

Nutrient Management Briefings – 2003

A Quality Assurance Team Review of 2003's Nutrient Management Plans

Prepared by the Wisconsin Department of Agriculture, Trade and Consumer Protection

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performance standards	

Inside the insert:

- Certified soil testing laboratories
- Manure Information - manure produced & spreader capacity
- Nutrient Management Plan Checklist
(March 1999 & July 2002-590 standard versions)
- Wisconsin Comprehensive NM Plan Checklist

Print these documents and the 590 standards from:
<http://www.datcp.state.wi.us/arm/agriculture/land-water/conservation/nutrient-mngmt/planning.html>

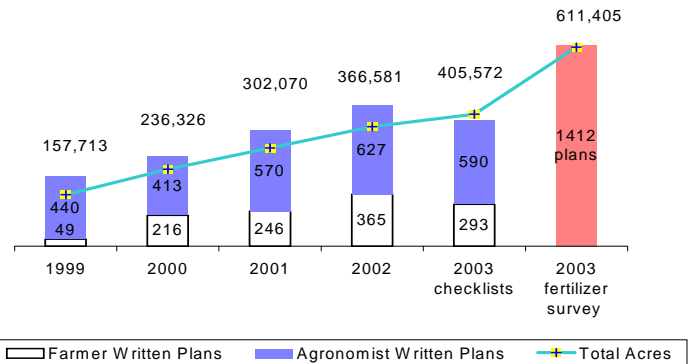
This report is sent to conservation staff, other individuals interested in nutrient management (NM), and all qualified planners that note their address on the NM Planning Checklist form. Qualified planners are certified through the American Society of Agronomy or National Association of Independent Crop Consultants crop consultants, or are farmers developing their own NM plans.

This report summarizes the status of NM in Wisconsin and describes the findings from the Quality Assurance Team's (QAT) review of 15 NM plans written for the 2003 growing season. A properly developed and implemented NM plan will balance nutrients available in manure, legumes, and commercial fertilizer with the field's soil test nutrient need; reduce water pollution from excess applications of plant nutrients; maintain soil productivity; maximize profitability; achieve realistic crop yields; and have value to the producer.

2003 Planning Progress and Trends

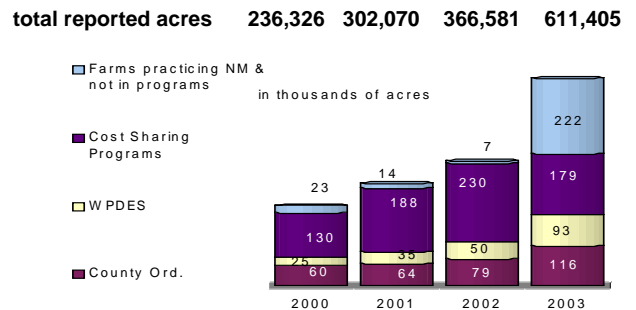
Since 1995, Wisconsin farmers have developed and reported 5430 nutrient management plans on approximately 1.9 million acres. In 2003, suppliers of bulk fertilizer to farmers were required to track nutrient management planning. These suppliers reported 1,412 plans on 611,405 acres. They reported that 12% of the 12,113 farmers purchasing bulk fertilizer had 590 plans.

Nutrient Management Plans and Reported Acres 1999-2003



A nutrient management (NM) plan is required when a producer is regulated under a county ordinance or a DNR Wisconsin pollution discharge elimination system permit (WPDES). A NM plan is also required when a landowner voluntarily accepts government cost-share dollars for NM or the installation of manure storage or barnyard runoff control structures. The DATCP tracks NM acreage planned through bulk fertilizer suppliers and through the enclosed NM Plan Checklist forms submitted by farmers, agronomists, and public staff for every plan written under government programs.

Nutrient Management Acres by Program and Year



The 2003 *Nutrient Management Plan Checklist* forms reported 40 counties with NM planning on 405,572 acres. A slight increase compared to the 366,581 acres that 50 counties reported in 2002. Fewer counties reported in 2003 because DATCP cost-share assisted with developing plans on only 2,000 acres compared to 67,000 acres in 2002. These checklists also reported 137 private agronomists developing plans on 62,556 (19%) more acres than reported in 2002. These checklists also showed 293 farmers writing

The 2003 Quality Assurance Team members:

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their own plans on 71,068 acres. This is 76 (26%) fewer farmers developing plans on 23,565 (33%) fewer acres than reported in 2002 because of less state funding. As of October 2003, 664 planners in Wisconsin hold certifications through either the American Society of Agronomy or National Association of Independent Crop Consultants. This has decreased by 25 planners since 2000.

