

# 20 Years of Nutrient Management Progress

**2019 ANNUAL REPORT**  
Maryland Nutrient  
Management Program





LETTER FROM SECRETARY BARTENFELDER

## TAKING PRIDE IN OUR ACCOMPLISHMENTS

### *Meeting New Challenges Head On*

"Do the right thing," Mark Twain once said. "It will gratify some people and astonish the rest." It's been 20 years since Maryland lawmakers passed the Water Quality Improvement Act establishing the Nutrient Management Program and requiring nutrient management plans for farms.

At the time, skeptics thought farmers were not up to the challenge. And it's no secret that over the years we've heard a few grumbles, but for the majority of Maryland farmers, managing nutrients to improve water quality was and is the right thing to do for their farms, their families, and the streams and waterways under their care and stewardship. The purpose of the 1998 law was to ensure widespread use of nutrient management planning based on the best available science.

The guiding principle behind Maryland's nutrient management regulations is pretty straightforward. Nutrients should be applied to meet crop needs. This, of course, makes good economic and environmental sense.

Over the years, additional requirements have been phased in to protect against runoff in winter, achieve consistency in the way all nutrient sources are managed, provide greater protections for farm streams, and help Maryland meet its Chesapeake Bay cleanup goals.

By all accounts these measures are having a positive impact on water quality and the Chesapeake Bay. Overall compliance with annual reporting requirements has consistently remained above 95% and in FY19, on-farm audits were conducted on just over 19% of the state's 5,415 regulated farms. Approximately half of the farms inspected this year were targeted based on suspected pollution violations. Through it all, our team of nutrient management specialists continues to focus on education and training to fix problems for both the health of the farm and local waterways.

In recent years, smart technology has gained a foothold as more and more farmers reap the benefits of precision agriculture to enhance their nutrient management efficiency and increase crop performance. I believe that in the very near future, the use of state-of-the-art practices such as variable rate fertilizer applications, grid soil sampling, and yield mapping will become commonplace as the next generation of farmers brings full-scale smart technology to Maryland's fields and pastures.

The success of our urban program in educating and certifying lawn care professionals on responsible fertilizer practices for turfgrass brings additional momentum to our progress. To date, the program has certified more than 1,500 professional fertilizer applicators, trained an additional 1,546 lawn care workers, and provided thousands of citizens with information on soil testing and Maryland's Lawn Fertilizer Law.

Looking back over the last 20 years, it is extremely rewarding to know that the Nutrient Management Program has helped farmers, lawn care professionals, and citizens manage nutrients more efficiently and make a real difference for the health of our streams, rivers, and the Chesapeake Bay.

**Joe Bartenfelder**  
*Maryland Agriculture Secretary*



## *How Maryland's* NUTRIENT MANAGEMENT PROGRAM *protects the Chesapeake Bay*

The Nutrient Management Program protects water quality in the Chesapeake Bay and its tributaries 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. The program works to ensure that nutrients applied to crops and lawns are not impacting waterways. Staff work closely with poultry, dairy, and other livestock producers to make certain that animal manure is managed to protect water quality. 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***

Farming operations that generate \$2,500 or more in gross income or have 8,000 pounds or more of live animal weight are required to follow nutrient management plans when fertilizing crops and managing animal manure. The 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. The program ensures that plans are developed, updated, and implemented according to state regulations.

To protect the health of local farm streams, farmers must have stream setbacks and livestock exclusion measures in place. Farmers who till their soil are required to incorporate manure and other organic nutrient sources into fields within 48 hours of application and follow specific timing requirements for fall nutrient applications. A ban on spreading manure in winter is being phased in, and will be fully implemented by March 1, 2020. To further protect waterways, farmers with fields containing high soil phosphorus levels are required to transition to the updated Phosphorus Management Tool over the next several years.

