MD Nutrient Management Plans
History, Requirements & Changes Over Time

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Acknowledgment

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History

Talk is Cheap. Try Manure!
Driving Force

• Chesapeake Bay Agreement (1987)
• Goal: reduce nutrient loading by 40% by 2000
  • agriculture was viewed as a significant contributor to nutrients
  • nutrient management plans on 1.25 millions acres
New Initiative

• 1989 - new program and new staff
• funded by Maryland Department of Agriculture
• focused on 14 counties with significant animal production
• formulated the idea of an integrated nutrient management plan
• promote development of nutrient management plans
Simple Message!

• Soil Test

• Manure Analysis

• Field Specific Nutrient Recommendations
Expansion in 1992

• additional advisors
• federal funds
• all counties had some planning efforts
• nutrient management law
• codified process to certify nutrient management consultants
• codified contents of nutrient management plans
Training & Technical Support

• Pre-exam training
• MDA Nutrient Management Advisor
• Continuing education – (12 hours every 3 years)
• Extension specialists provide pre-exam training
• Extension educators provide continuing education training
Nutrient Management in 1997 & 1998

• water quality-related fish kills in 1997
• Water Quality Improvement Act (WQIA) of 1998
• Made nutrient management plans for most ag producers mandatory
• Required focus on nitrogen & phosphorus in plans
2003 – Certified Farm Operators

- Law amended to allow farmers to write own plan
- Focused training was developed
- New track of continuing education and technical support was put in place
Requirements
What is Involved in the Plan Writing Process?

The plan writing process involves the following steps:

1. Data collection
2. Soil sampling and testing
3. Manure sampling and testing
4. Compost testing
5. Tissue sampling and testing
What is Involved in the Plan Writing Process?

6. Calculating the Phosphorus Site Index (PSI) and the University of Maryland Phosphorus Management Tool (UM-PMT)

7. Generating recommendations

8. Compiling and reviewing your nutrient management plan

9. Submitting plan components and reporting form to the Maryland Department of Agriculture (first reporting only)

10. Record keeping

11. Follow up
The Nutrient Management Planning Process

1. Collect data.
2. Collect soil samples or obtain soil tests.
   - Are manure, compost, or P-bearing fertilizers intended for use on any fields where FIV-P ≥ 150?
     - YES: Calculate PSI for fields whose FIV-P ≥ 150.
     - NO: Is FIV-P ≥ 150 for any field?
       - YES: Are animals raised or is manure or compost used on the farm?
         - YES: Collect manure or compost sample.
         - NO: Develop recommendations.
       - NO: Collect manure or compost produced or available.

3. Develop recommendations.
4. Is land base adequate for manure utilization?
   - YES: Compile, review, and deliver plan.
   - NO: There is excess manure. Provide name & address of export destination in nutrient management plan.

5. Follow up.
6. Update.
Step 1. Data Collection

• Collecting and carefully organizing information (data collection) from the field site along with the producer interview is the first step in developing a nutrient management plan. The following worksheets and information sheets will assist you with the data collection step of nutrient management plan development.

• Farm Data Collection Sheet
• Field Data Collection Sheet
• Poultry Production and Litter Data Collection Sheet
• Animal Production and Manure Data Collection Sheet
• Finding Tax Account ID Numbers
• Farm Maps
• Watershed Maps
• Using Google Earth for Maps
Step 2. Soil Sampling and Testing

- Representative soil samples, which have been properly collected and analyzed, become the basis for nutrient recommendations. The following worksheets and information sheets will assist you with the soil sampling and testing step of nutrient management plan development.

- Soil Sampling Procedures for Nutrient Management Instruction Card
- Soil Sampling Procedures for Nutrient Management Instruction Card
- Comparison of Soil Test Labs
- Examples of Soil Test Reports
- SFM-3 "Descriptions of the Soil Test Interpretive Categories Used by the University of Maryland Soil Testing Laboratory"
- SFM-4 "Interconverting Among Soil Test Analyses Frequently Used in Maryland"
- Obtaining Electronic Copies of Soil Test Results for Importing Into NuMan Pro
- Soil Test Levels (FIVs), Soil Test Category and Yield Response
Step 3. Manure (and Other Organic Source) Sampling and Testing

- Obtaining a representative organic sample is the basis for developing reliable recommendations for manures and other organic sources. The following worksheets and information sheets will assist you with the manure sampling and testing step of nutrient management plan development.

- Using Manure from Operations Requiring Nutrient Management Plans on Operator's Home Garden (7/09)
- NM-6 "Sampling Manure for Nutrient Content"
- Comparison of Some Labs Testing Manure and Other Organic Sources (Updated 5-23-16)
- 2003 Manure Summary Report
- Mineralization Rates for Organic Nutrient Sources
- Ammonium Conservation Coefficients
- Manure Quantity Estimation Sheet For Solid Manure (Excel spreadsheet)
- Manure Quantity Estimation Sheet For Solid and Liquid Manure (Excel spreadsheet)
- Manure Quantity Estimation Sheet For Very Small Animal Operations - For Solid Manure (Excel spreadsheet)
- Poultry Litter Quantity Estimation - Multi-year version (Excel spreadsheet)
- Converting Nutrient Content of Wastes from a Dry-weight Basis to an As-received (Wet) Basis
- Manure Production Rate Table
- Density of Bedding Materials Table
- Rainfall Data for Maryland Counties
- 2016 Sewage Sludge Plant Available Nitrogen (PAN) Rates Table (Maryland Department of the Environment)
- Manure Utilization/Allocation Excel Spreadsheet (Long Form)
- Manure Utilization/Allocation Excel Spreadsheet (Short Form)
- PFRP Biosolids Labels
ETC.

• Very complicated
Changes Over Time

• Voluntary to Mandatory
• One year plans, some three year plans
• Nitrogen based plans to Phosphorous based plans
• Phosphorus Site Index to Phosphorus Management Tool (PMT)
  • PMT – Risk levels and Tiers
• Setbacks for
  • Nutrient Application
  • Livestock
  • Pastures
Changes Over Time

Expansion of cover page now includes the following:

• BRIEF DESCRIPTION OF OPERATION: (type and size of operation)
• DATE OF PLAN: (date completed)
• DURATION OF PLAN: [season(s) and year(s) the plan includes]
• SOIL SAMPLING AND TESTING
• MANURE SAMPLING AND TESTING:
• BASIS OF RECOMMENDATIONS:
• SOURCE OF YIELD GOAL INFORMATION:
• PSI & PMT
• AVERAGE SOIL PHOSPHORU FERTILTY INDEX VALUE:
• NUTRIENT APPLICATION EQUIPMENT CALIBRATION:
• TIMING:
• BEST MANAGEMENT PRACTICES:
• CUSTOM APPLICATION OF NUTRIENTS:
• RECORD KEEPING REQUIREMENTS:
Implementation

• Nutrient Applicator Voucher Training
• Annual Implementation Reporting
• Application Dates
  • Fertilizer March 1 to Nov 15
• Spreader calibrated and documented
• Stockpiling
• Incorporation of Manure, organic sources within 48 hours.
• Preside-dress nitrate test (PSNT)
• Fall soil Nitrate Test (FSNT)
• Recordkeeping
Publications and Outreach

- Website
- Publication series for both certified farmers and certified consultants
- Annual Report highlights nutrient-related activities across the College
2015

• 5,489 operators
• 1.298 million acres under Nutrient Management
• 97.7% in compliance with Annual Implementation Report
• 70% in compliance when audited
  • 19% are incomplete or expired
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