Quality improvement reminders **Manure Application Restrictions**

Wisconsin is transitioning from a nitrogen-based nutrient management standard towards a phosphorus (P)-based standard because it is required for Confined Animal Feeding Operations (CAFOs), federal Environmental Quality Incentive Program (EQIP), and DNR's nutrient management performance standard. State funding for NM is declining, while federal cost-share funding is increasing.

The 2003 NM plans need improvement on explaining manure spreading restrictions and testing soil using UW sampling and nutrient application recommendations that comply with the 590 standards. Manure information and plan presentation quality improved from the 2002 plans. Two 590 standards, with differences in spreading restrictions, have caused some confusion. The Quality Assurance Team found that 6 of 15 plans needed to work on clearly explaining nutrient application restrictions with maps, legends, and plan narratives.

The July 2002, NRCS *590 Nutrient Management Standard* requires that nutrients never be applied on: Concentrated flow channels with established perennial cover, permanent vegetative buffer, non-farmed wetlands, land where established vegetation is not removed, or fields eroding at a rate exceeding tolerable soil loss (T). This standard also requires that perennial cover in all areas of concentrated flow be identified in an approved conservation plan.

When frozen soil prevent effective incorporation of nutrients at the time of application:

- Do not apply nutrients within 200 feet up slope of wells (the location of which are known to the planner), sinkholes, fractured bedrock at the surface, gravel pits, and land within 1,000 ft. of lakes or within 300 ft. of perennial streams. Identify perennial streams using the NRCS soil survey and/or USGS 1:24,000 scale topographic map. Other determinations of restricted application areas must be made on-site and approved in a conservation plan.
- Do not apply nutrients on slopes greater than 12%. Do not apply nutrients on slopes greater than 9%, except for manure on slopes up to 12% with concentrated flow channels maintained in permanent vegetative cover. Also, slopes from 9 to 12% must be either contour strip cropped with alternate strips in perennial forage or contour farmed where all of the residue from the

previous corn crop (harvested for grain) remaining on the soil surface. Areas that do not contribute runoff to surface water or conduits to ground water may be exempted based on a site inventory.

On non-frozen soil within 1,000 ft. of lakes, or within 300 ft. of perennial streams draining to surface water, use one or more of the following practices to address nutrient applications and surface water concerns appropriate for the site:

- Install/maintain permanent vegetative buffers (harvesting is allowed unless restricted by other laws or programs). Refer to NRCS FOTG Standard 393, Filter Strip.
- Maintain greater than 30% crop residue coverage on the surface.
- Incorporate nutrients leaving adequate residue to meet tolerable soil loss.
- Establish fall cover crops.
- Follow Part 2 of the Technical Note for manure applications on existing forages apply no more than the equivalent of 5000 gallons of liquid dairy manure (35-25-80) or no more than 10 tons of solid manure per acre. For manure applications prior to legume seeding be consistent with the annual nitrogen removal, the 4-year rotational phosphorus removal, and the P Index or Soil Test P requirements.

Quality improvement reminders

Soil Sampling Changes new A2100 Sampling Soils for Testing

The QAT found 4 of 15 plans were missing soil tests or the tests were not current. A plan narrative should note the plan's deviations from the standard and when soil tests will be updated.

Regardless of which 590 standard you are using in Wisconsin, *UW Publication, A2100 Sampling Soils for Testing (2002)* is your guide for soil sampling. A soil test is the only practical way of telling whether lime and fertilizer are needed. However, if a soil sample does not represent the general soil conditions of the field, the recommendations based on this sample will be useless. An acre of soil to a 6-inch depth weighs about 1,000 tons, yet less than 1 ounce of soil is used for each test. Therefore, it is very important that the soil sample is characteristic of the entire field. The following directions will help you collect good soil samples.

- Do not sample any area of a field that varies widely from the rest of the field in color, fertility, slope, soil texture, drainage, or productivity unless the area is large enough to be treated separately.
- Push aside organic materials and avoid dead furrows, near roads, near fences, where fertilizer has been banded, eroded knolls, and low spots.

- Sample contour strips separately if it is approximately 5 acres or more. Cores from 2-3 strips that have identical cropping and management histories may be combined.

A composite sample consists of at least 10 cores using a probe or auger to plow depth or at least 6 inches. Mix these cores well and place 2 cups of this soil in a sample bag.

When at least three composite samples per field are submitted to the lab, the significantly higher testing sample is removed from the recommendation to ensure that no part of the field is under-fertilized. Identify the sample bag with your name, field identification, and sample number.

Record the field and sample location on a map. And finally, fill out the soil information sheet carefully. Include the soil series, field number, field acres, and sample number(s) for each field so test summaries and soil test recommendations reflect this information.

