

Nutrient Management Briefings – 2001

A Quality Assurance Team Review of 2001's Nutrient Management Plans

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

This report is directed toward certified crop consultants, conservation staff, and other individuals interested in nutrient management. This report summarizes the status of nutrient management in Wisconsin and describes the findings from the Quality Assurance Team's review of 15 nutrient management plans written for the 2001 growing season. Use the enclosed "Nutrient Management Plan Checklist" to assure you are addressing the required components of a nutrient management plan. And use the "Manure Information" sheets for calculating manure production and spreader capacity.

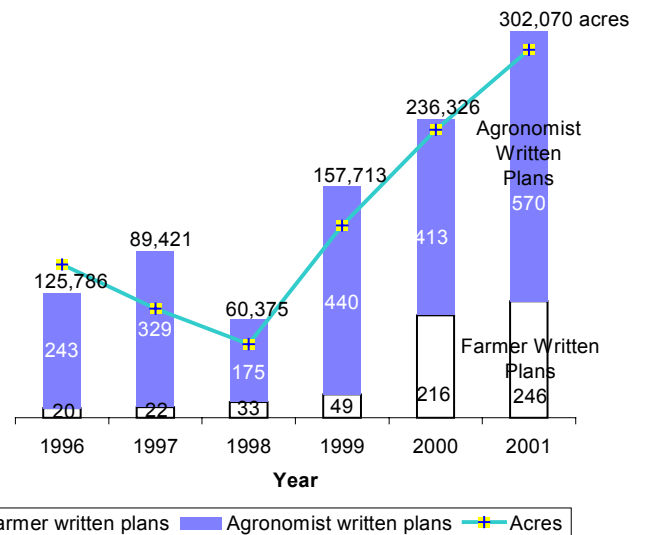
Wisconsin's quality assurance team promotes quality nutrient management plans. A properly developed and implemented nutrient management plan will maximize profitability, reduce water pollution from excess applications of plant nutrients, maintain soil productivity, and achieve realistic crop yields. According to the University of Wisconsin - Madison's Program on Ag Technology Studies, 19% of the 1999 WI Farm Poll respondents currently have nutrient management plans. These plans balance nutrients available in manure, legumes, and commercial fertilizer with the field's soil test nutrient need.

The Quality Assurance Team (QAT) reviews nutrient management plans for adherence to the Wisconsin 590 nutrient management standard. This means following the University of Wisconsin fertilizer recommendations, and using a Wisconsin Farm Services Agency (FSA) approved soil testing lab.

Since 1995, 3,026 nutrient management plans have been developed and reported for Wisconsin farmers on approximately 1 million acres. DATCP tracks nutrient management (NM) acreage planned and the number of crop advisors developing plans through the *NM Plan Checklists* submitted by farmers, agronomists, and conservation staff for every plan written under county, state, or federal programs.

In 2001, 53 counties reported nutrient management planning on 302,070 acres. The acreage reported has increased by 22% from 2000's 236,326 acres.

Nutrient Management Plans and Acres Reported 1996-2001



The nutrient management plan acreage is submitted from conservation offices, producer groups, and agronomists. Contact your county conservation office for more information on the opportunities available regarding nutrient management planning.

The number of counties reporting is also up from 38 counties in 2000, 36 counties in 1999, and 21 counties in 1998. The 2001 season involved 143 private agronomists developing plans on 237,138 acres. This is a 31% increase in planners and a 21% increase in their acres from 2000.

Farmers developed 246 plans on 64,932 acres for the 2001 growing season. This is a 12% increase in planners and a 25% increase in their acres from 2000. 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 or (13%) from the 609 certified planners from 1999. We have come far since 1996 when 463 planners held certifications.

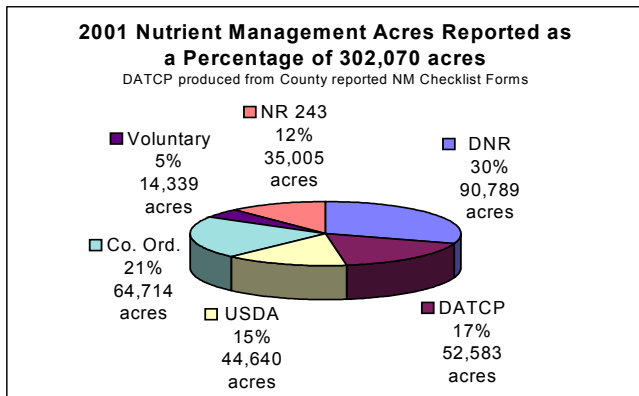
The 2001 Quality Assurance Team members:

