



2017 Annual Report
Nutrient Management Program



Farming Smarter

with Nutrient Management





Secretary's Message

It's been said that the most short-sighted phrase in business is, "that's the way it's always been done." We don't practice that kind of thinking here at the Maryland Department of Agriculture. In fact, other states look to us as innovators when it comes to farming smarter with nutrient management. As the following report shows, we are always working to improve the way we grow our food, promote healthy soils, and safeguard water quality in local streams, rivers, and the Chesapeake Bay.

During the year, the Nutrient Management Program continued to work with farmers to implement management practices that protect waterways. By the end of the fiscal year, soil phosphorus data had been collected and analyzed for approximately 1,100,000 acres or 86 percent of Maryland's 1.3 million acres of farmland regulated by the Nutrient Management Program.

Approximately 20 percent of farm fields tested will be required to transition to Maryland's new Phosphorus Management Tool (PMT) during a five-year, risk-based phase-in period. The PMT is a state-of-the-art tool that can identify areas at risk for phosphorus runoff and prescribe management practices that assure water quality protection.

The first group of farms is set to begin transitioning to the PMT in 2018. This group includes approximately 100 operations managing 11,000 acres of land with an average phosphorus Fertility Index Value (FIV) that is greater than 450. According to our nutrient management specialists, some of these operations have already begun transitioning to the PMT. The department is monitoring progress to make certain that farmers have the support and resources they need to make the transition, which in some instances, may impact the use of manure as a crop fertilizer.

Along those lines, regulatory adjustments implemented earlier this year are giving farmers more flexibility in complying with new restrictions on how and when manure is applied to farm fields. The adjustments address manure storage concerns, changing weather patterns, and the latest research on the benefits of minimizing soil disturbance to promote the development of healthy soils.

Overall compliance with program requirements remained strong in Fiscal Year 2017, with 97.5 percent of farmers submitting annual implementation reports on how they manage nutrients. Despite ongoing staffing shortages, farm audits were conducted on 19 percent of Maryland's 5,322 regulated farm operations, the same amount as last year.

On the urban front, the Turfgrass Nutrient Management Program continued to train and certify lawn care professionals on fertilizer application techniques and healthy lawn care practices. By the end of the fiscal year, the department had certified 1,862 Professional Fertilizer Applicators and trained an additional 1,582 lawn care workers on responsible fertilizer practices. A public education program conducted in partnership with the University of Maryland Extension instructs homeowners and do-it-yourselfers on how to comply with Maryland's lawn fertilizer law.

Throughout the year, the department worked with hundreds of Maryland farmers, land managers, and lawn care representatives to practice sound nutrient management and make a real difference for the Chesapeake Bay and its tributaries. I invite you to read on to learn more about how we are farming and growing smarter with nutrient management.



Sincerely,

A handwritten signature in black ink that reads "Joe Bartenfelder". The signature is written in a cursive, flowing style.

Joe Bartenfelder,
Maryland Agriculture Secretary



Maryland's

NUTRIENT MANAGEMENT PROGRAM

and the Chesapeake Bay

The Nutrient Management Program helps protect Maryland's waterways from nutrient pollution by regulating the amount, timing, rate, and placement of commercial fertilizer products and organic nutrient sources used by farmers to grow crops and by lawn care professionals to fertilize lawns. This helps ensure that nutrients applied to crops and lawns are not impacting waterways. The program also works with poultry, dairy, and other livestock producers to make certain that animal manure—a valuable nutrient resource—is managed in an environmentally sound manner.

Guidance is provided by the Nutrient Management Advisory Committee, which includes representatives from agricultural interests, environmental groups, the turfgrass industry, University of Maryland, and government agencies.

Agricultural Nutrient Management Program

Maryland law requires farming operations that generate \$2,500 or more in gross income or have 8,000 pounds or more of live animal weight to follow nutrient management plans when fertilizing crops and managing animal manure. These plans specify how much fertilizer, manure, or other nutrient sources may be safely applied to crops to achieve yields and prevent excess nutrients from impacting waterways. To ensure the quality of nutrient management plans, the department oversees a training, certification, and licensing program for nutrient management consultants and farmers. The program's nutrient management specialists ensure that plans are developed, updated, and implemented according to state regulations.