**Turfgrass Nutrient Management Program**

Maryland’s Lawn Fertilizer Law authorizes the program to train, certify, and license individuals and companies hired to apply lawn fertilizer to non-agricultural land. The training and certification program—developed in partnership with the University of Maryland Extension—focuses on fertilizer application techniques, soil science, and best management practices that can be used to 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**

The Phosphorus Management Tool (PMT) uses the latest science to identify the risk of phosphorus loss from farm fields and prevent the additional buildup of phosphorus in soils that are already saturated. Farms with soils that are over certain



thresholds will be limited in how much phosphorus can be applied to their fields. High soil phosphorus

levels are typically found on farms that have used manure or poultry litter as a crop nutrient for many years. Future applications of organic nutrient sources will be limited in these areas.

In November 2018, the Phosphorus Management Tool Advisory Committee voted to have an economic analysis performed to evaluate the potential impact of implementing the PMT on farmland with high soil phosphorus levels. Based on the results of this analysis, the committee may ask the Secretary to provide farmers with a one year extension to implement the tool. This extension is allowed under certain conditions by Maryland regulations.

As of June 30, 2019:

- Soil phosphorus data has been compiled for 1,120,668 acres of regulated farmland.
- Approximately 20% of farm fields tested have soil phosphorus levels that require use of the PMT.
- Farms that have not submitted required soils data are being targeted for audits and inspections.
- Three tier groups (high, medium, and low) have been established for farmland required to transition to the PMT based on average soil phosphorus levels. These tier groups determine how long a farmer has to transition to the PMT.



**THE FIRST CHESAPEAKE BAY AGREEMENT IS SIGNED.**

**1983**



**1989**

**MARYLAND ESTABLISHES A VOLUNTARY NUTRIENT MANAGEMENT PROGRAM.**

**THE NUTRIENT MANAGEMENT CONSULTANT CERTIFICATION IS LAUNCHED.**

**1993**







## COMPLIANCE AND ENFORCEMENT

Maryland farmers are required to follow nutrient management plans that specify the amount, timing, rate, and placement of nutrients for each crop. These plans are prepared by University of Maryland Extension advisors, certified private consultants, or farmers who are certified to develop plans for their own opera-

tions. Farmers are required to update their plans before they expire and submit Annual Implementation Reports to the program summarizing nutrient applications for the previous year. The program's team of eight nutrient management specialists analyzes Annual Implementation Reports and conducts site visits to verify that operators are following their plans.

## Maryland Farmers Follow the 4Rs of Nutrient Management

When farmers follow the 4Rs, they provide adequate nutrition for crops while minimizing the risk of nutrient runoff to local waterways.

- **RIGHT SOURCE**  
Match nutrient type to the crop being grown.
- **RIGHT RATE**  
Match the amount of fertilizer applied to the crop's nutrition needs.
- **RIGHT TIME**  
Make nutrients available when crops need them.
- **RIGHT PLACE**  
Keep nutrients where crops can use them.



## Nutrient Management Plan Submissions

New farming operations are required to submit copies of their initial nutrient management plans to the Nutrient Management Program. This is the first step toward achieving compliance. The program locates "new farming operations" and pursues enforcement actions against operators who have not met this initial requirement.

## Annual Implementation Reports

Farmers are required to submit Annual Implementation Reports by March 1 of each year summarizing nutrient applications for the previous calendar year. By the end of the fiscal year, approximately 97% of regulated farmers, managing about 1.3 million acres of land, had submitted these reports. The program issued \$36,250 in fines against 145 operators for late or missing implementation reports.

## On-Farm Audits and Inspections

During the fiscal year, the program's enforcement specialists conducted 1,035 on-farm audits, a 43% increase over 2018. Sixty-eight percent of these farms were in compliance. The program is actively pursuing full compliance for all audited operations. In FY19, \$21,700 in fines were issued against 30 operators for violations.

A SERIES OF FISH KILLS ON THE LOWER EASTERN SHORE IS LINKED TO THE TOXIC MICROBE, PFIESTERIA PISCICIDA.

1997



1998

MARYLAND LEGISLATORS PASS THE WATER QUALITY IMPROVEMENT ACT ESTABLISHING THE NUTRIENT MANAGEMENT PROGRAM.

FARMERS ARE REQUIRED TO FILE ANNUAL IMPLEMENTATION REPORTS SUMMARIZING THEIR NUTRIENT APPLICATIONS.

