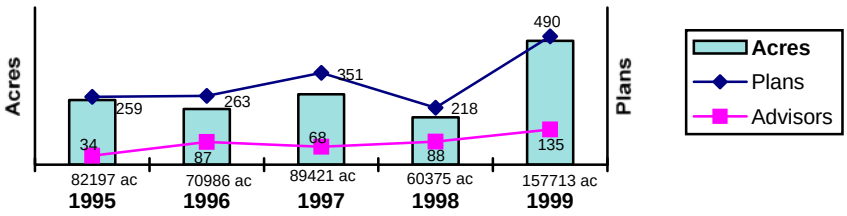
Nutrient Management Briefings - 1999

A Quality Assurance Team review of 1999's growing season'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 1999 growing season. Forms listing the required and recommended components of the nutrient management plan are enclosed.

NM Plans Written for Conservation Programs



Wisconsin's nutrient management (NM) program and the USDA-Natural Resources Conservation Service (NRCS) 590 Nutrient Management Standard were developed to address excess application of plant nutrients. These nutrients, particularly nitrogen and phosphorus, can cause severe water quality problems. Additionally, applying nutrients at rates greater than crop needs can result in unnecessary expense to the farmer.

In an effort to promote nutrient management planning (NM) and to ensure the quality of nutrient management plans, a multi-agency and agri-business group was formed in 1995. The intent of this Quality Assurance Team (QAT) is to review nutrient management plans for adherence to the 590 nutrient management standard. This means following the University of Wisconsin fertilizer recommendations and using a certified soil testing lab. In addition, the plan must be planned or approved by a qualified planner addressing the components of the *Nutrient Management Plan Checklist* (enclosed).

Since 1995, 1,581 nutrient management plans have been developed for farmers involved in county, state, or federal programs and ordinances encompassing approximately 460,000 acres.

A nutrient management plan helps farmers manage the amount, form, placement, timing, and application of animal manure, commercial fertilizers, biosolids, and other plant nutrients used in the production of agricultural crops. A properly developed and implemented nutrient management plan will maximize profitability while preventing water pollution, maintaining soil productivity, and achieving realistic crop yields.

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 the county conservation offices in your area for more information on the opportunities available regarding nutrient management planning.

DATCP tracks NM acreage planned and the number of crop advisors developing these plans through the *NM Plan Checklists* submitted by conservation staff. The *NM Plan Checklists* are required for every plan written for any county, state, or federal program.

QAT identified challenges for future nutrient management planning

The 1999 Quality Assurance Team (QAT) categorizes the findings of the QAT review of the nutrient management plans. Individual plan comments are directed into four categories: field information, soil test information, manure information, and the plan printout. All categories improved except for the plan printout. Only 6 of the 15 plans followed UW recommendations.

Nutrient recommendations must come from Wisconsin Farm Services Agency (FSA) approved laboratories. These laboratories use similar analytical procedures and follow the UW recommendation program if the sample is identified as being for cost-sharing purposes. In some cases, Wisconsin FSA - approved laboratories may also provide non-UW recommendations. Quality control samples are periodically sent to each of these labs to standardize procedures and to ensure that instruments are functioning properly.

The 1999 Quality Assurance Team members:

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Inside This Issue

Category 1 *- Soil Test Information:*

The most pervasive problem found by the QAT is related to soil testing. Soil test information has not improved. The QAT estimates the current level of activity in this category, or an overall grade, to be 67% in 1999. The 5 year average would be 70%. University of Wisconsin (UW) recommendations are required as the basis of nutrient management plans written with the NRCS 590 Standard. 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, obtain UW recommendations as part of the soil test reports, and apply manure to lower soil testing fields.

UW Soil & Plant Analysis Lab
5711 Mineral Point Rd
Madison, WI 53705
(608)262-4364

Agsource Soil &Forage Lab
106 N. Cecil Street
Bonduel, WI 54107
(715)758-2178

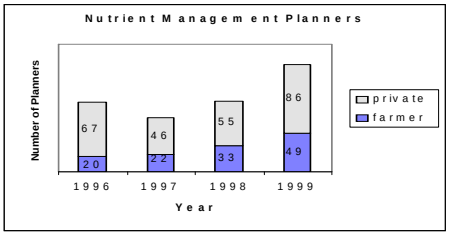
UW Soil & Forage Lab
8396 Yellowstone Drive
Marshfield, WI 54449
715)387-2523

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

Where Are the Planners?

