Standard 590, Basic Nutrient Management Plan was applied according to all criteria of this standard and Job Sheet.

Approved by: _____ Date:_____

Certified Conservation Planner or TSP

Enhanced and Advanced Precision Guidelines for Practice Standard 590 - Nutrient Management

Definition

Enhanced and Advanced Precision agriculture is defined as a management system that uses information, technology, and site specific data to manage variability within fields for optimum profitability, sustainability, and environmental protection. This method of management includes background data, a record keeping system, analysis, decision making process, specialized implementation equipment, constant evaluation and adjustment of the management system that results in the use of every acre within its capability and conservation treatment according to its needs.

For the purpose of EQIP payment scenarios, Enhanced and Advanced Precision Nutrient Management are defined as follows:

- Enhanced 590 is the use of additional agronomic strategies that are identified as "considerations", but not a requirement of the standard to improve fertilizer use efficiency of nitrogen. Examples include:
  - Plant tissue testing
  - Pre-plant nitrate test
  - Pre-side dress nitrate test
  - Use of urease and nitrification inhibitors
  - Split application of N
  - Coated nitrogen slow-released products.
- Advanced Precision 590 utilizes variable rate technology - applying nutrients at variable rates based geo-referenced data to improve fertilizer use efficiency.

Purposes of Practice

- To improve water quality by targeting nutrient applications to meet field-specific cropland yield capabilities.
- To improve water quality by reducing nutrient inputs through avoidance of overlapping nutrient applications.
- To reduce surface runoff and subsurface loss of nutrients through decreased nutrient inputs.
- To enhance soil quality through repeatable field travel pathways, thus reducing soil compaction and erosion
- Energy conservation through precisely controlled cropping equipment, resulting in less fuel being used.

Conditions for Enhanced or Advanced Precision Incentive Payment Eligibility

To be eligible for Enhanced or Advanced Precision 590 incentive payments, a producer must **not** currently be practicing the management strategies outlined in the following criteria and checklists.

Criteria for Enhanced Nutrient Management

- Enhanced nutrient management activities must meet all requirements of the 590 standard.
- The Enhanced nutrient management strategy is described in the 590 plan narrative.
- Grid or zone sampling to the University of Wisconsin recommendation of one composite sample per 2.5 acres or less.
- Manure analysis by source as applied is required.
- Greater than 50% of the in-season N application to crop is applied after crop emergence.
- The use of UW Maximum Return to Nitrogen rates for N application on corn with a return ratio of 1.0 or higher is required.
- One of the following enhanced Nitrogen management strategies **must be** utilized:
  1. Pre-Plant Nitrate Test
  2. Pre-side dress Nitrate Test
  3. The use of slow release products.
  4. Plant Tissue Analysis

- One of the following enhanced Phosphorous management strategies **must be** utilized:
  1. No fall application of Phosphorous nutrient sources.
  2. Fall application of Phosphorous, including manure, with immediate incorporation (72 hours or less) as allowed by the soil loss estimates in the conservation plan.
  3. Fall surface application of Phosphorus nutrient sources onto crop residue greater than 30% or a growing cover crop where nutrient application is not prohibited by other specific nutrient application restrictions. No application of manure on frozen or snow covered ground.

