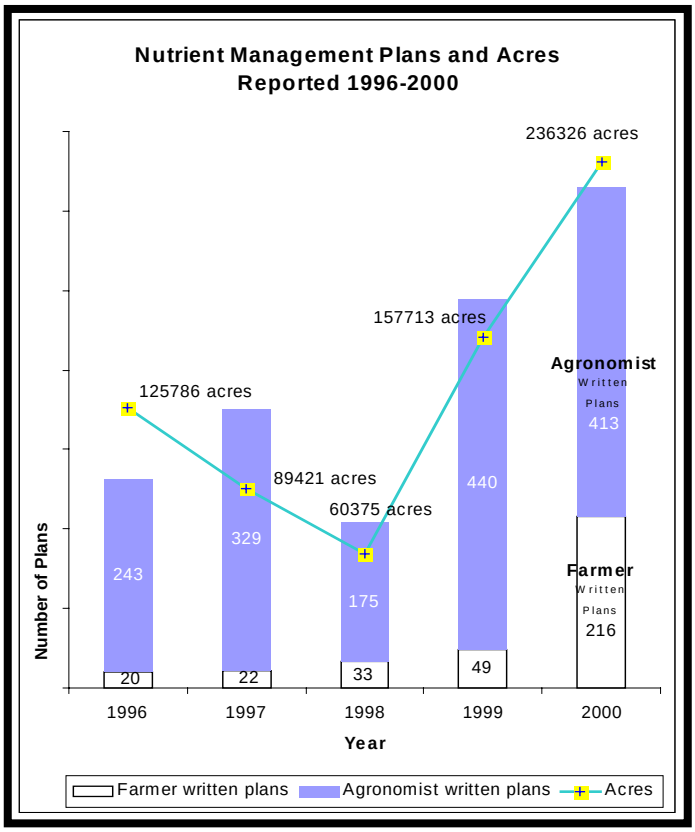
Nutrient Management Briefings – 2000

A Quality Assurance Team Review of 2000's Nutrient Management Plans

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

This report is directed toward certified crop consultants, conservation staff, and other individuals interested in nutrient management. This report summarizes the findings from the Quality Assurance Team's review of 15 nutrient management plans written for the 2000 growing season. Forms listing the required and recommended components of the nutrient management plan are enclosed.



Wisconsin's quality assurance team promotes nutrient management planning and ensures quality nutrient management plans. A properly developed and implemented nutrient management plan will maximize profitability, reduce water pollution from excess applications of plant nutrients, maintain soil productivity, and achieve realistic crop yields.

The intent of this Quality Assurance Team (QAT) is to review nutrient management (NM) plans for adherence to the Wisconsin 590 nutrient management standard. This means following the University of Wisconsin fertilizer recommendations, using a Wisconsin Farm Services Agency (FSA) approved soil testing lab, and addressing the components of the *Nutrient Management Plan Checklist* (enclosed).

Since 1995, 2,210 nutrient management plans have been developed and reported for Wisconsin farmers on approximately 700,000 acres. DATCP tracks NM acreage planned and the number of crop advisors developing these plans through the *NM Plan Checklists* submitted by farmers, agronomists, and conservation staff. The *NM Plan Checklists* are submitted for every plan written for and funded by any county, state, or federal programs. DATCP welcomes everyone to submit checklists to show the stewardship ethic of Wisconsin farmers.

In 2000, 38 counties reported nutrient management planning on 236,326 acres. The acreage reported has increased by 33% from 1999's 157,713 acres. The number of counties reporting is also up from 36 counties in 1999, and 21 counties in 1998. The 2000 season involved 99 private agronomists developing plans on 187,448 acres. Additionally, farmers developed 216 plans for the 2000 growing season on 48,878 acres. Farmer written plans have increased by 167 (77%) plans since the 1999 growing season. The year 2000 also involved 13 (13%) more agronomists than in 1999. As of October 2000, 689 individuals in Wisconsin hold certifications through the American Society of Agronomy or National Association of Independent Crop Consultants. This is an increase of 80 (12%) from the 609 certified planners from 1999. We have come far since 1996 when 463 planners held certifications.

What will it cost to plan and implement nutrient management plans on 9 million acres of cropland?