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 Kevin Erb - UW NPM
 Shawn Esser - Marathon County Land Conservation
 Steve Ottelein - Dane County Land Conservation
 Eric Birschbach - Ag-Site Consulting
 Tom Baumann - DNR-Madison

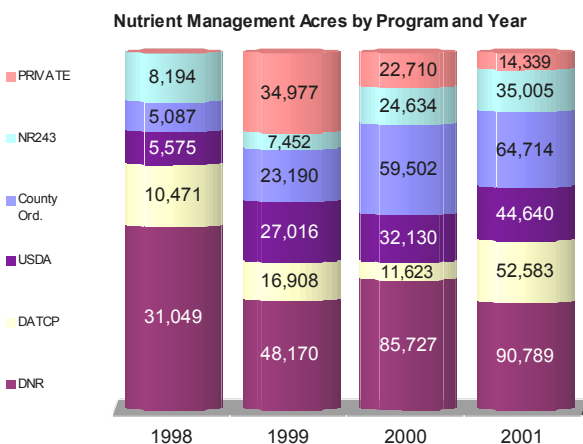
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A nutrient management plan is required when a landowner is regulated under a county ordinance or a Wisconsin pollution discharge elimination system permit (WPDES) from Wisconsin's Department of Natural Resources (DNR). A nutrient management plan is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



The percent of reported acres developed through cost-share assistance from state and federal programs was 78% in 1998, 58% in 1999, 55% in 2000, and 62% in 2001. DATCP saw a 40,960 acre increase over the 2000 growing season due to producer organization grants and grants to county land conservation departments for implementing their land and water resource management plans. County ordinances are responsible for 8% of the plan acres in 1998, 15% in 1999, 25% of the acres in year 2000, and 21% in 2001.



Nutrient loss to nonpoint source pollution

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

Nutrient management is a cost-effective means of reducing nutrient losses from cropland and controlling erosion as required by the nutrient management technical standard. Planning also stimulates adoption of related environmental practices and is an ideal stepping-stone to a systems approach for environmental management. To implement nutrient management statewide, DATCP has authority under Chapter 92.05 (3)(k) Wis. Stats., to promulgate rules for a nutrient management program that must include incentives, educational and outreach provisions, and compliance requirements. Wisconsin's future nutrient management program will be contained within the upcoming revision to ch. ATCP 50, Wis. Admin. Code for soil and water resource management. This program will require that cost shared nutrient management plans use UW nutrient recommendations and the March 1999 Wisconsin Natural Resources Conservation Services 590 Nutrient Management Standard. This program must be consistent with rules being developed at Wisconsin DNR.

Planning for implementation

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 (4 years cost-share per acre, @ \$7 per acre)
30 years	300,000 acres	6,000 new acres	\$2.1 million per year (\$8.4 m 4 year cost)
15 years	600,000 acres	12,000 new acres	\$4.2 million per year (16.8 m 4 year cost)
10 years	900,000 acres	18,000 new acres	\$6.3 million per year (25.2 m 4 year cost)

➤ Use the enclosed **Manure Information** sheets for calculating the entire farm's manure production and determine spreader capacity if applicable.

Of the plans being reviewed, we see that about 93% are including manure production estimates. This is a substantial improvement from the 60% of plans in 1999. According to UW- Madison's Program on Ag Technology Studies, 1999 WI Farm Poll, 80% of the dairy farms and 66% of other farms said they reduce chemical fertilizer use based on an estimate of the nutrients present in their manure. When asked how much they know about the nutrients present in the manure application, 20% said that they had a good idea, 45% said they had some idea, and 35% were unsure. Farmer training, manure spreader calibration, and continued implementation of the nutrient management plans will increase nutrient credit accuracy.

➤ **Clearly note manure spreading restrictions on a map, explain the restrictions with the map legend, and have a consistent field number system.**

UW- Madison's Program on Ag Technology Studies 1999 Farm Poll also shows that 60% of dairy farms, and generally 40% of livestock farms, spread daily. This year's review showed that 4 plans did not comply with manure

spreading restrictions mainly because steep slopes from the soil survey were not identified for winter spreading restrictions in the nutrient management plan. The water quality components of the 590 nutrient management standard restrict manure spreading on fields eroding above tolerable soil loss and areas of concentrated flow. Also no surface manure applications greater than 75 lbs. $P_2O_5/ac/yr.$; or applications within 200 ft. of surface water or groundwater conduits; or on greater than 12% slope; unless incorporated within 72 hrs. If incorporated in 72 hours, apply to the crop's N need.

Field numbers and maps from soil testing, the conservation plans, and the nutrient management plan, need to be identifiable to make plan implementation possible. Provide a single set of the producer's field numbers or a cross reference table to match up field numbers.

