Nutrient Management Update

Howard Callahan Region 5A
Maryland Department of Agriculture
Nutrient Management Program
410-822-8126

Website: www.mda.maryland.gov
2015 AIR

Forms were mailed to operators in early January‘16. Regular and CAFO operations. Due back to MDA by March 1, 2016.

2015 form is basically the same as 2014. Other than info on manure import/export in or out of State of Maryland was added.
**Nutrient Management Annual Implementation Report**

*For Calendar Year 2015 - Due March 1, 2016*

**Incomplete Information Will Be Deemed Inadequate and May Force MDA to Seek Monetary Penalties.**

### Farmer/Operator Information

1. County __________________________
2. MDA Operator Number ________________
3. Operator/Owner Legal Name Last __________________________ Suffix __________________________
   First __________________________ Middle __________________________
4. Farm/Operation Name __________________________
5. Mailing Address __________________________
9. E-Mail address __________________________
10. Telephone Number(s) Office __________________________ Home __________________________ Cell __________________________

### Farm/Operation Information

11. ________ Total Farmed Acres including Pastures

12. Operation Type (Check all that apply)
   - [ ] Crop Production
   - [ ] Hay / Pasture
   - [ ] Nursery/Greenhouse
   - [ ] Organic
   - [ ] Animal
   - [ ] No-Land (0 Managed Acres)
   - [ ] Other __________________________

13. Nutrient Sources (Check all that apply)
   - [ ] Commercial Fertilizers
   - [ ] Biosolids/Sewage Sludge
   - [ ] Animal Manure
   - [ ] Other __________________________

   - [ ] Beef, cows and bulls
   - [ ] Beef, feeder cattle, 500 lbs and over
   - [ ] Beef, young stock, less than 500 lbs
   - [ ] Dairy, cows
   - [ ] Dairy, heifers
   - [ ] Dairy, calves
   - [ ] Swine, sows and boars
   - [ ] Swine, growers
   - [ ] Sheep
   - [ ] Goats
   - [ ] Horses
   - [ ] Other __________________________

### Poultry (continued)

15. Poultry (in 1,000s per flock)
   - [ ] Brolers/1000s Roasters ___________ Pullets ___________
   - [ ] Layers ___________ Turkeys ___________

16. ________ Number of Flocks per year

17. Poultry Company Name:

18. ________ Number of Poultry Houses

19. ________ Total square feet of all poultry houses

20. ________ Poultry litter (tons) removed during crust outs
    - [ ] Check if Windrowed

21. ________ Poultry litter in tons removed during partial or total cleanout(s)

22. Account ID updates - List changes to Account ID’s, and check if added or deleted from operation since your 2014 AIR report. Attach additional pages if needed.

   - [ ] No change of account ID(s)
     
     Added Deleted
     - [ ] __________________________
     - [ ] __________________________
     - [ ] __________________________
     - [ ] __________________________

### Manure/Organics

23. ________ tons Solid manure collected (other than poultry)

24. ________ gals. Liquid manure/waste collected

25. Manure or Organics, all sources, imported or exported within the State of Maryland.

| Imported | □ Check if None |
| Tons | Gallons |
| ______ | ______ |
| Manure/Poultry Litter | Biosolids/Sewage Sludge | Other Organics |

| Exported | □ Check if None |
| Tons | Gallons |
| ______ | ______ |
| Manure/Poultry Litter | Biosolids/Sewage Sludge | Other Organics |
26. Manure or Organics, all sources, imported from or exported to another state.

<table>
<thead>
<tr>
<th>Imported State</th>
<th>☐ Check if None</th>
<th>Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Manure/Poultry Litter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Biosolids/Sewage Sludge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other Organics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exported State</th>
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<th>Gallons</th>
</tr>
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<tr>
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<tr>
<td></td>
<td></td>
<td>Biosolids/Sewage Sludge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other Organics</td>
</tr>
</tbody>
</table>

27. _______ Tons  _______ Gals. Total manure used, including imported from all animal types.

28. Number of manure storage structures?  ☐ Check if None

29. _______ Cu. Ft  _______ Gals  _______ Tons Total available storage

30. Yes ☐ No ☐ Temporary stockpiling of manure/organics?

Innovative Management Practices

Total Number of Acres for each question. Put “0” if not applicable.