Time-frame	New acres needed each year	New acres needed per county per year (50 counties)	Yearly cost-share needs (3 years cost-share per farm, @ $4 per acre)
38 years	240,000 acres	4,800 new acres	$2.8 million per year
15 years	600,000 acres	12,000 new acres	$7.2 million per year

The 2000 Quality Assurance Team members:

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Kevin Erb - UW NPM
Shawn Esser - Marathon County Land Conservation
Matt Hanson – Jefferson County UWEX
Terrence Kafka - DNR Wausau
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Dan Nankee – Southwest WI Technical College
Len Olson - DATCP Madison
Steve Olson – Dunn County Land Conservation
Tim Popple – St. Croix County Land Conservation
Sue Porter- DATCP Madison
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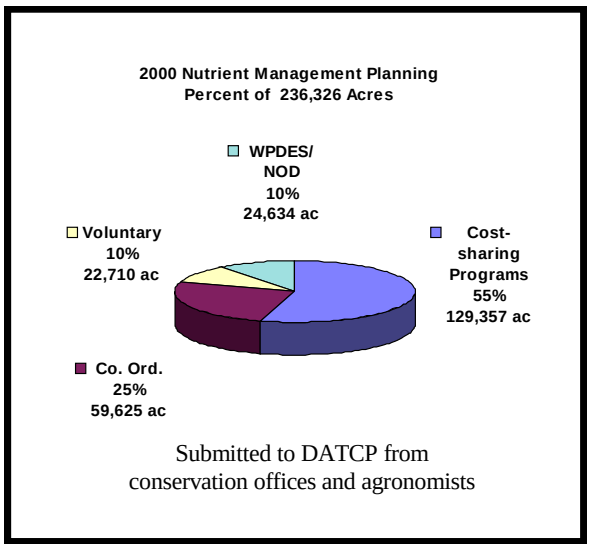
Mike Vollrath - DNR Madison
Becky Wagner – Fond du Lac Co. Land Conservation
Gregg Weaver – New Era, Inc.



Submitted to DATCP from conservation offices and agronomists

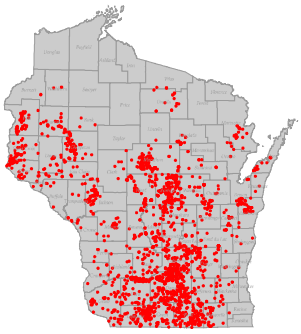
The percent of acres developed through cost-share assistance from state and federal programs, reported above, has declined. In 1998, 78% of the acres were cost shared, 58% of the acres in 1999, and 55% of the acres in 2000. Conversely county ordinances are responsible for 8% of the plan acres in 1998, to 15% in 1999, to 25% of the acres in year 2000. Ten percent (22,710 acres) of the 2000 plan acres were voluntarily developed for farmers and reported by 6 planners in 8 counties.

Nutrient loss to nonpoint source pollution

Soluble nutrients (N, P, K) and those attached to soil particles come from parking lots, roads, livestock lots, and crop fields. These nutrients and sediments are deposited in streams, marshes, and lakes causing reduced water-holding capacity, increased oxygen use, and accelerated plant growth. As plants die and decompose oxygen is consumed. If too little oxygen is available in the water resource fish kills may occur.

Nonpoint source pollution of excess nutrients, specifically nitrate-nitrogen, can degrade ground waters. In Wisconsin, about 10% of private drinking water wells exceed the enforcement standard health advisory level of 10 PPM nitrate. In focused monitoring in agricultural areas like the Lake Mendota watershed, over 65% of wells were above the 10 PPM nitrate enforcement standard.

Nitrate detections > 10 ppm



A nutrient management plan is required when a landowner is regulated under a county ordinance or a Wisconsin pollution discharge elimination system permit (WPDES) from DNR. A nutrient management plan is also required when a landowner voluntarily accepts government cost-share dollars for the installation of a manure storage facility or barnyard runoff control structures.

Contact your county conservation office for more information on the opportunities available regarding nutrient management planning.

Planning for implementation

➢ **Obtain UW recommendations as part of the soil test reports, and apply manure to fields that meet tolerable soil loss.**

The proposed nutrient management performance standard directs all agricultural operations to meet tolerable soil loss or "T" on all crop land fields and to apply nutrients to meet crop needs according to the existing Wisconsin's NRCS 590 standard. The foundation of this standard is soil testing at least every four years and using University of Wisconsin (UW) recommendations, which encourages applying nutrients to the economic optimum.

The QAT recommends not only following UW recommendations, but also updating all conservation plans to reflect current crop rotations and tillage before nutrient management plans are developed. We found 6 of the 15 plans may be exceeding "T" or not reflecting current cropping systems. Another plan did not consider UW recommendations for legume credits and manure was over applied with 75 to 165 additional pounds of nitrogen.

