



2017



Maryland Department of Agriculture | 2017 Annual Report



Governor Larry Hogan



Lt. Governor Boyd K. Rutherford



Secretary Joseph Bartenfelder



Deputy Secretary James P. Eichhorst

MISSION STATEMENT

To provide leadership and support to agriculture and the citizens of Maryland by conducting regulatory, service and educational activities that assure consumer confidence, protect the environment, and promote agriculture.

VISION STATEMENT

To achieve excellence in programs and in services that preserve and protect agricultural resources and the environment, promote profitable agriculture and consumer confidence, and enhance the quality of life for all Marylanders.



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Department of Agriculture

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CHANGING
Maryland
for the Better

TABLE OF CONTENTS

Mission Statement/Vision Statement	Inside Cover
Message from the Secretary	2
OFFICE OF SECRETARY	
Maryland Agricultural Land Preservation	3
Office of Attorney General	3
Government Relations	4
Communications and Public Information	6
Administrative Services	8
Maryland Agricultural Commission	9
Maryland Young Farmers Advisory Board	9
Governor’s Intergovernmental Commission for Agriculture	10
USDA-NASS	10
OFFICE OF MARKETING, ANIMAL INDUSTRY & CONSUMER SERVICES	
Marketing and Development	11
Animal Health and Diagnostic Labs	15
State Board of Veterinary Medical Examiners	20
Maryland Horse Industry Board	22
Food Quality Assurance	26
Weights and Measures	27
Maryland Agricultural Fair Board	30
OFFICE OF PLANT INDUSTRIES AND PEST MANAGEMENT	
Plant Protection and Weed Management	31
Forest Pest Management	41
Mosquito Control	59
Pesticide Regulation	62
State Chemist	64
Turf and Seed	70
OFFICE OF RESOURCE CONSERVATION	
State Soil Conservation Committee	73
Program Planning and Development	73
• Conservation Grants	74
• District Operations	75
• Watershed Implementation Program	76
• Maryland Nutrient Management Program	77
BUDGET ALLOCATIONS FOR FY 2017	81
LONG SERVICE AWARDS	81



GREETINGS,

On behalf of Governor Larry Hogan and Lt. Governor Boyd K. Rutherford, I am pleased to present the Department of Agriculture's Annual Report for FY 2017. As Maryland's Secretary of Agriculture, I have established three goals for our department:

1. Diversify and expand agricultural business;
2. Serve as a resource to the agricultural community; and
3. Work directly with elected officials to promote the importance of Maryland agriculture.

Three years in, I am proud of the work we have done. We have an outstanding marketing program that has opened up new markets for Maryland farmers throughout the region and abroad. We have also seen record high participation in programs designed to help our farmers, including the cover crop program and Maryland Agricultural Water Quality Cost-Share (MACS) program. These initiatives have allowed many farmers to remain viable while helping us lead the way on Chesapeake Bay clean-up efforts.

Though it is hard to quantify with numbers, I am especially proud of the progress we have made with our elected officials. As a former legislator myself, I understand how important it is to get a first-hand look at the real-life impacts of proposed legislation. That is why I have made it a priority to host annual legislative tours where we get our lawmakers out to the farm. We also host an annual tour of the lab facilities at the department's headquarters.

Under the leadership of Governor Hogan, it is safe to say that Maryland agriculture is open for business. The future is bright for our farmers and I look forward to continuing to work on your behalf.

Sincerely,

Joe Bartenfelder
Maryland Secretary of Agriculture



2017 Annual Report | Office of the Secretary

MARYLAND AGRICULTURAL LAND PRESERVATION FOUNDATION (MALPF)

MALPF celebrated two major milestones in FY 2017: 40 years of service to the citizens of Maryland and more than 300,000 acres preserved. For the fifth time, MALPF has combined appropriations from two fiscal years, FY 2017 and FY 2018, in order to maximize the number of acres purchased. MALPF has nearly \$52 million available for this cycle. Of this, about \$9.5 million is county funding used to match state funds at a ratio of 40 percent county to 60 percent state dollars. At the end of FY 2017, MALPF had purchased easements on a cumulative total of 2,242 properties, permanently preserving 304,858 acres.

MALPF and its other state agency and local government partners are working to meet a legislative goal (SJ 10, 2002) of preserving 1,030,000 acres of agricultural land by 2022. As of June 30, 2017, Maryland has preserved 627,265 acres of

agricultural land under MALPF, Rural Legacy, GreenPrint, and through local land preservation and transfer of development rights programs. This represents almost 61 percent of the goal and is an increase of 10,659 acres from last year.