31. _______ Liquid manure applied with injector or other sub-surface applicator.
32. _______ Liquid manure incorporated within 48 hrs with vertical tillage equipment (Ex: “Turbo Till”).
33. _______ Poultry litter incorporated within 48 hrs with vertical tillage equipment (Ex: “Turbo Till”).
34. _______ Container nursery/greenhouse irrigation runoff and leachate capture and reuse.
35. _______ Acres under conservation tillage with 30%-59% residue coverage at planting.
36. _______ Acres under conservation tillage with 60% or more residue coverage at planting.
37. _______ Enhanced Decision Management, such as variable rate fertilizer application and/or soil nitrate tests (Ex: GreenSeeker, PSNT, FSNT).
38. _______ Crop land under irrigation.

Nutrient Management Consultant and Plan Information

39. Name of Plan Writer:

40. Certificate # __________________
41. License # __________________
42. Date Plan Written: _____/_____/_______
43. Date Plan Expires: _____/_____/_______

Report Certification: The information contained within this 2015 Nutrient Management Annual Implementation Report (AIR) is true to the best of my knowledge. A valid nutrient management plan for my operation(s) for calendar year 2016 will be developed and implemented.

44. Operator’s Signature

45. Printed Name:

46. Date signed:
47. **Summary of Nutrient Applications by Crop**  See Instructions for help with this table.

**TOTAL pounds of AVAILABLE nutrients applied.** If you did not apply nutrients, list the crop, the crop acreage and write “none applied” across the row.

<table>
<thead>
<tr>
<th>CROP Include Pastures</th>
<th>Acres</th>
<th>Commercial Fertilizer in pounds</th>
<th>Manure in pounds</th>
<th>Sewage Sludge in pounds</th>
<th>Other Organic Sources in pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn grain, dry land</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td>Corn grain, irrigated</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td>Corn silage</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td>Soybeans, full season</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td>Soybeans, double crop</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td>Small grains, Spring 2015</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td>Small grains, Fall 2015</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td>Hay, grass</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td>Hay, legume</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td>Pasture</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td>Vegetables</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td>Tobacco</td>
<td></td>
<td>N</td>
<td>$P_2O_5$</td>
<td>$K_2O$</td>
<td>N</td>
</tr>
<tr>
<td><strong>List other crops below:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Timing of Manure Application

**Spring/Summer/Fall Applications**
Inject or Incorporate within 48 hours unless eligible for exemption.

**Fall Applications**
Fallow cropland must be planted to cover crop.

**Winter Applications**
The exemptions for incorporation do not apply. Liquid manure only, solid manure must be stacked and spread later.
If any of the following conditions exist, the material is not required to be injected or incorporated:

a. Livestock manures deposited directly by animals;

b. Permanent pastures;

c. Land used for hay production;

d. Fields containing highly erodible land as defined by USDA-NRCS in its Field Office Technical Guide;

e. Fields in which a current soil conservation and water quality plan or a current USDA/NRCS program requirement prohibits or otherwise restricts soil disturbance; or

f. Land where nutrients are applied to a growing crop through a spray irrigation system.
Winter Application of Organic Nutrients
A Realistic Plan for 11/15/15 – 3/1/16

• Liquid, non-stackable manure can be spread on hay ground, cover crops, or other vegetated fields.

• Operators should inform MDA either directly or through their NM Advisor or through the SCD.

• The SCD should schedule a farm visit to meet with the operator to discuss a plan to adequately meet future needs.
Plan Now for Additional Waste Storage Needs

July 2016- No winter spreading allowed for farms with more than 50 animal units.

July 2020- No winter spreading allowed for anybody including the smaller farms.

We do allow stockpiling of solid manure, but that should be considered temporary.
TEMPORARY FIELD STOCKPILING FOR ORGANIC NUTRIENT SOURCES

General Provisions (Abbreviated Version)

1. When other immediate use options and alternatives are not available, temporary field stockpiling (staging) of organic nutrient sources is allowed.
   - Temporary field stockpiling (staging) provides greater environmental protection than a fall or winter application of nutrients or applying nutrients too far ahead of normal planting time and crop uptake.

2. Existing storage shall be fully used prior to stockpiling material in the field.

3. Any material staged in field stockpile shall be land applied in the first spring season following the placement of the stockpile.

4. Materials shall be field stockpiled (staged) temporarily in a manner that prevents nutrient runoff.
A. "Nutrient Application Setback" means:

- A **vegetated area** of a prescribed width **where nutrient containing material may not be applied**.