The primary factor for establishing the N recommendations is the soil's potential to yield. As N rates increase to the economic optimum, crop recovery of N decreases and the potential of nitrate loss to the environment increases.

Proper soil testing of 1 composite sample per 5 acres was last year's most pervasive problem. The QAT found the current level of activity in this category is greatly improved. If a grade could be given for 2000 it would be 87% which is an improvement from 53% in 1999 and 40% in 1998. Recommended procedures for soil sampling can be found in UW Publication A2100.

Currently, there are five FSA certified laboratories that provide UW recommendations. The nutrient management planning process is less complicated if nutrient management planners use approved labs.

Quality control samples are periodically sent to each of these labs to standardize procedures and to ensure that instruments are functioning properly. Wisconsin FSA-approved laboratories may also provide non-UW recommendations—so ask for UW recommendations from these certified labs or you might not get them.

UW Soil & Plant Analysis Lab, 5711 Mineral Point Rd	
Madison, WI 53705,	(608)262-4364
UW Soil & Forage Lab, 8396 Yellowstone Drive	
Marshfield, WI 54449	(715)387-2523
Rock River Laboratory, Route 3, N8741 River Rd,	
Watertown, WI 53904	(920)261-0446
Dairyland Laboratories, 217 E. Main Street	
Arcadia, WI 54612	(608)323-2123
Agsource Soil &Forage Lab, 106 N. Cecil Street	
Bonduel, WI 54107	(715)758-2178

➢ **Use one or two manure application rates on a farm and group fields with similar nutrient requirements. The result of grouping fields will be easier implementation with some field's nutrients slightly higher and others slightly lower than the soil test recommendations.**

The usability of the plans has improved 13% over the 1999 growing season to 80%. The average grade since 1995 is 67%. In 11 out of the 15 plans submitted for the 2000, provided a "products to purchase list" to the grower. This is improved by 13% over last year. These plans took the next step by grouping fields into the amount of fertilizer and lime product to be purchased and application rates.

Field numbering and maps improved to 88% in 2000, with the average grade since 1995 being 82%. Planners are consistently using the same field numbers from the soil tests, to the conservation plan, to the nutrient management plan, or they are providing a cross reference table to match up field identifications.

➢ **Use the enclosed Manure Information sheets for calculating manure production and spreader capacity. Apply all the manure produced on the farm and explain any plan deviation from the standard.**

Manure application rates and quantity estimates improved to the grade of 82% for year 2000. Since 1995, the average grade in this category is 76%. Three plans did not comply with manure spreading restrictions. One plan over applied the N needs of the crop with manure. Two plans complicated manure application by providing recommendations that would be difficult to implement.

We continue to see a problem on 4 of the 15 plans where manure spreading restrictions were not clearly noted on a map and not clearly explained with the map legend.

➢ **Keep in mind the flexibility that is allowed through the 590 standard.**

Soil test N recommendations may be increased by 20% for non-legume crops if the only source of N is from legumes, manure, or organic byproducts.

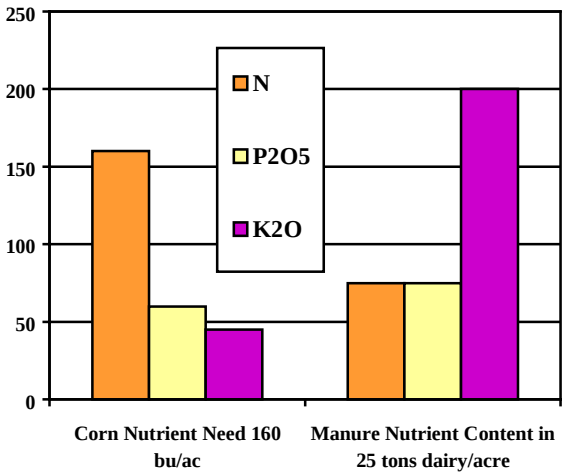
If corn after corn is conservation tilled with greater than 50% residue after planting, the amount of N may be increased by up to 30 pounds per acre.

If starter fertilizer is used, the first 20 pounds of N is not required to be counted toward crop needs.

If a non-legume crop follows a legume, a N credit is taken. This legume credit is based on stand density and late season growth and may range from 80 to 190 pounds of N credit per acre.

If nutrient deficiencies are suspected, a soil or tissue test can be taken to allow additional nutrient application recommended by the test.

The P and K soil test recommendations are based on a yield goal range. Excess P and K from organic nutrient applications can be used later in the crop rotation. Organic N-P-K nutrients can also be applied to legume crops according to N removal rates (a new alfalfa seeding



can use 60 pounds of N per ton of alfalfa produced).