2005



2007

THE MARYLAND CHAPTER OF THE AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION RECOGNIZES THE NUTRIENT MANAGEMENT PROGRAM FOR ITS INNOVATIVE APPROACH TO ENFORCEMENT AND FOCUS ON FARMER EDUCATION.

MARYLAND'S LAWN FERTILIZER LAW IS PASSED.

2011







## CERTIFICATION, LICENSING, AND EDUCATION

The Nutrient Management Program manages a training, certification, and licensing program for consultants who prepare nutrient management plans for farmers, and farmers who want to become certified to prepare their own nutrient management plans. The following activities took place in FY19:

### Nutrient Management Exam Training

A two-day training course was attended by 36 individuals who planned to take the nutrient management certification exam.

### Certified Nutrient Management Consultant Program

Nineteen new consultants were certified to write nutrient management plans for farmers; 146 certifications were renewed.

### University of Maryland Advisor Program

Funded 20 University of Maryland advisor positions. These advisors provide farmers with nutrient management plans free of charge.

### Farmer Training and Certification

The program trains farmers who want to become certified to write nutrient management plans for their own operations. Farmers are required to learn the basics of nutrient management planning, pass a specialized nutrient management exam, and work with a nutrient management specialist or Extension advisor to develop their plans. Twenty-three farmers were trained and certified to write nutrient management plans for their own operations during the year, and 125 operators met recertification requirements.

### Nutrient Applicator Voucher Training

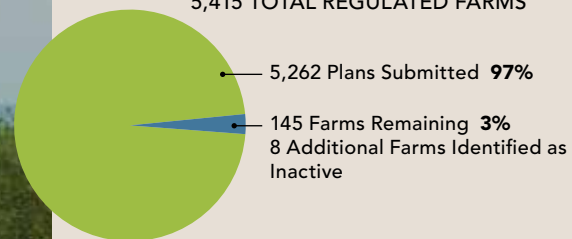
Farmers who apply nutrients to 10 or more acres of cropland are required to attend an applicator training course once every three years. The Nutrient Management Program and the University of Maryland Extension conducted statewide voucher training sessions during the fall and winter and issued 298 vouchers.

### Continuing Education

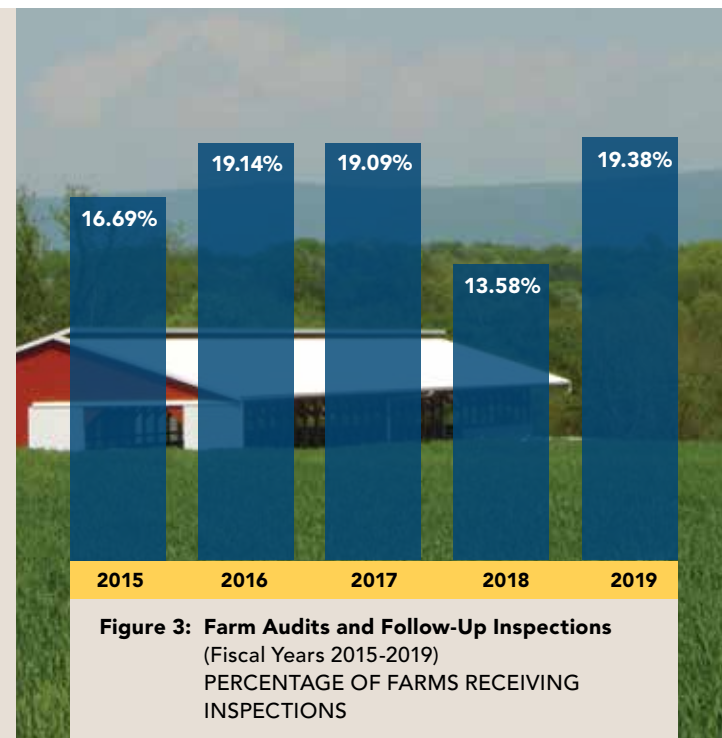
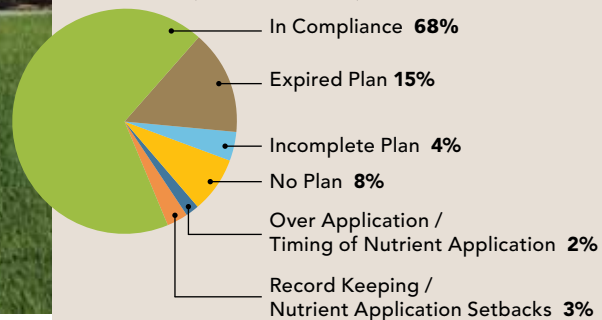
Certified consultants are required to take 12 hours of continuing education credits every three years. During the fiscal year, 116 continuing education offerings were attended by 2,541 individuals.

