USDA
NATURAL RESOURCES
CONSERVATION SERVICE

DELAWARE CONSERVATION
PRACTICE STANDARD

NUTRIENT MANAGEMENT

CODE 590
(Reported by Acre)

DEFINITION

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

PURPOSES

- To budget and supply nutrients for plant production.
- To properly utilize manure or organic by-products as a plant nutrient source.
- To minimize agricultural non-point source pollution of surface and ground water resources.
- To maintain or improve the physical, chemical, and biological condition of soil.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all agricultural lands where plant nutrients and soil amendments are applied.

CONSIDERATIONS

Nutrient management planning relies heavily upon regular soil and manure testing, using proper sampling techniques and analytical methods, realistic expected yield goals, consideration of the effects of cover crops and/or crop rotations on nutrient cycling and availability for plant uptake, and the timing and placement of plant nutrients.

In developing a nutrient management plan:

1. Consider water quality standards and designated use limitations that exist locally or statewide in managing nutrients to protect the quality of water resources that are affected by the use of nutrients.

2. Consider all sources and forms of nutrients available for plant growth and production (inorganic and organic) and how they affect the crop nutrient budget for the proposed crop and target yield.

3. Consider effects of the seasonal water budget on nutrient balance and on potential nutrient losses from the plant environment to surface or ground water or to the atmosphere.

4. Consider cover crops following crop harvest, where appropriate, to utilize and recycle residual nutrients and control soil erosion. Timely planting of cover crops is essential if they are to be effective.

5. Consider the importance of soil tilth and organic matter content on plant nutrient absorption, root development, and water infiltration.

6. Consider the use of practices such as crop rotations, selection of crop varieties, waste utilization, etc., which will enhance efficiency of nutrient uptake and improve soil and soil water resource conditions.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard. contact the Natural Resources Conservation Service.

7. Consider effects of water table management or controlled drainage on availability and movement of nutrients.

8. Consider nutrient application setback distances from environmentally sensitive areas, such as streams, water bodies, sinkholes, wells, gullies, ditches, surface inlets, or rapidly permeable soil areas.

9. Consider recent test results, less than one year old, of soil, plant, manure, and wastewater used for irrigation when developing new nutrient management plans, particularly if animal manures or organic amendments are used as a nutrient source, or if any crop/farming practices have been significantly altered.

10. Consider the use of additional conservation practices that can reduce the transport and leaching of dissolved and attached nutrients, improve soil nutrient and water storage, improve aeration and soil tilth, and protect or improve water quality.

11. Consider adjustments to rate, timing, placement, method of application, and nutrient form to conform to seasonal variation in plant uptake patterns, reduce soil fixation, and avoid excessive soil solution nutrient concentrations.

12. Consider the limitations of the equipment when recommending application rates. For information on equipment for poultry manure application, see Delaware Nutrient Management Notes, Vol. II, No. I, Spring 2000 – Equipment for Effective Poultry Litter Application.

13. Consider waste management system planning, storage, and treatment needs to ensure efficient timings of waste application to crops as well as land area requirements for proper waste utilization.

14. Consider induced deficiencies of nutrients due to excessive levels of other nutrients and the effect of soil pH on the availability of both soil and applied sources of plant nutrients and the optimum pH range of the crop to be grown. The optimum pH range of the crop to be grown as well as the effect of soil pH on the availability of plant nutrients both from soil reserves and applied sources.

15. Consider induced deficiencies of nutrients due to excessive levels of other nutrients.

16. Consider application methods and timing that reduce the risk of nutrients being transported to ground and surface waters or into the atmosphere. Suggestions include, but are not limited to:

    a. Split applications of nitrogen (fertigation, sidedressing) to provide nitrogen at times of maximum crop utilization,

    b. Avoiding winter nutrient application for spring seeded crops,

    c. Avoiding nutrient applications in close proximity to surface waters (streams, ditches, pond, etc.) surface inlets, and well heads.

    d. Banding nutrients, especially phosphorus near the seed row,

    e. Applying nutrients uniformly to application areas (broadcast or banded), or as prescribed by precision agricultural techniques,

    f. Timely incorporation of land applied manures or organic by-products, in a manner and timing that minimizes soil erosion, and

    g. Delaying field application of animal manures or other organic by-products if precipitation capable of producing runoff and erosion is forecast within 24 hours of the time of the planned application.