In 1998, 21 counties reported nutrient management planning. In 1999, 36 counties reported planning. This is an increase of 15 counties. One of the main reasons for the increase is that nutrient management is being locally promoted through county, state, and federal conservation programs. During the 1999 growing season the number of nutrient management planners increased to 135 (see graph). Approximately 49 farmers developed their own nutrient management plans for the 1999 growing season. While the number of private



sector planners increased by 31 from 1998.

For 1999, we saw an overall 35% increase in the number of planners and a 62% increase in the number of acres being planned. As of November 1999, 609 individuals in Wisconsin have attained certification through the American Society of Agronomy or National Association of Independent Crop Consultants. This is an increase of 146 certified planners more than October of 1996.

Out of 46 counties that have reported planning nutrient management since 1995, 34 have stayed constant or improved the number of nutrient management planners as reported by the *NM Checklists*. These counties are:

County	Agronomists	Acres
Adams	2	265
Brown	6	9311
Calumet	2	2463
Clark	4	2081
Columbia	1	662
Dane	7	7719
Dodge	1	996
Door	3 & 28 farmer	15753
Dunn	2	2451
Eau Claire	1 & 5 farmer	1890
Fond du Lac	2 & 2 farmer	988
Kewaunee	5	3551
LaCrosse	2	2290
Lafayette	1	531
Manitowoc	4	22118
Marathon	8	15503
Marrinette	1	115
Monroe	4	982
Oconto	4	466
Outagamie	7	18600
Pierce	2	622
Portage	3 & 3 farmers	4492
Polk	4	11685
Portage	3 & 6 farmers	2952
Rusk	1	361
Sauk	4	2378
Shawano	4	5291
Taylor	3 & 5 farmers	2161
Vernon	1	1245
Walworth	1	118
Waupaca	6 & 3 farmer	12635
Waushara	1	340
Winnebago	5	3058
Wood	1	256

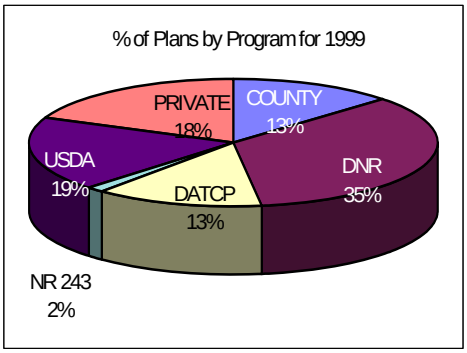
These results were submitted to DATCP from conservation offices and agronomists. Eighteen percent of the 1999 plans were voluntarily developed for farmers and reported by three planners. Eighty two percent of the 1999 plans were written for county, state, and federal programs and ordinances.

Missing the "1 composite sample per 5 acres" guideline - In 7 of the plans submitted for the 1999 growing season, soil sampling exceeding the recommended rate of 1 composite sample per 5 acres or 1 sample per field, whichever is less. If a grade could be given for 1999 it would be 53%, which is an improvement from last years 40%. One plan from this year's review had 11 soil samples for 250 acres. When planners make fertility recommendations with so few soil samples the results are likely to be inaccurate. Improperly developed fertility recommendations can lead to crop failure and a lack of confidence in the University of Wisconsin recommendations hurting continued nutrient management implementation. *Recommended procedures for soil sampling can be found in UW Publication A2100.*

Category 2 *- Manure Information:*

Manure information improved to the grade of 80%. Since 1995, the average grade in this category is 75%.

Lacking animal numbers for manure production - Approximately 40% or 6 of the 15 plans were missing animal numbers and their manure production estimates. This is also similar to last year. Some of this can be attributed to local application of the federal EQIP funding. In some counties, cost share dollars are only provided on part of the farm. The nutrient management plan should project the application of all the manure produced on this farm during the growing season or explain why the information is lacking. We recommend that the enclosed *Manure Information* sheets for calculating manure production and spreader capacity also be submitted with the nutrient management plan to the county conservation office.



***Category 3** - Field Information:*

Field information improved to above the average grade of 81% to 87% in 1999.