## FISCAL YEAR 2019 COMPLIANCE RESULTS

**Figure 1: Annual Implementation Reports Submitted**  
(As of June 30, 2019)  
5,415 TOTAL REGULATED FARMS



**Figure 2: Results of 1,035 On-Farm Audits**  
(Fiscal Year 2019)



**Figure 3: Farm Audits and Follow-Up Inspections**  
(Fiscal Years 2015-2019)  
PERCENTAGE OF FARMS RECEIVING INSPECTIONS

NEW NUTRIENT APPLICATION AND SETBACK REQUIREMENTS TAKE EFFECT FOR FARM OPERATORS.

2012



2013

LAWN CARE PROFESSIONALS ARE REQUIRED TO BE LICENSED AND CERTIFIED TO FERTILIZE LAWNS.



2015

PHOSPHORUS MANAGEMENT TOOL REGULATIONS ADOPTED.



MARYLAND LAWMAKERS REQUIRE THE DEPARTMENT TO TRACK MANURE TRANSPORT IN AND OUT OF THE STATE.

2019

MORE THAN 1.3 MILLION ACRES OF MARYLAND FARMLAND ARE MANAGED USING NUTRIENT MANAGEMENT PLANS.



# Turfgrass Nutrient Management Program

Maryland's Lawn Fertilizer Law helps protect the Chesapeake Bay from excess nutrients entering its waters from a wide range of non-agricultural sources, including golf courses, athletic fields, public parks, businesses, schools, universities, cemeteries, airports, and hundreds of thousands of urban and suburban lawns.

The law requires lawn care professionals to be trained and certified in proper fertilizer techniques for turfgrass or work under the direct supervision of an individual who is certified. The law applies to profes-

sionals hired to fertilize home lawns, as well as individuals responsible for turf management at businesses and government institutions. Additionally, the law requires both do-it-yourselfers and lawn care professionals to obey fertilizer application restrictions, use best management practices when applying fertilizer to lawns, observe fertilizer blackout dates, and follow University of Maryland fertilizer recommendations. The following activities took place in FY19:

## **Professional Training, Certification and Licensing**

Seven regional Professional Fertilizer Applicator exams were attended by 127 lawn care professionals. Eight hundred and ninety-two business licenses and 1,536 Professional Fertilizer Applicator Certificates were issued. An additional 1,546 lawn care company employees were trained to apply fertilizer under the supervision of a certified professional.

## **Recertification Training and Licensing**

To renew their annual certificates, professional fertilizer applicators are required to complete two hours of continuing education each year. In FY19, the Turfgrass Nutrient Management Program offered 12 recertification courses for turfgrass professionals and approved numerous training opportunities provided by private industry and trade groups. Additionally, an on-demand pre-recorded webinar with a short quiz was posted online to make recertification easier.

