



2017 Progress Report

Phosphorus Management Tool Transition Advisory Committee

A Report to
Governor Larry Hogan and the members of the Maryland General Assembly
By the Nutrient Management Advisory Committee



Larry Hogan
Governor

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Joseph Bartenfelder
Secretary

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THE PHOSPHORUS MANAGEMENT TOOL TRANSITION ADVISORY COMMITTEE

Established by regulation, the Phosphorus Management Tool (PMT) Transition Advisory Committee is chaired by the Maryland Secretary of Agriculture (MDA) and is made up of representatives from a variety of stakeholder groups including the agriculture community, environmental groups, higher education, and elected officials.. The Committee was established in 2015 and will continue to meet until the Phosphorus Management Tool is fully implemented. Meeting dates will be established at the discretion of the Secretary. The Committee meets at least annually at a time determined by the Department.

The purpose of the Committee is to:

- Evaluate information relevant to the implementation of the Phosphorus Management Tool including:
 - ✓ The quantity and location of excess manure within the State
 - ✓ The status and activity of manure transportation activities in geographic areas with excess animal manures
 - ✓ The viability of markets for animal manures as a crop fertilizer, fuel stock for energy generation, and other alternative uses
 - ✓ The status and capacity of alternative use technology using animal manures
 - ✓ Other information the Department and the Advisory Committee deem appropriate
- Recommend to the Secretary strategies to facilitate the effective implementation of the Phosphorus Management Tool
- Recommend to the Secretary potential changes to the implementation schedule for the Phosphorus Management Tool, as provided for in this chapter
- Identify resources necessary for the effective transition to the Phosphorus Management Tool

The Committee met with the Secretary on September 25, 2017 to review its responsibilities and receive updates on the Phosphorus Management Tool. Committee members were updated by the Department and partner agencies and heard valuable input from Committee members. This report provides a summary of the 2017 meeting and explores the recommendations of the Committee.

2017 ADVISORY COMMITTEE MEMBERS

Joseph Bartenfelder
Maryland Secretary of Agriculture

Thomas Middleton
Maryland Senate Representative

Stephen Lafferty
Maryland House of Delegates Representative

Leigh Williams/Chris Clark (alt.)
Maryland Energy Administration

Charles Wright
Maryland Farm Bureau

Kevin Anderson
Maryland Grain Producers

Virgil Shockley
DelMarVa Poultry Industry

Allen Stiles
Maryland Dairy Industry Association

Ray Ellis
Manure Hauling Industry- Poultry

Mark Schroeder
Alternative Technology - Castle Bridge Group

Nancy Hausroth
Maryland Municipal League

Ben Grumbles/Lee Currey (alt.)
Maryland Department of the Environment

James Harkins/Jason Gillespie (alt.)
Maryland Environmental Service

Ann Swanson/Mark Hoffman
Chesapeake Bay Commission

Craig Beyrouthy/Patricia Steinhilber (alt.)
University of Maryland AGNR

Alison Prost
Chesapeake Bay Foundation

Paul Spies
Chester River Association

Shelly Baird
Nanticoke River Alliance

John Uzupis
Synagro (Biosolids Industry)

Phil Snader
Manure Application - Dairy, Food Waste

Robert Monley
Alternative Technology - USDA Farm Pilot Project

Vacant
Maryland Association of County Governments

INTRODUCTION

This report to the Governor and the members of the General Assembly is in accordance with COMAR 15.20.08.11(E) which states that “Beginning December 1, 2016 and each year thereafter, until the Phosphorus Management Tool is fully implemented, the Committee shall provide a report to the Governor and the General Assembly.” The report shall include:

- A summary of the data collected from farms related to the operational changes created by implementing the Phosphorus Management Tool
- The status of certain programs related to or supporting the transition to the Phosphorus Management Tool
- Resource needs considered critical for the effective transition to the Phosphorus Management Tool
- Policy recommendations to enhance the implementation of the Phosphorus Management Tool

EXECUTIVE SUMMARY

The Phosphorus Management Tool

The Phosphorus Management Tool (PMT) is an updated risk assessment tool that reflects more than 10 years of research conducted by University of Maryland scientists in collaboration with regional and national experts. It uses the best available science to identify the potential risk of phosphorus loss from farm fields and prevent the additional buildup of phosphorus in soils that are already saturated. It replaces the Phosphorus Site Index (PSI)—which is currently in use by Maryland farmers as they transition. Soils with high phosphorus levels are typically found on fields that have used manure or poultry litter as a crop nutrient over an extended period of time.