To further protect water quality, farmers are required to have setbacks from streams and livestock exclusion

measures in place. Farmers using certain tillage systems are required to incorporate manure and other organic nutrient sources into fields within 48 hours of application and follow new timing requirements for fall nutrient applications. A ban on spreading manure in winter is being phased in with complete implementation by March 1, 2020.

Turfgrass Nutrient Management Program

Maryland's Lawn Fertilizer Law authorizes the department to train, certify, and license individuals and companies hired to apply lawn fertilizer to non-agricultural land. The department's training and certification program—developed in partnership with the University of Maryland—focuses on fertilizer application restrictions, soil science, and best management practices that can be used to help protect waterways from nutrient runoff. A compliance program ensures that fertilizer applications are made following University of Maryland application and timing recommendations.





AGRICULTURAL NUTRIENT MANAGEMENT PROGRAM

Phosphorus Management Tool

Maryland's Phosphorus Management Tool (PMT) regulations call for a multi-year process for farmers to transition from the Phosphorus Site Index to the PMT, an updated tool that offers enhanced water quality protection. The following progress was made during the year.

- **Soil Test Data Results**— By the end of Fiscal Year 2017, soil data had been provided for approximately 1,100,000 acres or 86 percent of Maryland's 1.3 million acres of farmland regulated by the Nutrient Management Program. According to the soil test results, the majority of Maryland farmland (80 percent) is not subject to the PMT. This farmland has an average soil phosphorus Fertility Index Value (FIV) of 149 or less. Farmers with land in this category may continue to apply phosphorus and manure to fields based on University of Maryland recommendations. Twenty percent of Maryland's farmland has soil phosphorus levels requiring the use of the Phosphorus Management Tool.

Areas with the highest average soil phosphorus levels include the Lower Eastern Shore (70 percent), the Mid-Eastern Shore (25 percent), and Southern Maryland (24 percent). Less than 10 percent of the farmland located on the Upper Eastern Shore, in Western Maryland, and in Central Maryland had high soil phosphorus levels.

- **Phosphorus Management Tool Phase-In**—The phase-in for farms required to comply with the PMT will begin in 2018 for the highest risk group (average soil phosphorus FIV greater than 450), 2019 for the medium risk group (average soil phosphorus FIV of 300-450), and 2020 for the low risk group (average soil phosphorus FIV of 150-299), with full implementation by 2022. Affected farms have been assigned to their corresponding tier groups. Statewide, roughly 1.62 percent of the farmland tested has an average soil phosphorus FIV of 500 or greater. This farmland is already banned from receiving additional phosphorus applications.

On-Farm Economic Analysis

A two-year *Phosphorus Management Tool On-Farm Economic Analysis Project* was completed during the fiscal year. Participants included four dairy farms and four farms that use poultry litter to fertilize crops. Initial findings showed that switching from manure to commercial fertilizer increased production costs for farmers who grew corn during the first year of the study, with only marginal economic impacts for farmers who rotated to soybeans the following year. A complete analysis of the data is underway.

Changes to Nutrient Management Regulations

In Fiscal Year 2017, the department implemented changes to its nutrient management regulations that strike a balance between environmental protection and the realities of farming while taking into account extreme and changing weather patterns. Numerous stakeholder groups reviewed the changes, including the Nutrient Management Advisory Committee, Phospho-

rus Management Tool Advisory Committee, dairy industry representatives, and environmental interests. The changes took effect January 2017 and include:

- An emergency provision to allow the department to work with farmers to prevent an overflow from storage structures during winter, when spreading manure is otherwise prohibited. This exemption is only for on-farm generated manure that the farmer cannot store due to extraordinary circumstances. It does not apply to biosolids or food waste.
- A ban on spreading manure when the ground is frozen or snow covered. In addition, a 100-foot setback from surface water is now required for any emergency spreading that takes place in winter.
- An emergency exemption for farmers that have demonstrated intent to build additional manure storage facilities. This exemption addresses a backlog of requests for technical assistance and cost-share grants to construct these facilities.
- An exemption for farmers who are using no-till farming practices to incorporate manure and other organic nutrient sources into the soil within 48 hours of application. This change was made in light of research conducted by the USDA National Resources Conservation Service (NRCS) on the benefits of minimal disturbance to soil health.