Sampling fields for a single recommendation: If the field was tested more than four years ago or has P & K levels in the responsive range (H or lower), then every 5 acres needs 1 sample. Soil sampling size for fields testing in the non-responsive range (VH or EH) for P & K levels can be increased as follows:

5-10 acres, 2 samples	11-25 acres, 3 samples
26-40 acres, 4 samples	41-60 acres, 5 samples
61-80 acres, 6 samples	81-100 acres, 7 samples

Grid sampling fields and variable rate applications: If fertilizer and lime applications vary across a field, soil sampling for fields in the responsive range (H or lower) for P & K levels may need samples every 200 feet. While fields in the non-responsive range (VH or EH) for P & K levels can have samples every 300 feet.

Quality improvement reminders

Soil Sampling Summaries

Some of the plans reviewed in 2003 included soil test summaries instead of soil test sheets for each field. Soil test summaries are an acceptable substitute for soil test sheets if they include the following information to show compliance with the 590 nutrient management standards.

Field number, acres, and sample number must be included in the summary so that test values correspond to a known place and so that program staff can determine that *UW Publication A2100* sampling guidelines are being followed.

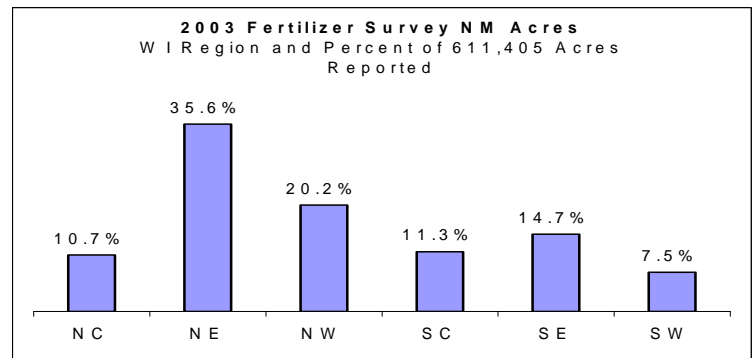
Soil type should be noted on the soil information sheet along with crops for better recommendations from the lab to the planner.

Subsamples and adjusted averages of soil test levels for OM, P, and K must be in the summary to determine nutrient recommendations and proper use of soil sampling requirements for each field.

Laboratory name verifies where tests were performed. All soil testing must be performed by a DATCP certified soil testing laboratory to ensure consistent testing procedures and the ability to provide UW fertility recommendations based on those tests.

Fertilizer distributors track NM planning

In 2003, DATCP enacted new record-keeping requirements for fertilizer distributors enacted under Ch. ATCP 40, Wis. Admin. Code. This information helps survey and document producers' efforts to provide environmental protection in Wisconsin. These changes require distributors, who sell bulk fertilizer to a producer having a NM plan, to record the name and address of the nutrient management planner who prepared the producer's plan according to the 590 nutrient management standard. If producers do not have a plan, the retailers may offer their services for developing a plan. Fertilizer retailers reported the number of producers purchasing bulk fertilizer and answering that they have a nutrient management plan, and the approximate number of acres covered under those plans.



The producers purchasing bulk fertilizer report they have 590 nutrient management plans (1,412) covering 7% (611,405) of Wisconsin's 9.1 million acres of cropland (WASS 1997 crop acres).

Implementing the performance standards

County land and water resource management plans, approved at the county board level, describe available funding and annual priority activities including implementing the performance standards for improving water quality.

Wisconsin's nutrient management performance standard requires the producer's nutrient management plan to manage soil nutrient levels to maintain or reduce nutrient delivery. These NM plans must document that nutrient delivery to water will not alter the background water quality in Source Water Protection Areas, Impaired, Outstanding, and Exceptional Resources Water. The nutrient management performance standard becomes effective on January 1, 2005 in these special areas; and January 1, 2008 in other areas of WI. These areas will be defined by DNR.

After the NM performance standard becomes effective, a farmer "shall" have a NM plan for mechanically applied nutrients if at least 70% cost sharing is offered by state or local governmental agencies. The NM plan shall be approved by a "qualified planner"; have soil tests from a DATCP certified soil testing laboratory; comply with UW nutrient recommendations, and maintain tolerable soil loss levels for each field as stated in the P-based 590 standard.

To cover 70% of the farmer's annual cost, the farmer may accept an alternative flat rate payment of \$7 per acre per year for four years (or \$28 per acre to develop and implement the NM plan). The Natural Resources Conservation Service offers EQIP cost share contracts to farmers beginning in 2004 and ending in 2008. In most counties, EQIP pays \$7 per acre for 3 years plus 1 more year to comply without a cost share payment. Also, payment will go from NRCS through the farmer to a Technical Service Provider (TSP) for preparing the annual nutrient management plan. Payment for this service ranges from \$4-\$7 per acre decreasing with larger sized farms (in 2003). The farmer chooses their TSP from the www.techreg.usda.gov website, or NRCS chooses and provides funds to a TSP planner. NRCS wants your comments on the rates and other TSP issues. You can contact Ken Rismeyer at ken.rismeyer@wi.usda.gov or 608-662-4422 ext. 212.