Confusing field numbering – Similar to 1998, twelve of the 15 nutrient management plans had understandable numbering systems that will improve the effectiveness of the plan when placed in the hands of the farmer. In 3 plans, we found that some of the field numbering systems seemed to be somewhat confusing and difficult to follow between soil testing maps, conservation maps, and the fertilizer recommendations. We suggest using a correlation table for field numbers if field numbering systems could be confusing.

Lacking manure spreading restrictions - We found 3 of the 15 plans lacked manure spreading restriction maps. Manure spreading maps should identify fields where manure should never be spread or where it can be spread but needs incorporation. These restrictions are attributed to their steep slopes, proximity to streams, areas of concentrated flow, high potential to pollute surface or groundwater, and fields exceeding the tolerable soil loss. Fields with manure spreading restrictions can be identified and explained using a map legend.

***Category 4** - Plan Printout:*

The plan printout has a category grade of 67%. The average grade since 1995 is 65%.

Missing the UW recommendation mark The QAT found that 9 of the 15 plan submitted for review had soil tests recommendations that could not be determined to meet or did not meet UW recommendations. Five of the 9 plans were first year plans and may have had previous applied manure and needed a statement in the plan if this was the reason for over application. Another five of the 9 plans had over applications of nitrogen from 60 to 500 pounds per acre. Three of 9 plans had recommendations based on crop removal even when UW soil tests recommendations were given. These recommendations are not the same as UW recommendations. When P and K soil test levels are excessively high no additional nutrient is needed with UW recs. Yet when recommendations are based on crop removals, additional P and K was still recommended on excessive testing soils.

Two of these nine plans had a public employee assisting the farmer as both planner and *Checklist* reviewer. In this situation the QAT recommends that another qualified person assist in reviewing these plans to help reduce potential errors.

Translate fertilizer into product –In 9 out of the 15 plans submitted for the 1999, planners clearly specified to the grower the amount of additional fertilizer needed for fields. This is slightly worse than last year. These plans took the next step indicating the amount of fertilizer product to be purchased and rate of application. This information seems to be helpful to the growers and makes the plan easier to use. The QAT would also like lime recommendations included in the "products to purchase list." To make the plan easy to use, the QAT recommends that planners consider using only a few application rates and products. It may also be helpful to lump fertilizer application by crop and rate.

Evaluating Implementation

I. QAT Farmer Survey Results

To be effective in improving nutrient management planning, the QAT surveyed farmers whose plans were being reviewed. We asked 8 questions to determine the level of implementation, planning service value, and how NM planning could be more widely implemented by them and their neighbors. All 15 farmers commented that their planners worked with them to learn about the farming operation and took their preferences into account. All the farmers thought the plan was easy to reference.

- Eight of the 15 farms said that they followed 80 to 100% of the plan recommendations for manure and fertilizer applications. 14 followed the recommendations on more than half their fields.
- When these farmers were asked how their plans could be improved, 13 had no suggestions saying that they liked the delivery format. The other 2 farmers each had different comments. One said the plan should allow unincorporated manure applications near waterways in the summer months. The other farmer commented that the federal program should provide cost sharing for nutrient management planning on the whole farm, not just a portion.
- When asked if they used manure and legume nutrients more effectively or saw improved profitability, 12 said yes, 1 said he has been doing NM for some time and the profits have equalized, and two said they were unsure and would need time to run the numbers.
- Plans are likely to be updated next year on 14 of the farms (93%). One farmer was unsure whether he would update the plan unless cost sharing was provided.
- When asked what they thought the service was worth, 6 farmers from Oconto, Rusk, Waushara, Wood, Taylor, and Manitowoc Counties thought $3-$7 per acre. Farmers from Fond duLac, Dodge, LaCrosse, and Pierce Counties were not sure of what the service is worth. While, 5 farmers from Outagamie, Walworth, Grant, and Columbia Counties thought that the true value of this service comes with pest management and they valued that complete service from $3-$15 per acre.
- To increase nutrient management statewide, 14 of 15 farmers said creating awareness of the practice and providing incentives are key. Many of the farmers said that more nutrient management is occurring and is not reported. One farmer suggested finding a way to increase voluntary reporting of the practice by farmers and agricultural supply.
- The number of plans that are updated from previous years is another method we looked at to help the agencies determine level of implementation. Nine of the 15 plans we reviewed for the 1999 growing season were repeat plans. As seen in this years review, farmers are making good efforts continuing to implement nutrient management practices.