- Extending the fall spreading date for manure through December 15 to reflect warmer weather patterns and reduce the amount of time farmers need to store manure over the winter. Under the new requirements, farmers statewide are prohibited from spreading manure between December 16 and March 1.

Compliance and Enforcement

The department's nutrient management specialists verify that farmers are managing nutrients on their farms to protect water quality. They examine nutrient management plans submitted by farmers, analyze fertilizer receipts and required documents, and perform on-farm audits to confirm compliance with



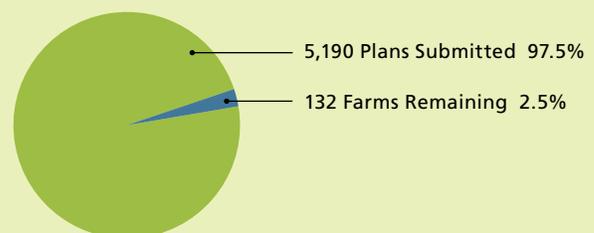
program requirements. The department is authorized to issue fines and penalties, take administrative actions, and pursue civil proceedings against farmers who fail to comply with nutrient management requirements.

- **Nutrient Management Plans**—New farming operations are required to submit copies of their nutrient management plans to the department. By the end of the fiscal year, the department had nutrient management plans on file for 98 percent of the state's 5,322 regulated farm operations managing 1.3 million acres of land. The department works to locate new farming operations and pursues enforcement actions against operators who fail to submit copies of their initial plans.

- **Annual Implementation Reports**—Farmers are required to update their nutrient management plans before they expire and submit Annual Implementation Reports to the department by March 1 summarizing their nutrient applications for the previous calendar year. By the end of the fiscal year, 97.5 percent of regulated farmers managing about 1.3 million acres of land had submitted their implementation reports to the department (Figure 1). In Fiscal Year 2017, the department issued \$33,000 in fines against 132 farmers for late or missing implementation reports.



FIGURE 1: ANNUAL IMPLEMENTATION REPORTS SUBMITTED
(AS OF JUNE 30, 2017)
5,322 TOTAL REGULATED FARM OPERATIONS





Certification, Licensing, and Education Programs

- Certified Nutrient Management Consultants**—The Nutrient Management Program trains and certifies consultants to provide farmers with nutrient management plans that balance crop nutritional needs with water quality protection. During the year, the program provided a two-day training course for individuals planning to take the certification exam. Twenty-six new consultants were certified, bringing the total number of consultants certified under the program to 1,384.
- University of Maryland Consultant Program**—Twenty University of Maryland consultants were funded by the department in Fiscal Year 2017. They provide farmers with nutrient management plans free of charge.
- Farmer Training and Certification**—The Nutrient Management Program and the University of Maryland Extension train farmers who want to become certified to write nutrient management plans for their own operations. Farmers undergo about 11 hours of classroom instruction and practice in writing plans and are required to pass an exam. In Fiscal Year 2017, 59 farmers were certified to write their own nutrient management plans. To date, 650 farmers have been
- Farm Audits and Inspections**—During Fiscal Year 2017, enforcement specialists conducted 1,016 on-farm audits (Figure 2), representing approximately 19 percent of Maryland’s 5,322 regulated farm operations (Figure 3). The department conducts both random and targeted audits. The targeted audits are aimed at farmers with a history of complaints or other program violations, including missing soil data reports. Sixty-one percent of the farms were in compliance. Specialists issued 397 warnings to correct major violations and documented additional minor violations to be corrected. The department is actively pursuing full compliance for all audited farm operations. During the fiscal year, 57 farmers were fined \$34,450 for failing to take corrective actions by required deadlines.
- Nutrient Applicator Voucher Training**—Farmers who apply nutrients to 10 or more acres of cropland are required to attend a nutrient applicator training course once every three years. Training focuses on management techniques for cleaner water. In Fiscal Year 2017, the department partnered with University of Maryland Extension to conduct 32 voucher training sessions attended by 667 farmers who wanted to obtain or renew their vouchers. Additionally, 1,544 farmers attended other department-approved training events to obtain their voucher credits.
- Continuing Education**—Certified nutrient management consultants are required to take 12 hours of continuing education credits every three years in order to renew their certifications. Farmers who are certified to prepare their own nutrient management plans are required to undergo six hours of continuing education every three years. In Fiscal Year 2017, the program and Extension sponsored 26 education classes on nutrient management topics and approved an additional 63 courses and field events sponsored by other recognized organizations. Sessions were attended by 2,225 individuals.