17. Consider other soil, plant, and manure tests, such as the Pre-sidedress Nitrogen Test (PSNT), the Cornstalk Nitrogen Test, the Leaf Chlorophyll Meter, and the Soil P Saturation Ratio (PSR) that provide further information on in-season crop nutrient needs and/or monitor the success of the nutrient management practices being used.

18. Consider minimizing the impact of odors of land-applied animal manure or organic

amendments by applying when temperatures are cool and when wind direction is away from neighbors. Consider injection or incorporation of manure or other organic by-products as a means to minimize odors.

19. Ammonia nitrogen volatilization losses from land application of fertilizers and animal manures. Ammonia-N volatilization losses can become significant if available nutrients are not incorporated into the soil in a timely manner after application. Volatilized ammonia represents the loss of a valuable plant nutrient and can also potentially have a negative impact on water and soil quality upon re-deposition.

20. Modifying animal manure composition, by chemical amendments or by modification of the animal's diet, to enhance the producer's ability to manage manure more effectively.

21. Alternative uses to land application of manure or organic by-products, including the redistribution of these materials to nutrient deficit areas and the production of value-added products, such as pelletized fertilizers and compost.

22. The environmental effects of pathogens and other disease causing organisms in nutrient sources.

23. The use of planned grazing systems.

CRITERIA

Criteria Applicable to All Purposes

Plans for nutrient management shall comply with all applicable federal, state, and local laws and regulations.

Plans for nutrient management shall be developed in accordance with policy requirements of the NRCS General Manual Title 450, Part 401.03 (Technical Guides, Policy and Responsibilities) and Title 190, Part 402 (Ecological Sciences, Nutrient Management, Policy); technical requirements of the NRCS Field Office Technical Guide (FOTG); procedures contained in the National Planning Procedures Handbook (NPPH), and the NRCS National Agronomy Manual (NAM) Section 503.

Persons who review or approve plans for nutrient management shall be certified through the Delaware Department of Agriculture – Nutrient Management Certification Program (including reciprocity agreements) or a certification program acceptable to NRCS Delaware. In addition, certified planners shall take a course on the Delaware Phosphorus Site Index. NRCS may require that additional training be taken to implement current or future NRCS policy.

Plans for nutrient management that are elements of a more comprehensive conservation plan shall recognize other requirements of the conservation plan and be compatible with its other requirements.

A crop nutrient budget for nitrogen, phosphorus, and potassium shall be developed that considers all potential sources of nutrients including, but not limited to animal manure and organic by-products, wastewater, commercial fertilizer, crop residues, legume credits, and irrigation water.

Delaware Nutrient Management regulations require crop yield goals to be based on the average of the best 4 yields in the past 7 years or, in the absence of yield data, soil productivity charts in the NRCS Field Office Technical Guide (FOTG). Realistic yield goals shall be established based on soil productivity information, historical yield data, level of management and/or local research on similar soil, cropping systems, and soil, plant, and manure/organic by-products tests. For new crops or varieties, industry estimates of realistic yield goals may be used until documented yield information is available.

Nutrient management plans shall specify the form, source, amount, timing, method of application, and incorporation, if applicable, of nutrients on each field to achieve realistic yield goals, while minimizing nitrogen and/or phosphorus movement to surface and/or ground waters, and the degradation of soil and air quality.

Conservation practices to address soil erosion, runoff, and water quality shall be planned and installed on fields that receive nutrients.

Soil Sampling and Laboratory Analysis (Testing). Nutrient management planning shall be based on current soil test results developed in accordance with University of Delaware guid-

ance and recommendations. Current soil tests are those that are no older than three years.

Soil testing shall include, as a minimum, analysis for organic matter, pH, lime requirement, plant available phosphorus, and potassium. Also, soil testing shall include analysis for any other nutrients for which specific information is needed to develop the nutrient management plan.

Soil samples shall be collected and prepared according to the University of Delaware guidance and recommendations or standard industry practice. Soil test analyses shall be performed by laboratories who:

1. Use methods recommended for Delaware soils and included in the regional bulletins on recommended soil testing methods for the northeastern or southeastern United States (Sims and Wolf, 1995; Donohue, 1992) published by the USDA regional committees on soil testing – NEC-67 and SERA-6. A list of recommended methods is available from the University of Delaware and NRCS.