Criteria for Advanced Precision Nutrient Management

- The client must have implemented a prior nutrient management plan which documented the benefit of applying phosphorus using variable rate technology.
- The Precision nutrient management strategy including the use of variable application rate technology is described in the 590 plan narrative.
- Variable rate and non-variable rate components of the plan must meet all requirements of the 590 practice standard.
- The precision application system must have the ability to determine equipment location within the field and correlate the position to a planned application rate based on the nutrient management unit defined by the prescription application map.
- Grid or zone sampling to the University of Wisconsin recommendation of one composite sample per 2.5 acres or less and grid sample points geo-referenced.
- Manure analysis by source as applied is required.
- Crop yields must be geo-referenced and summarized yield data by nutrient management unit will be included as part of annual documentation.
- Environmentally sensitive areas identified on the nutrient management plan are geo-referenced (waterway, streams, ditches, wetlands, wells, etc.) and application restrictions are enforced by the precision application system.
- Nutrient application on Prescription Map is geo-referenced and has been developed to reflect nutrient management plan background data (i.e. soil maps, sensitive areas, crop scouting data, remote sensed imagery) to vary inputs based crop needs and environmental risk.
- Client must have the appropriate method and recordkeeping system to manage geospatial data.
- All corrective P fertilizer applications that exceed the lowest planned P application rate within each field shall be applied utilizing GPS linked variable rate application equipment to prevent over application of nutrients.
  NOTE: a base application of manure/commercial application can be applied to the entire field as long as it does not exceed the maximum fertilizer recommendation for Nitrogen and Phosphorus on any part of the field.
- Potassium and Lime may also be variable rate applied based on the UW recommendations.
- All fertilizer sources applied to meet the in-season Nitrogen need of the crop which exceed the lowest planned N application by field shall be applied utilizing GPS linked variable rate application equipment.
- The in-season N recommendation shall be developed utilizing a combination of the following techniques:
  - Grid soil sampling results for Organic Matter
  - Aerial imagery to develop Normalized Differenced Vegetative Index Maps
  - Electrical Conductivity soil texture mapping
  - OTHER techniques approved by NRCS
- ALL applications of N beyond the base recommendation provided by University of Wisconsin recommendations must be based on the collection of a Pre-side dress soil nitrate samples within representative areas geo-referenced in relation to the 2.5 acre nutrient management grids that will be managed based on the test results.
- Annual in season N applications are reduced when representative pre-plant soil nitrate test recommendations verify carry over from the prior year.
- One of the following Nitrogen loss reduction strategies shall be utilized:
  - Greater than 50% of the in season N application to crops is applied after planting utilizing split applications based on pre-side dress soil nitrate test results recommendations AND slow-release/urease inhibitor or other NRCS approved Nitrogen loss minimization strategies shall be utilized for **ALL** in season Nitrogen applications OR
  - A nitrification inhibitor or other NRCS approved loss mitigation strategy shall be utilized for pre-plant Nitrogen applications AND slow release/urease inhibitors or other NRCS approved Nitrogen loss minimizations/ strategies shall be utilized with **ALL** in season Nitrogen applications.

FY-14 EQIP Certification Requirements for a 590 Plan Utilizing an Enhanced Nutrient Management Strategy

_____ Verify the development of a basic 590 plan signed by a TechReg 590 plan certified TSP and verified to meet the Wisconsin NRCS 590 Nutrient Management practice standard. The need for the use of an Enhanced Nutrient Management Plan is stated in the plan narrative along with a basic description of how the system will be developed and implemented. The following additional components shall be included in the plan:

_____ Verify soil sampling density of 1 composite sample per 2.5 acres or less.

_____ Manure analysis for each source as applied is verified (as applicable).

_____ Verify that greater than 50% of N applied after crop emergence.

_____ Verify use of the University of Wisconsin Maximum Return to Nitrogen (MRTN) for corn utilizing a Nitrogen to Corn price ratio of 0.1 or higher to develop the initial N application recommendations.

Verify the use of one or more of the following enhanced Nitrogen loss reduction strategies (select ALL that apply):

- _____ Pre-plant Nitrate Soil Test and use of available N credit toward the annual N fertilizer recommendation.
- _____ Pre-side dress Nitrate Soil Test and use of the available N credit toward the side dress N fertilizer recommendation.
- _____ Plant tissue analysis to adjust in season N application rates for annual crops or to evaluate N sufficiency in perennial crops.
- _____ Use of controlled release N fertilizer sources, urease or nitrification inhibitors on sandy soils where pre-plant and pre-side dress soil nitrate soil tests are not applicable.

