



# Maryland Nutrient Management

## Consultant's Resource Notebook



**Maryland Department of Agriculture**  
Nutrient Management Program  
50 Harry S. Truman Parkway  
Annapolis, Maryland 21401  
410-841-5959

# Introduction

This notebook contains a variety of resources that you will turn to over and over as you work with agricultural operators.

The design follows the outline of the "Fundamentals" course, allowing you to add notes and handouts. Space has been left intentionally for you to add materials in the future. The MDA Nutrient Management Program will help you keep your "Law, Regulations and Reference Manual" up to date. This notebook however, is yours. Use the internet references and continuing education courses to keep your notes up to date. Add materials that relate to the type of operations you work with.

## Materials for "Fundamentals of Nutrient Management Course"

- 1) Textbook: "Chesapeake Bay Region Nutrient Management Training Manual"  
New version just released digitally:  
[http://www.agnr.umd.edu/users/waterqual/themes/nutrient\\_management/manmh2006.htm](http://www.agnr.umd.edu/users/waterqual/themes/nutrient_management/manmh2006.htm)
- 2) Notebook: "Maryland Nutrient Management: Law, Regulations and Manual"
- 3) Consultant's Resource Notebook

## Course Description for "Fundamentals of Nutrient Management"

This two-day course provides instruction in the basic concepts of nutrient management required to pass the Nutrient Management Certification Exam. The exam consists of 100 multiple choice questions from nine knowledge areas. Eight of these knowledge areas are covered by the "Chesapeake Bay Region Nutrient Management Training Manual." Each of the Bay states uses this core question pool for its certification exam. The ninth knowledge area is specific to Maryland.

Knowledge Area	Percentage
1. General Nutrient Management	10
2. Basic Soil Science	12
3. Agricultural & Environmental Management	15
4. Sampling, Testing and Analysis	10
5. Basic Soil Fertility	15
6. Fertilizer Management	10
7. Manure Management	12
8. Biosolids (Sludge) Management	6
9. Technical Recommendations, Regulations & Incentives	10
<b>Total</b>	<b>100</b>

## Reciprocity Agreements

Maryland, Pennsylvania, Virginia and Delaware have reciprocity agreements on training, exam standards, certification and continuing education credits. Persons seeking certification in Maryland who plan to work in PA, VA or DE need to consult their state nutrient management program for state-specific regulations and requirements.

## Questions or comments should be directed to:

Maryland Nutrient Management Program  
Maryland Department of Agriculture  
50 Harry S. Truman Parkway  
Annapolis, MD 21401  
Phone: 410-841-5959 Fax: 410-841-5950

# Consultant's Resource Notebook

## Table of Contents



- I. **Soil Science and Soil Fertility Tools**
  - Maryland Leaching Indices for Nitrates and Soluble Nutrients
  - Rainfall Data for Maryland Counties
  - Sources for Soil Maps
  - Soil pH Management and Determining Liming Rates
  
- II. **Soil, Tissue & Manure Assessment**
  - Soil Sampling Procedures for Nutrient Management
  - Comparison of Soil Test Labs
  - Equivalent Phosphorus Index Threshold Levels
  - Making Decisions for Nitrogen Fertilization Using PSNT
  - Plant Tissue Analysis
  - Comparison of Some Labs Testing Plant Tissue
  - Sampling Manure for Nutrient Content
  - Comparison of Some Labs Testing Manure
  - Sampling Litter for Nutrient Content in Poultry Houses
  
- III. **Developing Nutrient Recommendations**
  - MD's Agronomic Soil Capability Assessment Program (MASCAP)
  - Phosphorus Removal by Crops in Mid-Atlantic
  - The Maryland Phosphorus Site Index: An Overview
  
- IV. **Management of Nutrient Sources**

---

  - Manure Management
    - Manure Production Rate and Quantity Estimation
    - Density of Bedding Materials
    - Determining the Amount of Manure in a Pile or a Pool
    - Poultry Waste Production & Storage Calculation Sheet
    - Converting From Dry-weight to Wet-weight Basis
  - Biosolids/Sludge
    - MDE: Sewage Sludge Utilization in Maryland
    - Guidelines for Application of Digested Sewage Sludge & Composted Sewage Sludge to Agricultural Land
  
- V. **Certification and Licensing**
  - Application for Consultant Certification & Application for License
  - Guidelines & Procedures for Inspection of Certified Nutrient Management Plans
  - Guidelines for Continuing Education & Request for Approval Form

**VI. Plan Development**

- Finding Watershed Codes on the Internet
- Watershed Codes & Watershed Map Order Form
- Plan Reporting Form
- Annual Implementation Report Form & Instructions

**VII. Incentives**

- Technical Assistance and Cost Share Program
- Income Tax Subtractions

**Appendix 1: Software & Internet Resources**

- Nutrient Management Resources on the Internet
- Nutrient Management Planning Software

**Appendix 2: Nutrient Recommendations not yet in the Reference Manual**

- Fertilizer Recommendations for Landscape Trees & Shrubs
- Mineralization Rates for Organic Nutrient Sources

**Appendix 3: Telephone Contacts**

Table 1. Comparison of some labs testing manure

Lab Information	Minimum Package to Request	Sample Size Solid/Liquid
A & L Eastern Agricultural Laboratories, Inc. 7621 Whitepine Road Richmond, VA 23237 Ph: 804-743-9401  www.al-labs-eastern.com	<u>M1 package</u> N (total), NH <sub>4</sub> -N, P <sub>2</sub> O <sub>5</sub> , K <sub>2</sub> O, % moisture, and density (lbs/100 gallons)	2 cups/2 cups
Agri Analysis, Inc. 280 Newport Road P.O. Box 483 Leola, PA 17540 Ph: 717-656-9326  www.agrianalysis.com	<u>MDMP4 package</u> N (total), NH <sub>4</sub> -N, P <sub>2</sub> O <sub>5</sub> , K <sub>2</sub> O, % moisture, density (lbs/100 gallons), and % dry matter	4 cups/2 cups
Agricultural Analytical Services Laboratory Penn State University University Park, PA 16802 Ph: 814-863-0841  www.aasl.psu.edu	<u>Standard Manure Test 1</u> N (total), NH <sub>4</sub> -N, P <sub>2</sub> O <sub>5</sub> , K <sub>2</sub> O, and % solids	2 cups/2 cups
Spectrum Analytic, Inc. P.O. Box 639 1087 Jamison Road NW Washington Court House, OH 43160 Ph: 800-321-1562  www.spectrumanalytic.com	<u>M3 package</u> N (total), NH <sub>4</sub> -N, P <sub>2</sub> O <sub>5</sub> , K <sub>2</sub> O, % moisture, and % solids	1 cup/2 cups
Waters Agricultural Laboratories, Inc. P.O. Box 382 257 Newton Highway Camilla, GA 31730-0382 Ph: 229-336-7216  www.watersag.com	<u>#1 Maryland package</u> N (total), NH <sub>4</sub> -N, P <sub>2</sub> O <sub>5</sub> , K <sub>2</sub> O, and % moisture	4 cups/2 cups

**General Principles of Packaging and Shipping**

- Label bag or bottle with your name, address, and a manure identification.
- Keep sample cool (preferably refrigerated) until shipment.
- Ship early in the week so the sample does not sit in a mail handling facility over the weekend.
- Ship as soon as possible to minimize sample degradation.