Use of the Phosphorus Management Tool only applies to farm fields with high soil phosphorus levels identified by a Fertility Index Value (FIV) of 150 or greater. If a farm field scores less than 150 FIV, the farmer may apply phosphorus to the land based on the farm's nutrient management plan and current University of Maryland recommendations.

The Maryland Agriculture Phosphorus Initiative 2015

Governor Larry Hogan unveiled enhanced Phosphorus Management Tool regulations as part of a broader "Maryland Agriculture Phosphorus Initiative" on February 23, 2015. These regulations furthered Maryland's efforts to improve water quality, strengthen the agricultural industry, and bolster rural economies.

Listening and bringing together the agricultural and environmental communities to find a fair and balanced plan for limiting phosphorus. This initiative is providing immediate action to limit pollution, investing in new technology, seeking alternative uses for manure, and improving on-farm management of animal manures – none of which were included in the previous proposals.

The 2015 PMT Regulatory Proposal, titled the *Agriculture Phosphorus Initiative* includes four enhancements:

- Ensure adequate time for farmers to fully understand and plan for new requirements
- Assure agricultural producers that critical elements are available for implementation
- Enact an immediate ban on additional phosphorus applications to fields with the greatest risk for phosphorus runoff as indicated by a phosphorus Fertility Index Value of 500 or greater
- Collect comprehensive information on soil phosphorus conditions statewide

Phosphorus Fertility Index Value Soils Data Collection

The Department began collecting soil phosphorus data in fall 2015 for all farms in Maryland subject to nutrient management plan requirements. The regulations require soil phosphorus data to be collected and submitted to the Department every six years by consultants who

prepare nutrient management plans for farmers and farmers who are certified to write their own nutrient management plans. Required soil data include current soil test phosphorus values for individual fields, including Fertility Index Values, field acreage, county information, and other information. Data submitted by consultants is not linked to a specific farm or producer since the soils data and list of farm operations are reported separately.

As of August 2017, approximately 85 percent of the state’s agricultural acreage is accounted for. A detailed chart with individual county information is included in this report. Since 2015, the Department has been actively engaged in collecting data including on-farm audits during nutrient management implementation reviews to collect missing soils data. The Department will continue to collect soils data until all regulated farms are accounted for statewide.

Tier Group Designation

Utilizing the soil phosphorus Fertility Index Value (FIV) data, farm operations that have one or more fields with average soil phosphorus levels greater than 150 FIV were assigned to one of three Tier Groups that determine when the farmer must transition to the Phosphorus Management Tool. By September 1, 2016, every farm field in the state with an FIV greater than 150 was placed into one of the three tier groups based on the soil test data results. There were some initial concerns from some consulting companies about confidentiality.. However, following assurances issued by the Department that all of the submitted data and farm information would be treated confidentially, the consultants submitted the required data. The Department considers all of the data collected during this process “nutrient management plan content” and, therefore, protected information under the law. A detailed chart showing the tier groups and the transition schedule is included in this report.

Manure Transport Program

One of the key considerations of the *Maryland Phosphorus Agriculture Initiative* is the relocation of poultry litter and other types of livestock manure from areas with high soil phosphorus levels to other farms or alternative use facilities that can use the resource safely. The Department’s Manure Transport Program, established in 1999, provides financial assistance to help farmers transport poultry litter and other types of manure to other farms or facilities where these resources can be used in accordance with an approved nutrient management plan or for alternative uses. Poultry companies voluntarily provide matching funds to transport poultry litter generated by their growers. Many poultry farms are considered “no-land operations.” These operations do not have cropland to utilize the poultry litter. As a result, a large percentage of poultry litter is transported to other farms or alternative use facilities.

Dairy manure is typically utilized on other areas of the farm where it was generated, in accordance with a nutrient management plan. Areas eligible to receive the manure must be located at least one mile from the generating source. Farms impacted by the Phosphorus Management Tool receive priority for available funds under the Manure Transport Program, which has experienced extraordinary growth over the years. A chart detailing quantities and funding for both poultry litter and dairy manure transported is included in this report.