2. Are enrolled in the North American Proficiency Testing Program (NAPT) of the Soil Science Society of America in the year samples are analyzed and are actively submitting results to the NAPT for the methods and analyses included on the soil test report used in the nutrient management plan.

3. Provide soil test results for nutrients in units that are convertible to the University of Delaware's Fertility Index Values (FIV). Tables for converting soil test results from other laboratories to equivalent University of Delaware FIVs are available from the University of Delaware.

Plant Tissue Testing. Tissue sampling and testing, where used, shall be conducted in conjunction with a current soil test and in accordance with University of Delaware guidelines and recommendations.

Field Risk Assessment - Phosphorus Site Index (PSI) Rating. The Phosphorus Site Index assessment rating for a field is based on phosphorus loss potential due to site and transport characteristics (Part A) and phosphorus loss potential due to management practices and P source characteristics (Part B). Details on the proper method to conduct a PSI assessment are available from the University of Delaware and NRCS.

The PSI should be completed on all fields. If time is a limiting factor, the PSI shall be completed and P loss ratings shall first be determined according to the following priorities:

1. All fields with a soil test P>150 UD-FIV

2. Fields with slopes > 5% slope

3. Fields with a phosphorus leaching potential of High according to the PSI.

4. Distance of field to surface water is a value of 4 or greater, according to the PSI.

PSI evaluations of all other fields should be completed as soon as feasible.

Nutrient management plans shall include:

1. A record of the assessment rating for each field or management unit, and

2. Information about conservation practices and management activities that can reduce the potential for phosphorus movement from the site.

When the PSI assessment is completed, the results of the assessment and recommendations shall be discussed with the producer during the development of the nutrient management plan.

Nutrient Application Rates. Recommended nutrient application rates shall be based on University of Delaware recommendations that consider current soil test results, soil productivity class, expected realistic yield goals, climate, and management capabilities. Refer to the University of Delaware Nutrient Management Handbook (Sims and Gartley, 1996) for crop specific nutrient recommendations.

The planned rates of nutrient application, as documented in the nutrient management plan, shall be determined based on the following guidance:

1. **Inorganic / Commercial Fertilizer Applications.** Nitrogen, potassium and micronutrient application rates shall not exceed the recommended rates established by the University of Delaware and written in the nutrient management plan for each field or management unit. Phosphorus application rates should be based on the results of a soil test and/or P Site Index assessment of the field or management unit.

   When forage quality is an issue associated with excess potassium application, state standards shall be used to set forage quality guidelines.

2. **Irrigated Nutrients.** When irrigation is used, the nitrogen content of the irrigation water shall be determined and considered in the overall crop nutrient budget and included in the nutrient management plan. A fact sheet on this topic ("Fertigating with Groundwater Nitrogen") is available from the University of Delaware. The application rate (in/hr) for material applied through irrigation shall not exceed the soil intake/infiltration rate. The total application shall not exceed the field capacity of the soil.

3. **Liming Material.** Soil amendments should be applied, as needed, to adjust soil pH to the specific range of the crop for optimum availability and utilization of nutrients. Such applications shall be in accordance with the University of Delaware guidelines and recommendations. If the liming material also provides plant nutrients (e.g., as with lime-stabilized biosolids), especially N and P, the application rates of these nutrients must be considered in the nutrient management plan.

4. **Other Plant Nutrients.** The planned rates of application for other nutrients shall be consistent with University of Delaware guidelines and recommendations.

5. **Starter Fertilizers.** Starter fertilizers may be applied in accordance with University of Delaware guidelines and recommendations. When starter fertilizers are used, they shall be considered in the overall crop nutrient budget and included in the nutrient management plan.

Nutrient Application Timing. Timing and method of nutrient application shall correspond as closely as possible with plant nutrient uptake characteristics, while considering cropping system limitations, weather and climatic conditions, and field accessibility.

Nutrient Application Methods. Nutrients shall not be applied to frozen, snow-covered, or saturated soil.