- as measured from the edge of surface water, including **perennial and intermittent streams**.
  - An intermittent stream means a stream or the reach of a stream that is below the local water table for at least some part of the year, and obtains its flow from both surface runoff and ground water discharge.
SETBACKS FOR NUTRIENT APPLICATION

Surface water does not include:

1. **Ephemeral streams**
   defined as streams which flow only in direct response to precipitation in the immediate watershed and which have a channel bottom that is always above the local water table;

2. **Irrigation and treatment ditches**

3. **Field ditches**, which, for purposes of this exception, are defined as channelized waterways that, as provided in the USDA-NRCS National Cooperative Soil Survey, are not within:
   a. A floodplain soil mapping unit;
   b. A hydric soil unit and mapped as a narrow, elongated feature in a fluvial/floodplain position; or
   c. A soil mapping unit that has a “B" slope class or steeper.
B. **Effective January 1, 2014**, a person who uses nutrients shall implement the following nutrient application setback requirements:

1. An application using a broadcast method *(e.g., spinners, splashers)* either with or without incorporation requires a **35-foot setback**.

2. A directed spray application or injection of crop nutrients requires a **10-foot setback**.

3. Excepting perennial forage crops grown for hay or pasture, vegetation in the **10-foot setback area** may not include crop plants.

4. Pastures and hayfields are subject to a **10-foot setback**.
SETBACKS FOR NUTRIENT APPLICATION (con’t)

5. Nutrients may not be applied mechanically within the setback. Except as provided in subsection II.B.6, livestock shall be excluded from the setback to prevent direct deposition of nutrients within the setback.

6. As an alternative to fencing livestock from the setback area, a person shall work with the soil conservation district to develop and implement a Soil Conservation and Water Quality Plan with (BMPs) such as stream crossings, alternative watering facilities, pasture management or other MDA-approved BMPs.

7. As an alternative to a nutrient application setback, MDA may approve other BMPs that it finds equally protective of water quality and stream health. USDA-NRCS, University of Maryland or other land grant university establishing the effectiveness of these practices.

8. Sacrifice lots (less than 75% grass or grass legume mix) shall maintain a 35-foot set back.
# Nutrient Application Setbacks

<table>
<thead>
<tr>
<th>If the watercourse is:</th>
<th>It is defined as a:</th>
<th>For crop and pasture land adjacent to the watercourse, the setbacks requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural and either perennial or intermittent</td>
<td>Stream</td>
<td>Apply</td>
</tr>
<tr>
<td>Channelized and perennial and;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Lies within a floodplain soil map unit, or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Lies within a hydric soil map unit “mapped as a narrow, elongated feature in a fluvial (stream-like)/floodplain position, or</td>
<td>Stream</td>
<td>Apply</td>
</tr>
<tr>
<td>C. Lies within a “B” slope or greater soil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channelized and intermittent</td>
<td>Ditch</td>
<td>Do Not Apply</td>
</tr>
<tr>
<td>Ephemeral (natural or channelized)</td>
<td>Ditch</td>
<td>Do Not Apply</td>
</tr>
</tbody>
</table>
Nutrient Application Setbacks

- No nutrient application within 10 feet of the edge of the watercourse.
- No broadcast application within 35 feet of the edge of the watercourse.
- "Directed" nutrient application outside the 35-foot setback.
Nutrient Application Setbacks

• Setbacks are required to be addressed in your NMP by your consultant so that the operator is aware of any setbacks that apply, where and to what extent.
PMT regulations became effective as of June 8, 2015.

- Has a 7 year implementation schedule.
- 2 year transition period (2016-2017) and 5 year phased-implementation 2018-2022
Phosphorus Management Tool
PMT

• 5 year phase in period (2018-2022)
• Crop Year 2016 and 2017 - (2 yr transition period)
  – Consultant runs both PSI and PMT when developing plans
  – Provide farmer management changes to be required under PMT.
  – Certified Consultant, License Holders were required to file a report with MDA by September 30, 2015 and every sixth year thereafter, of the soil test P FIV levels by management units.
• Operations will be placed in 1 of 3 tiers for implementation of the PMT based on their P levels.
Phosphorus Management Tool
PMT

• Crop Year 2018
  – Tier C begins a 5 year transition
  – Fully implementing PMT by 2022

• Crop Year 2019
  – Tier B begins a 4 year transition
  – Fully implementing PMT by 2022

• Crop Year 2020
  – Tier A begins a 3 year transition
  – Fully implementing PMT by 2022

• Crop Year 2022
  – All operations are fully implementing PMT
Phosphorus Management Tool
Overview of How it Works

• A Phased Approach
  – Phased in time
  – Phased in “risk”
  – Phased in management requirements
Phosphorus Management Tool
Overview of How it Works

RISK

• Farms with the greatest impact get separated into groups ("tiers") and are phased in over a staggered time frame.
• Tiers are defined based on soil test P FIV
• Determine an “average 150 or greater P FIV level” for your operation.
• Based on all fields with soil P FIV 150 or greater
• Calculation is done once and is used to determine which tier group the operation falls in.
Phosphorus Management Tool
Overview of How it Works
RISK