FIGURE 2: RESULTS OF 1,016 ON-FARM AUDITS (FISCAL YEAR 2017)

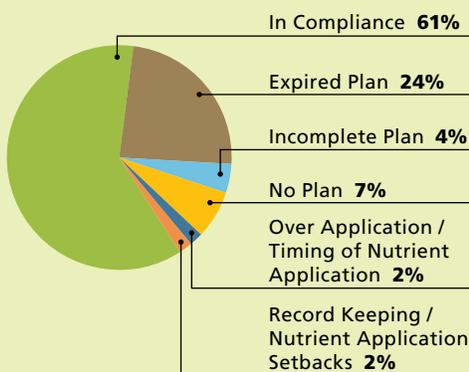


FIGURE 3: ON-FARM AUDITS AND FOLLOW-UP INSPECTIONS Percentage of Farms Receiving Inspections (Fiscal Years 2013-2017)





TURFGRASS NUTRIENT MANAGEMENT PROGRAM

Maryland’s Lawn Fertilizer Law requires lawn care professionals hired to apply fertilizer to turf to be certified by the department or work under the direct supervision of an individual who is certified. The law applies to professionals hired to fertilize home lawns, as well as individuals responsible for turf management at golf courses, public parks, airports, athletic fields, businesses, cemeteries, and other non-agricultural properties.

Both lawn care professionals and homeowners who fertilize their own lawns are required to follow fertilizer application restrictions, use best management practices when applying fertilizer to lawns, observe fertilizer blackout dates, and follow University of Maryland fertilizer recommendations. The Turfgrass Nutrient Management Program, with technical guidance from the University of Maryland, oversees a training, certification, and licensing program for lawn care professionals and a public education program for homeowners.

- **Professional Training, Certification and Licensing**—In Fiscal Year 2017, the department, in cooperation with the University of Maryland, area businesses, and trade organizations, conducted 22 pre-exam training sessions and 23 certification exams across the state for lawn care profes-

sionals. As of June 30, 2017, the program issued 930 business licenses and 1,862 Professional Fertilizer Applicator Certificates. Another 1,582 lawn care company employees were trained to apply fertilizer under the supervision of a certified professional.

- **Recertification Training**—Professional Fertilizer Applicators are required to complete two hours of continuing education each year in order to renew their annual certifications. During the fiscal year, 25 department-sponsored or approved recertification training sessions were offered.
- **Annual Activity Reports**—License holders are required to file an annual activity report with the program by March 1 covering the previous year. By the end of the fiscal year, the department had received activity reports from approximately 97.5 percent of these businesses.
- **Enforcement Activities**—During Fiscal Year 2017, the program conducted 244 record reviews to assess compliance. Twenty-nine warnings were issued and eight violations were resolved through follow-up inspections and education. The warnings were the result of no-shows at pre-scheduled site visits, lack of adequate fertilization records, over-application of nutrients, and lack of



a business license. Inspectors also investigated and resolved 10 complaints from citizens.

- **Homeowner Outreach**—During Fiscal Year 2017, the program continued to educate citizens about Maryland’s Lawn Fertilizer Law through partnerships with the University of Maryland Master Gardeners, news releases, social media, the Internet, and public events. The program worked actively with local jurisdictions and homeowner associations to ensure that contracts written for lawn care services were in line with state laws and regulations.



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Larry Hogan, *Governor*
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Joseph Bartenfelder, *Secretary*

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