Additional Criteria Applicable to Manure or Organic By-Products Applied as a Plant Nutrient Source

Manure/Organic Amendment Testing. Nutrient values of manure and organic amendments shall be determined prior to land application based on laboratory analyses and appropriate plant availability factors. Samples should be taken in accordance with recommendations of the University of Delaware, and as close to the application date as feasible. Adequate time should be allowed for the analyses, clean-out, spreader calibration, and field application. See Delaware Nutrient Management Notes, Vol. I, No. 9, September 2000 – Soil and Litter Sampling for Nutrient Analyses.

Analyses will be performed through a testing laboratory whose techniques are consistent with those recommended by the University of Delaware.

In those cases where a representative manure sample and analysis cannot be readily obtained, an NRCS and/or University of Delaware acceptable "book value" may be used for planning purposes. In the first year, an actual sample shall be obtained and analyzed, and the plan revised to reflect the test results. Book values recognized by NRCS may be found in the Agricultural Waste Management Field Handbook, Chapter 4 – Agricultural Waste Characteristics.

Calculating Manure Production. To calculate the amount of manure available for crop utilization from different animal types and production systems, use the information Excel worksheets provided by the University of Delaware located at: http://www.rec.udel.edu/nutrient/page4.html

Manure/Organics Applications. The planned rates of manure/organics application, as docu-

mented in the nutrient management plan, shall be determined based on the following guidance:

1. **Nitrogen Application.** Planned nitrogen application rates shall not exceed the recommended rates established by the University of Delaware and written in the nutrient management plan.

2. **Phosphorus Application.** Phosphorus applications should be consistent with the rates recommended based on the soil test and/or the P Site Index assessment of the field or management unit.

   Owners/operators will be required to have phosphorus based plans according to the time frame of the Delaware Nutrient Management Act of 1999. Participants will be phased in over five years, between 2003 – 2007.

   When the nutrient management plan is determined by the PSI results to be phosphorus based, applied manure or other organic amendments shall not exceed the recommended rates for phosphorus as described in the Phosphorus Site Index section below. In such situations, an additional nitrogen application, from inorganic sources, may be needed to supply recommended amounts of nitrogen.

   When using a phosphorus based plan based on the PSI results, the application rate of any manure/organic by-product shall not exceed the recommended nitrogen application rate.

3. **Potassium Application.** Excess potassium shall not be applied in situations in which it causes unacceptable nutrient imbalances in crops and forages.

Biosolids (Sewage Sludge). Where non-farm organic waste (e.g. municipal sewage sludge) is to be utilized, recommended application rates will be determined by using current University of Delaware recommendations and the 590 nutrient management standard and specifications.

These materials must also be applied to meet federal, state or local regulations. Appropriate documentation of amounts applied must be maintained by the applicator according to state regulations. The Delaware Department of Natural Resources and Environmental Control regulates the land treatment of wastes.

When sewage sludge is applied, the accumulation of potential pollutants, including arsenic, cadmium, copper, lead, mercury, selenium, and zinc, in the soil shall be monitored in accordance with the US Code, Reference 40 CFR, Parts 403 and 503, and/or any applicable state and local laws and regulations.

Phosphorus Site Index (PSI) Rating. The following PSI ratings are used in Delaware to determine appropriate P application rates for manure and other organic amendments:

1. **Phosphorus Site Index < 50**. Low potential for P movement from the site given current management practices and site characteristics. There is a low probability of an adverse impact to surface waters from P losses from this site. Nitrogen-based nutrient management planning is satisfactory for this site. Soil P levels and P loss potential may increase in the future due to N-based nutrient management.

2. **Phosphorus Site Index = 50 – 75**. Medium potential for P movement from the site given current management practices and site characteristics. Practices should be implemented to reduce P losses. Nitrogen-based nutrient management should be implemented no more than one year out of three. Phosphorus-based nutrient management should be implemented two years out of three during which time P applications should be limited to the amount expected to be removed from the field by crop harvest or soil test P based application recommendations, whichever is greater.

3. **Phosphorus Site Index = 76 – 100.** High potential for P movement from the site given current management practices and site characteristics. Phosphorus-based nutrient management planning should be used for this site. Phosphorus applications should be limited to the amount expected to be removed from the field by crop harvest or soil test P based application recommendations. To be consistent with the Delaware Nutrient Management Law, P applications cannot exceed

the amount of P removed in the harvested portion of the crops grown for the next three years. When P is applied at the "three-year crop removal rate", no additional P can be applied in the following two years. All practical management practices for reducing P losses should be implemented.