Animal Waste Technology Fund

The *Maryland Agriculture Phosphorus Initiative* included a provision to expand investments in new animal waste technology projects. Maryland's Animal Waste Technology Fund is a grant program that provides seed funding to companies that demonstrate innovative technologies to manage or repurpose manure resources. These technologies generate energy from animal manure, reduce on-farm waste streams, improve management by changing the form or characteristics of the manure and repurpose manure by creating marketable fertilizer and other products and by-products. Details about current projects and projects under consideration are included in this report.

PMT On-Farm Economic Analysis Project

The Phosphorus Management Tool regulations called for a two-year on-farm economic analysis to evaluate the economic and management impacts of implementing the new tool. *(A broader, more comprehensive economic impact study was conducted in 2014 by Salisbury University.)* The data collected by the two-year on-farm analysis is currently being analyzed and a final report will be issued later this year. Findings will help the Department determine how PMT implementation changes farm management and resource needs and may be extrapolated statewide.

The economic analysis began in spring 2015 with eight farms participating. The enrolled farms ran both the current Phosphorus Site Index and the new Phosphorus Management Tool on their fields, but followed the PMT recommendations. Farmers were reimbursed up to \$125/acre for replacement fertilizer if its use was required under PMT management and received a \$25/acre participation fee. Study participants included three poultry farms that apply poultry litter to crop fields that they own, one crop farm (without animals), and four dairy farms that use the manure they generate to grow crops. Although an effort was made to enroll an organic farm, the cost of fertilizer (to replace poultry litter) was far greater than the reimbursement rate offered by the Department and no willing participant was identified. More details on the economic study are included in this report.

SOIL TEST RESULTS AS OF AUGUST 1, 2017

8/1/2017									
County	Total AIR Acres Reported 2014	Total Acres submitted	% of County Reported	Soil Test P FIV <150		Soil Test P FIV 150-499		Soil Test P FIV >500	
				Acres	% of Acres	Acres	% of Acres	Acres	% of Acres
Western Maryland									
Alliegany	12,321.60	10,930.80	88.71%	10,371.30	94.88%	533.50	4.88%	26.00	0.24%
Carroll	94,462.98	76,941.57	81.45%	71,832.24	93.36%	4,937.43	6.42%	171.90	0.22%
Frederick	127,363.87	104,010.08	81.66%	92,283.90	88.73%	11,624.82	11.18%	101.36	0.10%
Garrett	39,478.24	29,695.27	75.22%	28,798.54	96.98%	871.73	2.94%	25.00	0.08%
Washington	80,805.27	62,550.35	77.41%	58,198.45	93.04%	4,334.25	6.93%	17.65	0.03%
Regional Total	354,431.96	284,128.07	80.16%	261,484.43	92.03%	22,301.73	7.85%	341.91	0.12%
Central Maryland									
Baltimore	38,004.15	37,053.51	97.50%	35,067.23	94.64%	1,925.86	5.20%	60.62	0.16%
Harford	49,862.63	41,885.71	84.00%	38,173.78	91.14%	3,579.56	8.55%	132.37	0.32%
Howard	14,635.39	15,264.61	104.30%	13,997.41	91.70%	1,251.90	8.20%	15.30	0.10%
Montgomery	49,377.83	28,659.58	58.04%	27,688.49	96.61%	861.79	3.01%	109.30	0.38%
Regional Total	151,880.00	122,863.41	80.90%	114,926.91	93.54%	7,619.11	6.20%	317.59	0.26%
Southern Maryland									
Anne Arundel	15,557.15	12,949.37	83.24%	9,382.11	72.45%	3,500.76	27.03%	66.50	0.51%
Prince Georges	12,069.75	11,569.14	95.85%	9,239.85	79.87%	2,295.29	19.84%	34.00	0.29%
Calvert	11,685.82	9,717.16	83.15%	6,522.97	67.13%	3,182.89	32.76%	11.30	0.12%
Charles	22,075.21	20,250.10	91.73%	16,069.50	79.36%	4,147.80	20.48%	32.80	0.16%
Saint Mary's	35,326.72	28,412.36	80.43%	21,278.86	74.89%	7,027.72	24.73%	105.78	0.37%
Regional Total	96,714.65	82,898.13	85.71%	62,493.29	75.39%	20,154.46	24.31%	250.38	0.30%
Upper Eastern Shore									
Cecil	51,726.39	59,029.19	114.12%	55,088.16	93.32%	3,807.27	6.45%	133.76	0.23%
Kent	95,083.11	92,972.65	97.78%	85,356.01	91.81%	7,274.52	7.82%	342.12	0.37%
Queen Annes	125,814.99	113,107.15	89.90%	98,520.61	87.10%	14,467.12	12.79%	119.42	0.11%
Regional Total	272,624.49	265,108.99	97.24%	238,964.78	90.14%	25,548.91	9.64%	595.30	0.22%
Mid Eastern Shore									
Talbot	69,783.22	67,796.46	97.15%	60,683.20	89.51%	7,054.86	10.41%	58.40	0.09%
Caroline	92,039.41	90,242.53	98.05%	58,510.27	64.84%	31,451.16	34.85%	281.10	0.31%
Dorchester	84,686.73	51,364.50	60.65%	38,036.64	74.05%	13,079.54	25.46%	248.32	0.48%
Regional Total	246,509.36	209,403.49	84.95%	157,230.11	75.08%	51,585.56	24.63%	587.82	0.28%
Lower Eastern Shore									
Somerset	32,598.90	27,035.71	82.93%	5,894.57	21.80%	17,422.84	64.44%	3,718.30	13.75%
Wicomico	53,223.80	46,209.11	86.82%	15,473.65	33.49%	24,794.72	53.66%	5,940.74	12.86%
Worcester	69,947.75	67,482.73	96.48%	20,867.79	30.92%	40,595.72	60.16%	6,019.22	8.92%
Regional Total	155,770.45	140,727.55	90.34%	42,236.01	30.01%	82,813.28	58.85%	15,678.26	11.14%
MD State Total	#####	1,105,129.64	86.48%	877,336	79.39%	210,023	19.00%	17,771.26	1.61%