EQIP Incentive Payments and Technical Service Provider payments cover the required 70% of the cost of a NM plan. With both the EQIP incentive payment and the TSP payment, a farmer could receive incentive payments for a Wisconsin nutrient management plan of about \$40-\$50 per acre over 4 years in most counties. This payment covers more than the required 70% of the cost of a nutrient management plan. If a county or local government provides 70% of the cost of a NM plan, and the performance standard is in effect (after 2005 or 2008), NR 151 Wis. Admin. Code states that a county or local government may require the farmer to continue complying with these practices at the farmer's expense even if land ownership changes.

Should farmers sign-up now for NM cost share funding or wait? Farmers can contact the NRCS District Conservationist to request NM EQIP funding. In 2003, about \$10 million of EQIP cost sharing was provided in Wisconsin. Cost sharing amounts are projected to triple in the next two years. Wisconsin farmers should consider if the requirement of providing 70% cost-share funding for performance standard compliance will still be in the law a few years from now and will the requirement to comply with the performance standards continue? If Wisconsin continues to produce 600,000 acres of NM plans each year - and if 50 counties could each bring 12,000 new plan acres annually - we need to provide \$16.8 million per year (\$252 million over 15 years) to cover the 70% cost share requirement. If NM planning is a priority locally, the NM performance standards could be fully funded across the entire State of Wisconsin in the next 15 years.

What farmers say about their NM plan

As plans are reviewed by the Quality Assurance Team, farmers are contacted to give us their thoughts about how Wisconsin can improve our NM program. Averaging

farmer comments since 1997, we see that the plans are useful and 90% of the recommendations are being followed even on first year plans. Also, 66% of the farmers see their profitability improve, 33% say it is too early to know, while 93% say they will continue to update their plans. We see a steady increasing value being placed on combined nutrient and pest management plans, where 40% of the 2003 farmers indicated they would pay \$10-\$20 per acre. At the same time, we see less willingness to pay \$6 per acre for NM planning alone. In 1997, 60% of the farmers were willing to pay at least \$3 per acre, while in 2003 this has dropped to 46%. From 1997 to 2005 farmers indicate that we must increase education, awareness, cost-share incentives, and cross compliance requirements to further NM planning.

Percent of 2003 Reported Acres from Checklists by Region and County

NE 43% of acres	NW 19% of acres	NC 15% of acres	SC 13% of acres	SE 6% of acres	SW 4% of acres
Brown, Door, Kewaunee, Manitowoc, Marinette, Oconto, Outagamie, Shawano, Winnebago	Barron, Buffalo, Chippewa, Clark, Dunn, Eau Claire, Jackson, Polk, St. Croix, Pierce	Adams, Lincoln, Marathon, Waupaca, Waushara, Wood	Dane, Columbia, Green, Jefferson, Rock, Walworth	Dodge, Fond du Lac, Green Lake, Sheboygan, Washington	Grant, LaCrosse, Lafayette, Sauk

Counties reporting more than 15% of their cropland acres with 2003 nutrient management plans are: Brown (51,988), Kewaunee (35,709), Door (16,779), and La Crosse (12,711).

Counties reporting 5% to 14% of their cropland acres are: Marathon (36,875), Dane (32,261), Outagamie (22,662), Manitowoc (22,626), Clark (20,050), Jefferson (15,043), Winnebago (14,449), Dunn (14,027), Pierce (11,707), Wood (9,833), Waupaca (8,348), Oconto (7,936), Eau Claire (7,399), and Washington (6,951).

SNAP Plus is targeted to be available in 2004

The Soil Nutrient Application Program (SNAP Plus) is a software tool to implement the July 2002 Nutrient Management Standard 590. It is being developed by the UW-Madison under the direction of Professor Larry Bundy, Soil Science. It brings together UW nutrient recommendations with RUSLE 2 calculations to provide an assessment of soil erosion rates using crop producers current rotations, tillage, and nutrient application practices. It then provides an estimate of the phosphorus loading risks or the "P Index" for each field over the course of the crop rotation. Research being conducted at the UW-Madison, UW-Platteville, and Discovery Farms to calibrate and refine the P Index. SNAP Plus will be available in 2004 at <http://wpindex.soils.wisc.edu/>. This tool will bring conservation planning and nutrient management planning together to provide a real implementation tool for producers to manage their field's soil.

Questions, comments, or suggestions about the Quality Assurance Team review of nutrient management plans should be forwarded to: Sue Porter, WI DATCP, P.O. Box 8911, Madison, WI 53798-8911 (608)224-4605 sue.porter@datcp.state.wi.us