4. **Phosphorus Site Index > 100.** Very high potential for P movement from the site given current management practices and site characteristics. No phosphorus should be applied to this site. Active remediation techniques should be implemented to reduce the P loss potential from the site.

   To be consistent with the Delaware Nutrient Management Law, P applications cannot exceed the amount of P removed in the harvested portion of the crops grown for the next three years. When P is applied at the "three-year crop removal rate", no additional P can be applied in the following two years. All practical management practices for reducing P losses shall be implemented, and alternatives for manure transport should be addressed.

Note: The use of certain conservation practices can reduce the risk of phosphorus movement, thereby lowering the risk level from a higher category to a lower category.

Additional Criteria to Minimize Agricultural Non-point Source Pollution of Surface and Ground Water Resources

In areas with an identified or designated nutrient related water quality impairment, the Phosphorus Site Index shall be completed even if manure/organics are not being used. If time is a limiting factor, use the same priorities under Field Risk Assessment – Phosphorus Site Index (PSI) Rating on page 4 of this document. See attached map (areas in red), Delaware Drainage Basins and Watershed, Critical Areas, and Nutrient TMDL Schedules. The results of these assessments and recommendations shall be discussed with the producer and included in the plan.

Plans developed to minimize agricultural nonpoint source pollution of surface or ground water resources shall include practices and/or management activities that can reduce the risk of phosphorus movement from the field.

Additional Criteria to Improve the Physical, Chemical, and Biological Condition of the Soil

Nutrients shall be applied in such a manner as not to degrade the soil's structure, chemical properties, or biological conditions. Use of nutrient sources with high salt content will be minimized unless provisions are used to leach salts below the crop root zone.

Nutrients shall not be applied to flooded or saturated soils when the potential for soil compaction and the creation of ruts is high.

PLANS & SPECIFICATIONS

Specifications shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose(s), using nutrients to achieve production goals and to prevent or minimize water quality impairment.

OPERATION AND MAINTENANCE

The owner/client is responsible for safe operation and maintenance of this practice including all equipment. Operation and maintenance addresses the following:

1. Periodic plan review to determine if adjustments or modifications to the plan are needed. As a minimum, plans will be reviewed and revised every 3 years. More frequent reviews may be warranted and are encouraged if changes in the nutrient management plan are desirable or needed for the next planned crop.

2. Protection of fertilizer and organic by-product storage facilities from weather and accidental leakage or spillage.

3. Calibration of application equipment to ensure uniform distribution of material at planned rates.

4. Maintaining records to document plan implementation is the responsibility of the owner/client. As applicable, records include:

a. Soil test results and recommendations for nutrient application,

b. Quantities, analyses, and sources of nutrients applied,

c. Documentation of the actual rate at which nutrients were applied. When the actual rates used differ from or exceed the recommended and planned rates, records will indicate the reasons for the differences.

d. Dates (month and year) and method of nutrient applications, including type of incorporation, if applicable.

e. Crops planted, yields, and crop residues removed, and

f. Results of applicable water, plant, and/or organic by-product analyses.

g. Amount and type of manure exported from the farm and the name, address, and organization responsible for utilizing exported manure.

Records should be maintained for a minimum of six years; or for a period longer than six years if required by other federal, state, or local ordinances, or program or contract requirements.

Workers should be protected from and avoid unnecessary contact with chemical fertilizers and organic by-products. Protection should include the use of protective clothing when working with plant nutrients. Extra caution must be taken when handling ammonia sources of nutrients, or when dealing with organic wastes stored in unventilated enclosures.

Rinsate material generated by the cleaning of nutrient application equipment should be handled properly. Excess material should be collected and stored or field applied in an appropriate manner. Excess material should not be applied on areas of high potential risk for runoff or leaching.

The proper disposal or recycling of nutrient containers should be done according to state and local guidelines or regulations.