SOILS DATA COLLECTION AND VERIFICATION

The Department's Nutrient Management Program continues to make soils P data collection a priority. Farms for which soils data has not been reported are targeted for implementation reviews. In some cases, Department staff finds the farm has a current nutrient management plan and current soils data. In cases where the farm does not have current soil sample data available, the farm operator is given 90 days to obtain a current plan and provide the soils data to the Department.

The Department also monitors PMT implementation through its routine on-farm inspections which are conducted on approximately 19 percent of regulated farm operations each year. In addition to the routine and targeted inspections, the Program made the decision near the end of calendar year 2017 to select fields for review that were over 500 P FIV. Twenty-four farms were selected for this field audit, with 1-3 fields inspected on each farm. These farms represent about 25 percent of the farms in Tier Group C which transitions to the PMT in 2018. Of the 24 farms chosen, 22 farms did not apply phosphorus and 2 farms were not in full compliance. In these cases, farms are given one year to come into compliance and are re-inspected. The Nutrient Management Program will continue to seek ways to monitor compliance.

TIER GROUPS

Tier Group Data as of 1/17/17									
County	Tier Group A (150 - 300)			Tier Group B (300 - 450)			Tier Group C (Greater Than 450)		
	Number of Operations	Number of Fields	Acres	Number of Operations	Number of Fields	Acres	Number of Operations	Number of Fields	Acres
Western Maryland									
Allegany	11	37	247.00	4	10	106.00	1	4	5.00
Carroll	75	322	3248.80	6	18	157.40	3	3	88.00
Frederick	147	527	7746.00	13	51	563.00	1	2	18.00
Garrett	10	39	264.00	0	0	0.00	1	1	25.00
Washington	89	273	3196.70	12	33	364.70	4	7	75.50
Regional Total	332	1,198	14,702.50	35	112	1,191.10	10	17	211.50
Central Maryland									
Baltimore	36	133	1159.70	1	8	78.00	0	0	0.00
Harford	38	153	1579.10	7	35	270.00	2	3	27.00
Howard	17	67	895.80	2	5	108.00	0	0	0.00
Montgomery	24	99	696.00	4	8	59.10	2	11	173.00
Regional Total	115	452	4,330.60	14	56	515.10	4	14	200.00
Southern Maryland									
Anne Arundel	62	354	2778.60	6	63	233.40	1	15	73.30
Prince George's	34	110	1210.00	7	18	49.00	1	2	11.00
Calvert	41	227	1839.00	4	13	53.00	0	0	0.00
Charles	48	194	2782.00	4	9	53.00	1	1	5.00
Saint Mary's	91	456	5568.00	9	30	634.70	0	0	0.00
Regional Total	276	1,341	14,177.60	30	133	1,023.10	3	18	89.30
Upper Eastern Shore									
Cecil	69	277	2487.00	10	30	315.00	0	0	0.00
Kent	49	306	6325.00	5	12	67.00	2	19	739.00
Queen Anne's	83	362	7041.20	7	23	497.60	3	11	59.10
Regional Total	201	945	15,853.20	22	65	879.60	5	30	798.10
Mid Eastern Shore									
Talbot	44	200	3725.20	5	29	559.40	0	0	0.00
Caroline	171	1368	26388.65	30	242	3391.90	4	5	64.00
Dorchester	76	1172	14883.70	15	126	2384.00	2	17	52.00
Regional Total	291	2,740	44,997.55	50	397	6,335.30	6	22	116.00
Lower Eastern Shore									
Somerset	23	363	7017.00	25	135	10833.40	7	110	1498.90
Wicomico	49	690	10209.00	40	674	9806.00	44	409	5995.30
Worcester	26	491	11417.60	36	1243	23687.50	17	114	1984.60
Regional Total	98	1,544	28,643.60	101	2,052	44,326.90	68	633	9,478.80
MD State Total	1,313	8,220	122,705.05	252	2,815	54,271.10	96	734	10,893.70