Verify the use of one or more of the following Phosphorous loss reduction strategies (select ALL that apply):

- _____ No fall application of Phosphorous nutrient sources (including manure).
- _____ Fall application of Phosphorous with immediate incorporation of all Phosphorus sources including manure within 72 hours or less (This option may only be used if based soil loss estimates document sheet and rill erosion can be maintained at T or less).
- _____ Fall surface application of Phosphorus nutrient sources onto crop residue greater than 30% or a growing cover crop where nutrient application is not prohibited by other specific nutrient application restrictions. No application of manure on frozen and snow covered ground.

_____ Verify the FINAL plan narrative was updated to document actual “as applied” nutrient applications and identifies management adjustments to be addressed by the next year’s annual plan update.

_____ Verify documentation of an evaluation of the net increase or decrease in nutrient application compared to historical non-Enhanced Nutrient Management rate applications.

I certify this Enhanced Application of Nutrients Plan was developed and applied according to the practice guidelines in this Job Sheet and meet the requirements of the Wisconsin NRCS 590, nutrient management standard.

Approved by: _____ Date:_____

Certified Conservation Planner or TSP

FY-14 EQIP Certification Requirements For an Advanced Precision Nutrient Management Application

_____ Verify that the client has previously implemented a 590 plan or system which documented the Resource Concerns that would be addressed by applying nutrients using variable rate technology.

_____ Verify the development of a basic 590 plan signed by a TechReg 590 plan certified TSP and verified to meet the Wisconsin NRCS 590 Nutrient Management practice standard. The need for the use of an Advance Precision Nutrient Management plan is stated in the plan narrative along with a basic description of how the system will be developed and implemented.

_____ Verify the use of precision soil sampling (1 composite sample per 2.5 acres or less) with sample locations recorded on a geo-reference map to develop variable rate Phosphorous management zones.

_____ Verify manure analysis by source as applied (if applicable).

_____ Verify use of a geo- referenced yield map to support development of nutrient application recommendations.

_____ Verify the use of precision soil sampling for soil organic matter and the use of high resolution aerial photography, electrical conductivity mapping of other NRCS approved strategies to identify variable rate Nitrogen application management zones.

_____ Verify the location of environmentally sensitive areas were GPS located and appropriate nutrient application restrictions were implemented.

_____ Verify geo-referenced map identifying the location of each nutrient VR management zone by nutrient rate/ form.

Verify the use of one of the following Nitrogen loss reduction strategies:

- _____ Greater than 50% of the in season N application to crops is applied after planting utilizing split applications AND slow release/urease inhibitor or other NRCS approved Nitrogen loss minimization strategies based on source shall be utilized for ALL in season Nitrogen applications OR
- _____ A nitrification inhibitor or other NRCS approved Nitrogen loss minimization strategy based on source shall be utilized for pre-plant Nitrogen applications AND slow release/urease inhibitors or other NRCS approved Nitrogen loss minimization strategies shall be utilized with ALL in season Nitrogen applications.

Verify the use of one or more of the following Nitrogen testing strategies to establish more accurate in-season N applications (select ALL that apply):

- _____ Pre-plant Nitrate Soil Test and use of available N credit toward the annual N fertilizer recommendation
- _____ Pre-side dress Nitrate Soil Test and use of the available N credit toward the side dress N fertilizer recommendation
- _____ Plant tissue analysis to adjust in season N application rates for annual crops or to evaluate N sufficiency in perennial crops.

_____ Verify producer utilized nutrient application prescription base map (geo-referenced), and GPS enabled equipment to apply Nitrogen and Phosphorous at variable rates according to the 590 plan crop nutrient recommendations. A FINAL “as applied” map documenting rate and form of fertilizer applied by management unit shall be provided.

_____ Verify the FINAL plan narrative is updated to identify management adjustments to be addressed in the next year’s annual plan update.

_____ Verify documentation of an evaluation of the net increase or decrease in nutrient application compared to historical non-variable rate applications.

I certify the Advanced Precision Application of nutrients were applied according to the practice guidelines in this Job Sheet and meet the requirements of the Wisconsin NRCS 590, nutrient management standard.

Approved By: _____Date:_____

Certified Conservation Planner or TSP