II. Developing Local nutrient and pest management user Groups

DATCP, UW-NPM, NRCS, DNR, and local conservation staff are organized into regional nutrient and pest management (NPM) 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. If you are interested in participating in one of these groups, call Sue Porter at (608)224-4605 to get your name and address placed on a mailing list.

New efforts to implement nutrient management in Wisconsin

Wisconsin came through statutory changes to 92.05 (3)(k). This statute says, *"The department shall promulgate rules to improve agricultural nutrient management in this state. The rules shall be consistent with the rules promulgated under s. 281.16 (3) and shall include incentives, educational and outreach provisions and compliance requirements."*

Proposed in ATCP 50, Wis. Admin. Code……

Nutrient management planning by 2005 requires that all agricultural operations applying nutrients to cropland in Wisconsin obtain a soil tests from a Wisconsin certified soil-testing laboratory. The laboratory must provide University of Wisconsin soil testing nutrient recommendations. Nutrient applications must be based on these soil tests that are not more than 4 years old.

Nutrient management planning by 2007 requires that all agricultural operations producing or applying nutrients to cropland in Wisconsin obtain and implement a nutrient management plan written according to Wisconsin's NRCS 590 standard. The 590 standard addresses both agronomic and water quality needs according to the UW soil test recommendations. These plans should be updated yearly. Agricultural operations that do not obtain and implement a nutrient management plan will not be eligible for farmland preservation tax credits or for federal, state, or local government financial assistance programs. County ordinances may include additional penalties for noncompliance.

A qualified nutrient management planner can develop nutrient management plans. Qualified nutrient management planners can be registered under the following certification holders **1**-National Alliance of Independent Crop Consultants; **2**-Certified Crop Advisor; **3**-American Registry of Certified Professionals in Agronomy Crops and Soils –Agronomist, Crop Specialist, Crop Scientist, Soil Specialist, or Soil Scientist; or **4**-a graduate of a department approved training course or **5**-other credentials approved by the department. A qualified planner is knowledgeable and competent in *-relevant federal and state laws related to nutrient management, -the 590 standard, -using conservation plans, -soil testing, -calculating nutrient needs on a field by field basis, -crediting manure, -residual legumes, -and other nutrient sources.* Most independent crop consultants, as well as farm supply/fertilizer companies, possess certified individuals that can write nutrient management plans. A list of certified planners in your area can be obtained from your county land conservation department. Local conservation staff in each county may also help farmers write or approve their own nutrient management plans.

Cost-sharing will be offered according to county priorities designated in county land conservation department's land and water resource management plans. Some financial assistance—up to $3.00/acre—is available to farmers wishing to obtain a nutrient management plan. Farmers should contact their county land conservation department to apply for the funds. For the year 2000, DATCP is providing these funds to promote nutrient management:

$134,000 to county land conservation departments for farmer cost-sharing and staff and support costs

$40,000 to private groups working with farmers as Nutrient Management Challenge Grants

$50,000 to the UW Nutrient and Pest Management Program for neighborhood nutrient management adoption

$60,000 to the University of Wisconsin for farmer training curriculum development

Recommended Evaluation Tools

Careful evaluation will be critical to determining the success of the outreach and education efforts, incentives, and nutrient management plan implementation. After evaluation, the UW recommendations may need to be revisited for water quality reasons.

At this time, it is unknown whether or not the recommended performance and technical standards will achieve the desired water quality standards. Nutrient management strategies, and progress toward water quality standards, will be reviewed as a whole with other water quality initiatives developed through the nonpoint source program redesign process.

The following methods are possible evaluation tools.

- Measure soil for P and determine soil test phosphorous trends
- Measure statewide nutrient mass balance (N & P)
- Monitor the number of plans written and the acreage these plans cover
- Check for meaningful implementation of plans
- Monitor sediment loading erosion rates
- Measure groundwater for N trends
- Monitor surface water for N & P
- Monitor soil testing trends

Questions, comments, or suggestions about the Quality Assurance Team review of nutrient management plans should be forwarded to:

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