SUPPORTING DATA AND DOCUMENTATION

The following is a list of the minimum data and documentation to be recorded in the case file:

1. Aerial photograph and soil map of the site,

2. Current and/or planned plant production sequence or crop rotation,

3. Results of applicable soil, plant, water, manure, or organic by-product sample analyses,

4. Realistic yield goals for the crops in the rotation, and the method used to establish these yield goals,

5. Quantification of the amount and total nutrient content of all nutrient sources,

6. Recommended nutrient rates, timing, form, and method of application and incorporation,

7. Location of designated sensitive areas or resources and the associated, nutrient management restriction,

8. Guidance for implementation, operation, maintenance, record keeping,

9. Complete crop nutrient budget for nitrogen, phosphorus, and potassium for the annual crop, crop rotation, or crop sequence,

10. Phosphorus Site Index evaluations, if applicable and

11. Dates of review and person performing the review and recommendations that resulted from the review.

The following components shall be included in the nutrient management plan where applicable:

1. Type, number, and average size of animals,

2. Quantities of manure generated annually, total amount of manure used on the farm each year, including any imported manure, and amount and destination of all manure exported,

3. Record of the phosphorus and/or nitrogen assessment rating for each management unit including documentation for each,

4. Conservation practices and management activities needed to reduce the potential for nutrient movement from the site,

5. Crop production and nutrient management techniques needed to reduce soil phosphorus levels from "excessive" or "very high" into "optimum" ranges for crop growth,

6. Other practices or management activities, as determined by specific regulation, program requirements, or producer goals,

If increases in soil phosphorus levels are expected due to the implementation of the nutrient management plan, nutrient management plans shall include:

The soil phosphorus levels at which it is desirable to convert to a phosphorus based nutrient management plan, based on the PSI evaluation,

1. The relationship between soil phosphorus levels and potential for phosphorus transport from the field, and

2. The potential for soil phosphorus draw down from the production, harvesting, and removal of crop biomass.

When applicable, plans shall include other practices or management activities as determined by specific regulation, program requirements, or producer goals.

A nutrient management plan shall include a statement that the plan was developed based on the requirements of the current standard and any applicable federal, state, or local regulations or policies, and that changes in any of these requirements may necessitate a revision of the plan.

REFERENCES

1. Delaware Department of Agriculture. Title 3 of Delaware Code, Chapter 22, Nutrient Management.

2. Delaware Department of Agriculture. Delaware Nutrient Management Notes. http://www.state.de.us/deptagri/announcements/announce.htm