Where alfalfa is to be maintained for more than 3 years, soil test potash recommendations should be increased by 20%.

➢ **Keep in mind the 590's manure spreading restrictions.**

No manure or organic byproducts applications to fields exceeding tolerable soil loss rates or waterway areas of concentrated flow.

No surface manure applications greater than 75 pounds P2O5 (phosphate) per acre per year unless incorporated within 72 hours. If incorporated within 72 hours, manure or organic byproducts may exceed the crop's P need and be applied to the crop's N need.

No manure and organic byproduct applications within 200 feet of streams, rivers, lakes, sinkholes, creviced bedrock, and wells—unless applications are incorporated within 72 hours. Also, no applications on frozen or snow covered slopes greater than 9%. Except for manure on slopes up to 12% with grassed waterways, and either contour stripcropping, or contour farming with all residue from a corn-grain crop remaining on the surface.

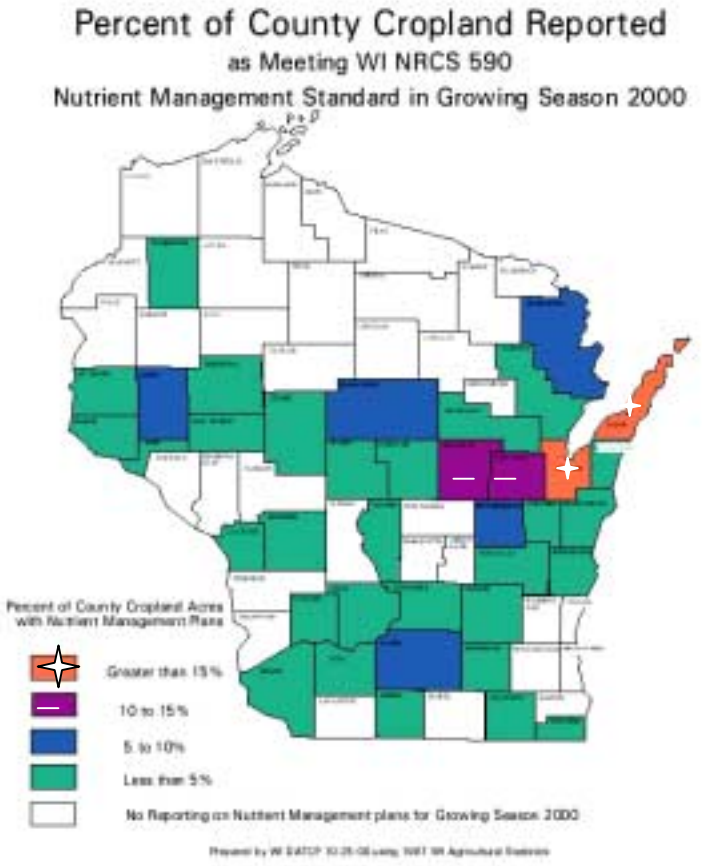
Surface applied manure and organic byproducts shall not run off the intended site during application.

QAT Farmer Survey Results

The Quality Assurance Team reviews 15 nutrient management plans every year. The farmers are asked 8 questions to determine the level of implementation, planning service value, and how NM planning could be more widely implemented. We are consistently finding that 14 of the 15 farmers intend to update their plan. They are finding these plans are good record keeping tools and educational. When asked what the value of this service is to them, we see that pest management has remained consistently valuable at about $10 to $12 per acre. However, the value of nutrient management planning has dropped. For the 2000 growing season, 5 farmers valued the nutrient management planning service at $1-$3 per acre, and 5 farmers valued it at $3-$6 per acre. In previous years, more than half the farmers thought the nutrient management planning service to be worth $3-$6 per acre. To increase nutrient management statewide, 80% of the farmers said we need to create awareness and provide education and cost-share cross compliance.

Local nutrient and pest management work Groups

DATCP, UW-NPM, NRCS, DNR, and local conservation staff are organized into regional nutrient and pest management work groups to increase the adoption of this practice and the number of planners available. These groups will provide a public and private sector forum to identify local NPM issues and training needs for conservation staff, farmers, and crop advisors. Every conservation office will need staff to promote and understand NM plans. Each county should be a clearing-house of information for crop advisors and farmers.



We found that Door (14,702 acres) and Brown (31,762 acres) Counties have more than 15% of their acres reported with nutrient management plans. Waupaca (18,543 acres) and Outagamie (23,351 acres) Counties are reporting 10% to 15% of their acreage as having nutrient management plans. Also shown are the 6 nutrient management workgroup regions.

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