• Tier Group C =
  – Average soil P FIV 450 and above
  – First to begin transition
  – Provided the longest time frame
• 5 years
Phosphorus Management Tool
Overview of How it Works

RISK

• Tier Group B =
  – Average soil P FIV 300 to 450
  – Second group to start
  – Staggered to begin a year later
  – 4 years to transition
Phosphorus Management Tool
Overview of How it Works
RISK

• Tier Group A =
  – Average soil P FIV 150 to 300
  – Third group to transition
  – Three year schedule
Phosphorus Management Tool
Overview of How it Works

RISK

• Tier Group C in 2018 and 2019 will implement under phase 1 guidelines, then 2 years of phase 2 in 2020 and 2021. PMT in 2022.

• Tier Group B will implement phase 1 guidelines in 2019, phase 2 in 2020 and 2021. PMT in 2022.

• Tier Group A will implement under phase 1 in 2020 phase 2 in 2021 and PMT in 2022.
Phosphorus Management Tool
Overview of How it Works
RISK

- **TM1** = Transition Mngmt. Phase 1
- **TM2** = Transition Mngmt. Phase 2
- **In TM1** if PMT risk is Low or Medium, P can be applied at a rate not to exceed crop removal over 3 years.
- If PMT risk is High, P shall be limited to crop removal, of the crops immediately following the P application, not to exceed 2 crops.
Phosphorus Management Tool
Overview of How it Works

RISK

- **In TM2** if PMT risk is Low, P can be applied at a rate not to exceed crop removal over 3 years.
- If PMT risk is Medium, P can be applied at a rate not to exceed crop removal over the next 2 years.
- If PMT risk is High, P shall be limited to 50% of crop removal, of the crops immediately following the P application, not to exceed 2 crops.
Phosphorus Management Tool
Overview of How it Works

RISK

• If the soil sample analysis indicates a P FIV value of 500 or greater, no additional P can be applied. **This is in effect now!**

• PMT applies to soil test P FIV levels of 150-499

• If your soil test P FIV levels are less than 150, none of this applies to you.
Phosphorus Management Tool
Overview of How it Works
MANAGEMENT

• PMT changes management requirements for farms that are required to use the tool
• Sub-surface drainage primary driver
  – Lower Eastern shore
  – Coincides with the poultry operations and high soil P levels
• Distance to surface water
• Degree of Phosphorus Saturation (DPS)
• Builds in “incremental change”
  – Especially for operations now scoring “HIGH” (>100) in the PMT calculation.
Phosphorus Management Tool
Overview of How it Works

MANAGEMENT

• Provides a means to gradually change farm management from current PSI to the PMT.
• Creates interim or “transitional management” requirements based on PMT score. All mean something different during transition.
  – LOW (0-50)
  – MEDIUM (51-100)
  – HIGH (>100)
• Create a three-step process for transition.
  – PSI → Transition Management Phase I (TM 1)
  – TM 1 → Transition Management Phase II (TM 2)
  – TM 2 → PMT
## Phosphorus Management Tool
### Overview of How it Works

**MANAGEMENT**

<table>
<thead>
<tr>
<th>PMT Risk Category</th>
<th>Transition Management Phase I</th>
<th>Transition Management Phase II</th>
<th>PMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW</td>
<td>N-Based (not to exceed 3 Yr. C.R.)</td>
<td>3 Yr. Crop Removal</td>
<td>3 Yr Crop Removal</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>3 Yr Crop Removal P</td>
<td>2 Yr Crop Removal</td>
<td>1 Yr Crop removal</td>
</tr>
<tr>
<td>HIGH</td>
<td>1 Yr Crop Removal</td>
<td>50% of 1 Yr C.R.</td>
<td>No Addtl. P</td>
</tr>
</tbody>
</table>

On-farm Implementation Reviews

• MDA is conducting these year round
• In FY2015 MDA conducted 890 audits, 772 random and 118 targeted. Random reviews had 69% compliance, targeted only 28%
• It’s a review of your latest NMP compared against your nutrient application records
• May need to verify buffers/setbacks from surface water are in place where required
• Reg 5a, Kent, Q. Anne’s & Talbot Counties FY 2015, 136 random reviews, 76.5% compliance
Maintaining NM Compliance

• Keep NMP’s current/updated.
• Keep records of all nutrient applications fertilizer, manures etc. Applied per the NMP.
• Keep records of all yields harvested.
• Follow nutrient application setback requirements.
• Keep nutrient applicator vouchers current.
Contact

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