Total All 3 Tier Groups	1,661	11,769	187,869.85	
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ECONOMIC ANALYSIS

At the September Committee meeting, Dwight Dotterer, Nutrient Management Program Manager, reported that the economic analysis required by the PMT was completed following the 2015 and 2016 crop growing seasons. Detailed analysis of the 2015 growing season was presented at the 2016 PMT Advisory Committee meeting and it was noted that the 2016 growing season did little to contribute to the findings since almost all acres enrolled in the study rotated from corn to soybeans and the participating growers applied few nutrients. These results were anticipated. Detailed analysis of the 2015 growing season is available on request. A final analysis of the Economic Study will be completed by the end of Fiscal Year 2018.

POULTRY LITTER LAND APPLICATION ANALYSIS

The following analysis is being completed and updated annually to address the issue of “excess” poultry litter. Although there are several definitions/interpretations regarding the term “excess,” the Department’s Nutrient Management Program uses the quantity reported as “collected” on a farm’s Annual Implementation Report (AIR) as being available and subject to management requirements in accordance with a nutrient management plan.

Using the Department’s definition of available manure resources, we analyzed acres on the Eastern Shore with soil phosphorus levels under 150 FIV, meaning those acres will not be subject to the Phosphorus Management Tool and would be eligible to receive poultry litter. While fields over 150 FIV may be able to utilize poultry litter under certain circumstances, MDA chose not include these acres in the calculations. Even with this conservative methodology, the following analysis indicates that there is adequate acreage available for land application of poultry litter with redistribution to available acreage.

- 312,393 tons poultry litter collected/available in 2014
- 383,949 tons poultry litter collected/available in 2015
- 387,616 tons poultry litter collected/available in 2016
- 387,616 tons/2 ton application rate = 193,808 acres needed for application of poultry litter
 - ✓ Upper Shore = 245,362 acres (90% of reported acres is below 150 FIV)
 - ✓ Mid Shore = 184,882 acres (75% of reported acres is below 150 FIV)
 - ✓ Lower Shore = 38,943 acres (25% of reported acres is below 150 FIV)
 - ✓ Total acres available for spreading on the Eastern Shore= 469,187

MANURE TRANSPORT PROGRAM

At the September Committee meeting, an update on the Manure/Litter Transport Program was provided by Norman Astle, Program Manager of the Maryland Agricultural Water Quality Cost-Share (MACS) Program. Acreage with a P FIV greater than 500 has been banned from receiving litter since July 2015. PMT risk scores are currently being calculated for those in Tier Group C (FIV 450 and above). Advisory Committee members asked if more funding will be needed for manure transport next year and the following years as tier groups transition to PMT. They also questioned the amount of N being transported compared to the weight of material being transported.