➤ **Apply manure to fields that meet tolerable soil loss as shown by the producer's conservation plan.**

The proposed nutrient management performance standard directs all agricultural operations to meet tolerable soil loss or "T" on all cropland fields and to apply nutrients to meet crop needs according to the existing Wisconsin's NRCS 590 standard. The QAT recommends updating all conservation plans to reflect current crop rotations and tillage before nutrient management plans are developed. The nutrient management plan needs to coordinate the conservation system, such as no-till, with the manure application techniques, such as surface application, to provide a total system that makes sense to the producer.

Updating conservation plans to current cropping systems has been a "bottleneck" slowing progress in nutrient management implementation. We found 4 of the 15 plans may be exceeding "T" or not reflecting current cropping systems. This is an improvement from the 6 plans lacking updated conservation plans last year. Today we are seeing more corn silage, more soybeans, and less alfalfa than there was just 10 years ago (WI Agricultural Statistics Service). Reduced crop residue means increased erosion and probably a needed update to the conservation plan in order to maintain tolerable soil loss. Currently 82% of the Wisconsin is at tolerable soil loss or less.

➤ **Explain any plan deviation from the standard.**

The 2001 plan review showed 5 plans with unexplained deviations from the 590 standard, such as, no mention of being to "T", manure applications exceeding surface P_2O_5 rates, no indication of fertilizer applications being derived from UW recommendation, and 3 plans not crediting legumes. Each plan should have a narrative explaining

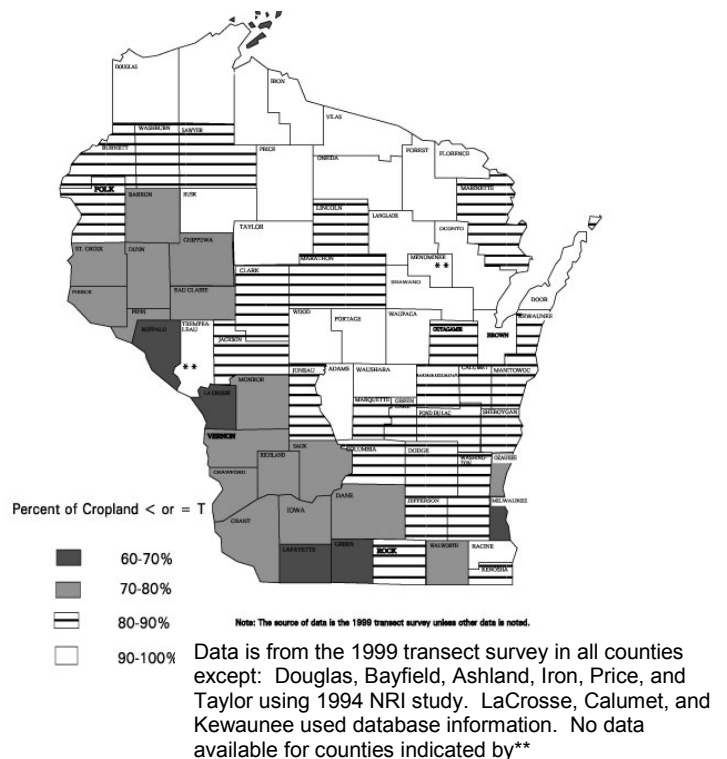
current situations such as previous manure applications not included in the plan.

➤ **Group fields with similar UW recommendations.**

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. In previous years, proper soil testing of 1 composite sample per 5 acres was a pervasive problem. The QAT found the current level of activity in this category is greatly improved. In 2001, 93% of the plans reviewed soil tested properly, which is an improvement from 53% in 1999 and 33% in 1997. Recommended procedures for soil sampling can be found in UW Publication A2100, which is currently being revised

Nine out of the 15 plans (60%) submitted for 2001 had a "products to purchase list" for the grower. Nutrient management plans need to take this next step grouping fields by the amount of fertilizer and lime product to be purchased and application rates so plans can be implemented. Two of the 15 plans did not consider UW recommendations for legume credits and manure resulting in 70 to 100 pounds over applications of nitrogen on some fields. University of Wisconsin's N recommendations are based on the soil's potential to yield and the organic matter content of the soil. As N rates increase unless data is the economic optimum, crop recovery of N decreases and the potential of nitrate loss to the environment increases.

Percent of Wisconsin Cropland Fields With Soil Erosion Rates less than or equal to Tolerable Soil Loss "T"



There are six Wisconsin FSA certified soil testing laboratories that provide UW recommendations. Quality control samples are periodically sent to each of these labs to standardize procedures and to ensure that instruments are functioning properly.