3. University of Delaware, April, 2002. Fertigating with Groundwater Nitrogen (NM-05).

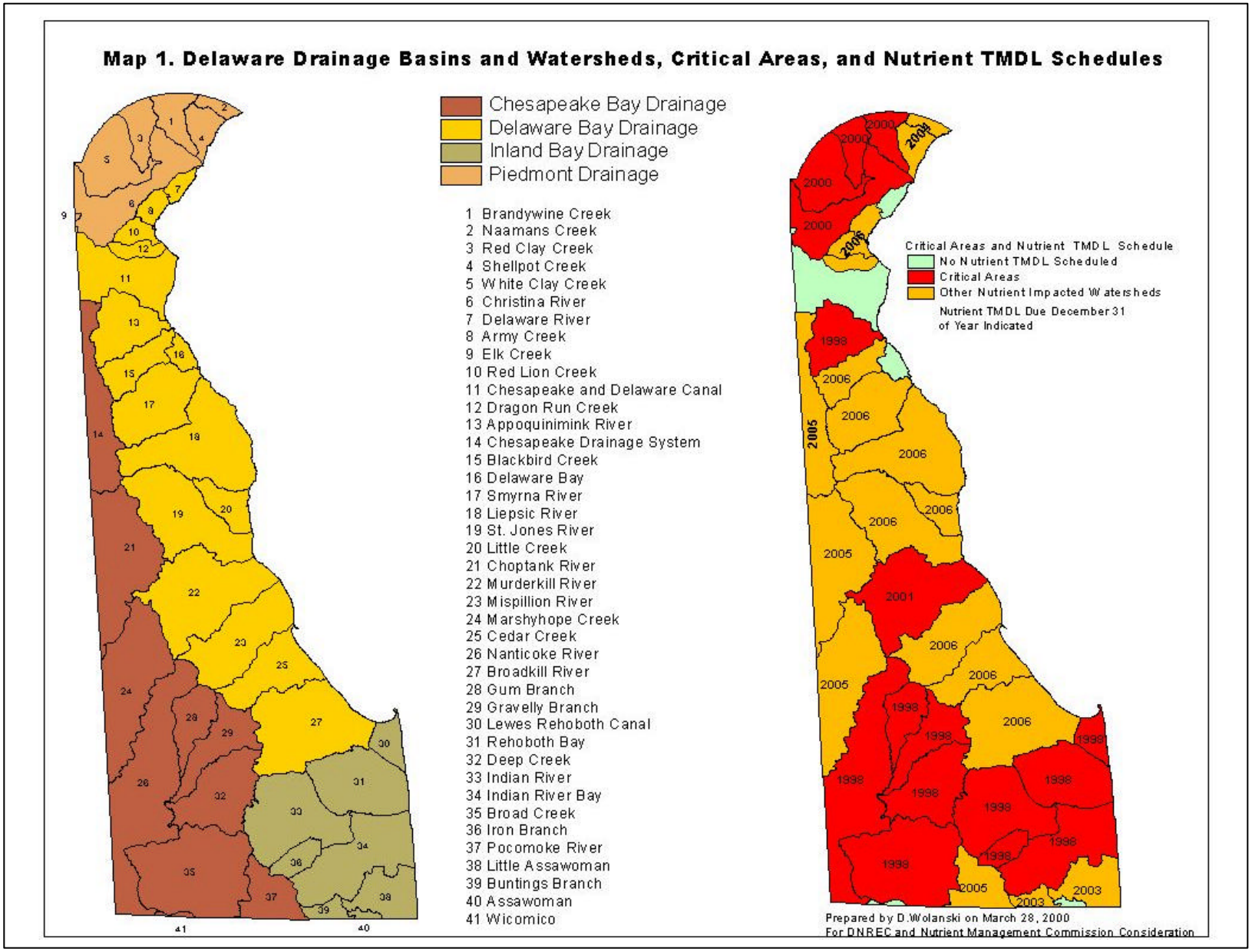
4. University of Delaware, January, 2002. Interpreting Soil Phosphorus Tests (NM-04)

5. University of Delaware, January, 2002. The Phosphorus Site Index: A Phosphorus Management Strategy of Delaware's Agricultural Soils (ST-05).

6. University of Delaware, May, 2002. Phosphorus Removal by Delaware Crop (NM-06).

7. University of Delaware, 1996. Nutrient Management Handbook.

8. USDA, Natural Resources Conservation Service, April, 1992. Agricultural Waste Management Field Handbook.


Map 1. Delaware Drainage Basins and Watersheds, Critical Areas, and Nutrient TMDL Schedules
Chesapeake Bay Drainage
Delaware Bay Drainage
Inland Bay Drainage
Piedmont Drainage
1 Brandywine Creek
2 Naamans Creek
3 Red Clay Creek
4 Shellpot Creek
5 White Clay Creek
6 Christina River
7 Delaware River
8 Army Creek
9 Elk Creek
10 Red Lion Creek
11 Chesapeake and Delaware Canal
12 Dragon Run Creek
13 Appoquinimink River
14 Chesapeake Drainage System
15 Blackbird Creek
16 Delaware Bay
17 Smyrna River
18 Liepsic River
19 St. Jones River
20 Little Creek
21 Choptank River
22 Murderkill River
23 Mispillion River
24 Marshyhope Creek
25 Cedar Creek
26 Nanticoke River
27 Broadkill River
28 Gum Branch
29 Gravelly Branch
30 Lewes Rehoboth Canal
31 Rehoboth Bay
32 Deep Creek
33 Indian River
34 Indian River Bay
35 Broad Creek
36 Iron Branch
37 Pocomoke River
38 Little Assawoman
39 Buntings Branch
40 Assawoman
41 Wicomico
Critical Areas and Nutrient TMDL Schedule
No Nutrient TMDL Scheduled
Critical Areas
Other Nutrient Impacted Watersheds
Nutrient TMDL Due December 31 of Year Indicated
Prepared by D.Wolanski on March 28, 2000
For DNREC and Nutrient Management Commission Consideration