Manure Transport Program Statistics (Fiscal Year 2017)

	Dairy and other Manures	Poultry Litter		TOTAL
		Land-Applied	Alternative Use	
Number of Contracts	68	29	256	353
Tons Transported	171,289 tons	9,106 tons	61,546 tons	241,941 tons
State Funds	\$ 422,074	\$ 95,053	\$ 657,562	\$ 1,174,690
Poultry Company Funds		\$ 32,554	\$ 420,483	\$ 453,037
			Total Spent	\$1,627,728

Manure Transport Program Fiscal Year 2016 Accomplishments (For comparison to FY17)

- 213,151 tons transported (all manure)
- \$1,402,182 in payments (\$954,300 in State Cost-Share; \$447,882 Poultry Company Funds)
- Poultry litter tons - 57,700
- Other manures tons - 155,400
- Land applied poultry litter - 6,000 tons (17 contracts)

Manure Transport Program Changes

In response to suggestions from the PMT Advisory Committee and others, the MACS Program launched a new “Fast Track” grant application to streamline transport of land-applied poultry litter. Application forms were made available on the Department’s website in Spring 2017. Farmers submit Fast Track applications without having to go through the local Soil Conservation District. The amount of information required from the farm’s nutrient management plan has been reduced, but as a consequence, the parameters for eligibility are narrowed as follows:

- In lieu of submitting an actual poultry litter analysis, the Fast Track program uses a standardized N-P-K analysis of 4-3-3 (per ton)

-
- Fields with a phosphorus Fertility Index Value (FIV) greater than 100 are not eligible
 - Poultry litter may only be spread on fields that will be planted to corn (grain or silage)
 - Application rates are limited to a maximum of 3 tons/acre

During Fiscal Year 2017, efforts to develop a streamlined transport application process for dairy manure continued. A Fast Track process for dairy manure was finalized and will be the only cost-share program for manure transport offered to dairy producers.

The Fast Track Dairy Application Process

- Application review and approval goal of 48 hours
- Uses standardized dairy manure analysis (N-135/K-60/P-110, total application)
- Standardized application rate: Up to 6,000 gallons per acre; only fields with a Fertility Index Value of 100 or less that will be planted in corn would be eligible
- Fields with a Fertility Index Value of that is greater than 100 are not eligible

One of the tasks of the Committee is to evaluate the status and activity of manure transport in geographic areas with excess animal manures. The comparison of Fiscal Year 2016 to Fiscal Year 2017 indicates increases in all categories including contracts, tonnage, and cost-share funding from both the State and the poultry companies.

Adequate funding has been available to date for the Manure Transport Program. However, the impact of full implementation of the PMT is unknown and funding may be an issue in the future. The first Tier Group to transition in 2018, Tier Group C (P FIV >450) is projected to include approximately 100 farm operations. The Department does not anticipate this transition to have a major impact on the Transport Program because many farms in this group have already modified their management due to having some fields with a P FIV of 500 or greater. (Farm fields with a P FIV of 500 or greater are already banned from receiving additional phosphorus.) The Committee will examine the need for increased funding for the Transport Program prior to the 2019 transition of Tier Group B (P FIV 300-450).

ANIMAL WASTE TECHNOLOGY GRANTS

Louise Lawrence, Program Manager, Program Planning and Development, provided the following update on the Animal Waste Technology Fund. Projects include two in-vessel composting operations, an aerated static pile composting system, a fluidized bed combustion system and a regional and farm scale anaerobic digester with nutrient capture system. The 2018 Request For Proposals includes \$3.5 million for qualifying projects. The Maryland Energy Administration will have \$3 million available in Fiscal Year 2018 for waste to energy projects, especially smaller farm-scale projects.

Current Animal Waste Technology Projects				
Current Projects	Animal Type/Location	State Funding	Technology	Status
Biomass Heating Solutions, Inc. (BHSL) Annapolis, MD	Poultry Double Trouble Farm Dorchester County	\$970,000	Fluidized bed combustion (Thermochemical)	Operational- 8 months
Green Mountain Technologies, Inc. (GMT) Bainbridge Island, WA	Horse Days End Farm Howard County	\$150,790	In vessel composter/ turnkey	Project completed/ final report pending
Green Mountain Technologies, Inc. Bainbridge Island, WA	Dairy Cattle Glamour View Farm Frederick County	\$237,520	In vessel composter/ turnkey	Project completed/ final report pending
Planet Found Energy Development (PFED) Berlin, MD	Poultry Millennium Farms Worcester County	\$676,144 (MDA) \$900,232 (MEA)	Anaerobic digestion with nutrient separating system	Operational- 5 months

Projects Approved October 2016				
2016 Projects	Animal Type/Location	State Funding	Technology	Status
Veteran Compost	Livestock Anne Arundel County	\$350,302	Aerated Static Pile Composting	Secured new site, permits pending
CleanBay Renewables	Poultry Litter Somerset County	\$1,400,000	Thermophilic Anaerobic Digester with Nutrient Capture System	Secured most permits