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
Agsources Soil & Forage Lab, 106 N. Cecil Street Bonduel , WI 54107	(715)758-2178
A&L Great Lakes Laboratories, 3505 Conestoga Dr. Fort Wayne , IN 46808	(219)483-4759

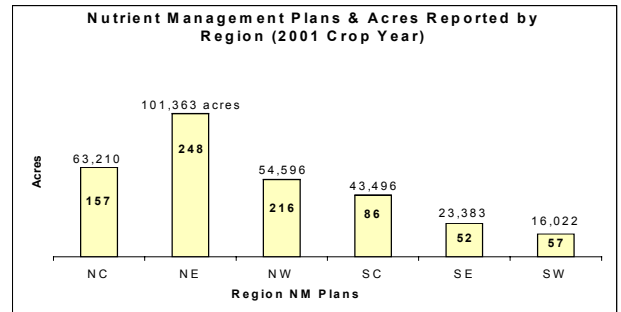
Since 1974, the UW-Madison has summarized Wisconsin FSA-approved lab data from over 3 million samples. The average soil test P levels 25 years ago was 38 PPM, 50 PPM in 1990-1994, and 52 PPM in 1995-1999. Since 1990, excess phosphorus applications reduced to where 26 of 72 counties had either no increase or showed decreases up to 7 PPM in soil test P. Assuming WI has 9 million acres of cropland we can use the 650,000 soil samples tested in the last 4 years by FSA-approved labs. If we assume the average sample covered 10 acres, we find that 72% of cropland acres are being soil tested every 4 years or about 18% annually.

QAT Farmer Survey Results

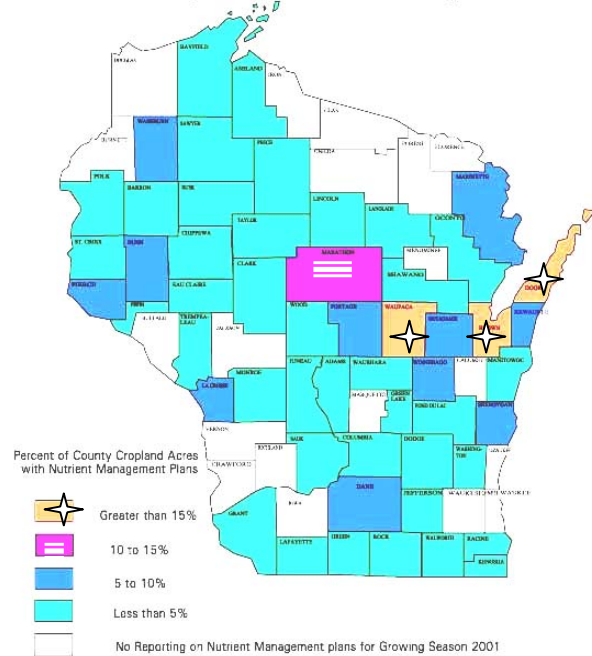
The Quality Assurance Team reviews 15 nutrient management plans every year. The farmers are asked 8 questions to determine the level of implementation, planning service value, and how NM planning could be more widely implemented. We are consistently finding that 14 of the 15 farmers intend to update their plans. They are finding these plans are good record keeping tools and educational. When asked how to increase nutrient management planning the producers responded: **–Provide more education and awareness. (5 times),–Cost share the first year to get people started and they will see the benefit and maintain the plan. (4 times),–Need to push the economics and give examples of growers who have plans and have saved money. –Produce plans with less paper. (3 times each),–Keep farmer training classes going.–Need to hold everyone to the same standard. –Provide more cost share funding.–Need more enforcement against violators at the county level to get people to do things right.–Producers worry that the regulations will not be reasonable. (2 times each), –Need to make nutrient management mandatory.–Need plan early in year.–We need to show that farmers are stewards**

of the land, their cows, and their community.–The threat of regulation will push this practice. (Each mentioned once).

When asked what the value of the nutrient management planning service is to the producers with plans reviewed this year, 2 said \$10 to \$12 per acre with pest management planning and scouting included. For the 2001 growing season, 4 farmers valued the nutrient management planning service at \$1-\$3 per acre, and 6 farmers valued it at \$3-\$6 per acre, which is very similar to last year.



Percent of County Cropland Reported as Meeting WI NRCS 590 Nutrient Management Standard in Growing Season 2001



We found that Door (15,347 acres), Brown (33,821 acres), and Waupaca (20,958 acres) Counties have more than 15% of their acres reported with nutrient management plans. Marathon County reported 10% to 15% of their acreage (27,222 acres) as having nutrient management plans.

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