## **Annual Activity Reports**

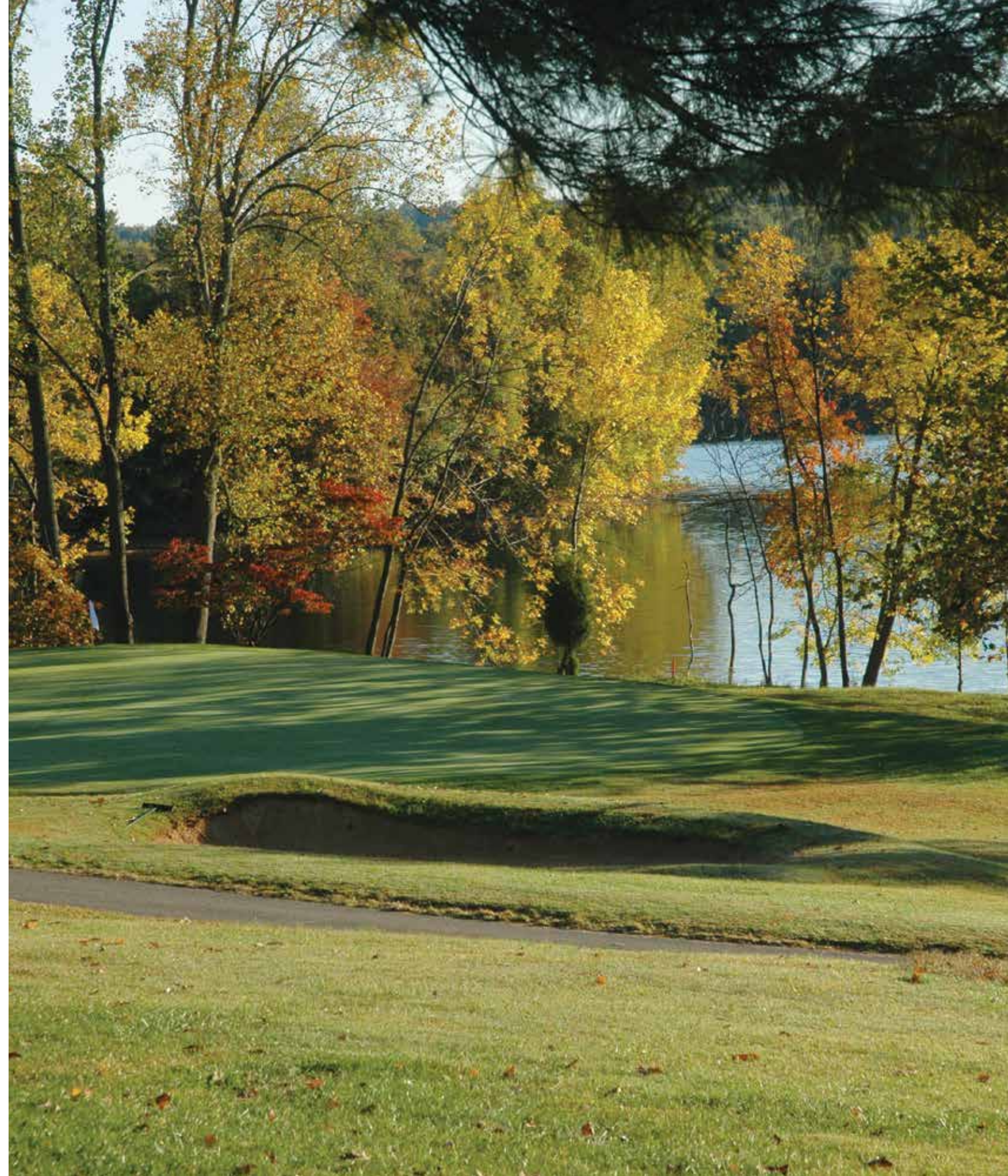
License holders are required to file an annual activity report with the department by March 1 of each year covering the previous year. By the end of the fiscal year, 919 businesses had filed activity reports, representing a 97% compliance rate.

## **Enforcement Activities**

During the fiscal year, 192 record reviews were conducted. Approximately 77% of the firms reviewed were in compliance.

## **Homeowner Outreach**

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. During the fiscal year, brochures on *How to Test Your Soil*, *Backyard Actions for a Cleaner Chesapeake Bay*, *Maryland's Lawn Fertilizer Law*, and *How to Work with a Lawn Care Professional* were updated, reprinted, and distributed to citizens and community organizations.







# Maryland Department of Agriculture

Office of Resource Conservation

## **Nutrient Management Program**

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Larry Hogan, *Governor*  
Boyd K. Rutherford, *Lt. Governor*  
Joseph Bartenfelder, *Secretary*  
Julianne A. Oberg, *Deputy Secretary*

## Maryland Department Of Agriculture **NUTRIENT MANAGEMENT OFFICES**

### **WESTERN MARYLAND**

#### **Allegheny, Garrett and Washington counties**

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#### **Carroll and Frederick counties**

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