LOOKING AHEAD: IMPLEMENTATION

Phosphorus Management Tool Overview of How It Works - Risk 7 Year Transition Summary							
	Crop Year						
	2016	2017	2018	2019	2020	2021	2022
Tier C - Avg. FIV P 450 and above	PSI/PMT	PSI/PMT	TM1	TM1	TM2	TM2	PMT
Tier B - Avg. FIV P 300-450	PSI/PMT	PSI/PMT	PSI	TM1	TM2	TM2	PMT
Tier A - Avg. FIV P 150-300	PSI/PMT	PSI/PMT	PSI	PSI	TM1	TM2	PMT
PSI = Phosphorus Site Index							
TM1 = Transition Management Phase 1							
TM2 = Transition Management Phase 2							
PMT = Phosphorus Management Tool							

** Could add time if services are not adequate

Phosphorus Management Tool Overview of How It Works - Management			
PMT Risk Category	Transition Management Phase 1	Transition Management Phase 2	PMT
Low	N-Based (<i>Not to Exceed 3 Year Crop Removal</i>)	3 Year Crop Removal	3 Year Crop Removal
Medium	3 Year Crop Removal P	2 Year Crop Removal	1 Year Crop Removal
High	1 Year Crop Removal P	50% of 1 Year Crop Removal	No Additional P Allowed

RECOMMENDATIONS FROM THE COMMITTEE

Highlights of the 2017 Meeting

The University of Maryland has updated the nutrient management planning software to provide recommendations required for the PMT. The NuMan software can now reflect the PMT score, the tier group, where applicable, and associated nutrient recommendations.

Committee member Virgil Shockley requested time to discuss concerns of farmers on the Lower Eastern Shore. Mr. Shockley outlined in detail the economic conditions affecting Lower Eastern Shore farmers, most of which is true statewide and across all agricultural commodity groups. Mr. Shockley had two concerns presented to the group—where will litter be transported if/when the PMT restricts application to much of the Lower Shore, and the origin justification for the “threshold” number of FIV 150.

The University of Maryland was asked in 1998 to help develop phosphorus environmental risk thresholds and the FIV 150 was established. The FIV 150 number is based on science data that indicates that at FIV 150 P becomes mobile, once the FIV for P exceeds 150, as the P level increases, P loss increases. Mr. Shockley asked why fields under FIV 150 can't be included in

the average calculation since fields over FIV 500 are included in the average calculation process. Mr. Shockley was concerned that the regulation will cost farmers money, and he continued to emphasize that profit margins were slim to none.

The University of Maryland recommends that farms not accept and apply litter too many times, especially farms with fields over FIV 150 and cautioned not to increase the P FIV on fields by using poultry litter and the manure transport program.

The biosolids industry expressed concern that restrictions for the application rate of phosphorus are the same for both animal manure and biosolids when the phosphorus in biosolids is not as readily available. The industry has presented scientific references stating that the sources could be treated differently to allow for a higher application rate for biosolids. The representative asked the Department to address biosolids separately so that available phosphorus is considered when setting management guidelines and not total phosphorus as currently used for all nutrient sources. The biosolids industry also stressed that sending sludge to landfills and exporting it to other states is not a recycling program.

There was concern among the committee members of the need to address resource needs prior to the beginning of the legislative session in January and suggested another meeting of the PMT Advisory Committee to address that and other issues brought up during this meeting.

SUMMARY

The Department continued to make soils data collection a priority throughout 2017. To provide confirmation that farms with fields over P FIV 500 are not applying additional P to those fields, the program began targeting a random number of farms with fields over P FIV 500 for implementation reviews. The findings show that farms are complying with the law. The Department is looking toward the next soils data collection period scheduled for 2021 and is working on solutions to the problems encountered during the first collection period.

The Department sought and received guidance from the University of Maryland regarding the rate of decline that can be expected in phosphorus on high phosphorus soils. The University provided a Microsoft Excel spreadsheet that can be used as a worksheet by consultants and certified farmers. The guidelines indicate a maximum drop of 5 percent a year or up to a 15 percent drop in a three-year sampling period, plus up to a 15 percent allowance for errors in sampling.

The Department's Nutrient Management Program is working toward full implementation of the Phosphorus Management Tool and will continue to collect soils data with the goal of accounting for every farm in Maryland by the end of 2018.



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