GOALS AND OBJECTIVES	2017 Actual
Output: Total number of easements, cumulative	2,242
Outcome: Total acres under easements	304,858

OFFICE OF THE ATTORNEY GENERAL

The Department of Agriculture’s statutory mission to protect and to promote agribusiness while protecting the environment creates challenges for the four attorneys assigned to the agency from the Office of the Attorney General (OAG). In addition to representing the Department, the attorneys advise 22 boards and commissions as well as the State’s 24 independent soil conservation districts and the Tri-County Council for Southern Maryland (tobacco buyout program). Their goal is to provide prompt, correct legal advice. Highlights from the year are listed below.

The OAG’s office continues to support the Maryland Agricultural Land Preservation Foundation’s efforts to enforce

and defend preservation easements (2,242 easements, covering over 300,000 acres):

- The Foundation recently settled an ongoing litigation in St. Mary’s County Circuit Court regarding an illegal subdivision of an easement property. After extensive litigation activity, including depositions and multiple mediation sessions, the several parties involved resolved the lawsuit on terms favorable to the Foundation.
- The Foundation is defending a Title 7 petition for judicial review filed by a landowner abutting Foundation eased land. The neighboring landowner objects to uses on the Foundation eased property, which uses the Foundation

finds compatible with its program. Pending motions hearings are scheduled for November 8, 2017. A hearing on the merits of the petition is set for December 7, 2017.

- The OAG also recently prepared regulations and legislation affecting the MALPF program. The regulations concern overlay easements on MALPF eased properties, including stream buffer easement overlays. The legislation prepared by the OAG amends the easement termination process to improve efficiency for reviewing easement termination applications.

The OAG successfully defended an employee disciplinary matter through the administrative hearing process. The OAG also successfully defended that administrative decision before the Circuit Court for Anne Arundel County as well as the Court of Special Appeals.

The OAG is currently defending a lawsuit in Federal District Court filed by a former employee, who has alleged various violations of the Americans with Disabilities Act.

The OAG is currently defending a negligence claim filed against the Baltimore County Soil Conservation District arising out of an auto accident occurring when a tree landed on a car driving on a State road. The OAG is currently preparing its initial response to the lawsuit, which was served against the Soil Conservation District in October 2017.

The OAG's office also assisted the State Board of Veterinary Medical Examiners in its enforcement of Veterinary Practice Act. The OAG assists the SBVME to process efficiently new complaints through informal resolutions and advised the Board on all legal matters.

GOVERNMENT RELATIONS

A point of focus for the government relations team in FY 2017 was again to educate and reach out to elected officials. The team coordinated several regional farm tours for state and local leaders in Prince George's, Montgomery, and Anne Arundel Counties. These tours covered a variety of agricultural production from livestock and grain to growing value-added industries. Increased attendance and participation is a constant focus point for improvement.

2017 LEGISLATIVE SESSION

Before the start of the 2017 Legislative Session, the government relations team and other MDA Staff held an open house at the Maryland Department of Agriculture's headquarters in Annapolis for state legislators. The event was a way for each section of MDA to highlight the important work they perform.

For the third year in a row, government relations staff held a breakfast meet and greet with Secretary Bartenfelder on the morning of Agriculture Day at the Maryland State Fair. Baltimore County, state, and local elected officials attended. This breakfast provided an opportunity to meet and talk with the Secretary in an informal environment. Governor Hogan was the keynote speaker at a luncheon later in the day.

The 2017 General Assembly adjourned April 10 at midnight. During this year's 90-day session, the Department's government relations staff attended numerous bill hearings, sub-committee workgroups, and full committee voting

sessions. Secretary Bartenfelder presented five agricultural briefings to different committees on the status of Maryland's agricultural community and the department's function as a state agency. The department played an important role in educating legislators on a number of bills, which would have had a direct negative impact on the agriculture industry and on the operational and fiscal functions of the department. It was noted several times during the Secretary's briefings that committee members greatly valued the educational tours, including farm tours on the Eastern Shore and the Legislative Open House at the Department of Agriculture before session started.

The Department put forward three departmental bills during the 2017 legislative session that were adopted by the General Assembly. These bills focused on promoting Maryland agriculture products and streamlining processes that had been identified by industry and county governments as hurdles and cost-effective.

- **HB 120 - Seafood and Aquaculture Product Marketing.** This transfers the marketing responsibility for Maryland seafood products to the Maryland Department of Agriculture from the Department of Natural Resources. Seafood marketing will join the current Agriculture Marketing and Development Program, which will be renamed Agriculture & Seafood Marketing and Development.
- **HB 130 - Maryland Wine and Grape Promotion Fund.** This creates a more efficient review and approval process

for applications submitted to the Maryland Wine & Grape Promotion Fund

- **HB 155 - Maryland Agricultural Land Preservation Foundation- Easement Termination.** This streamlines the easement termination process by having the county conduct reviews and hearings and deciding whether a request should be approved or denied. If the county denies the request, the request fails and does not move forward to the Foundation, resulting in the Foundation not expending time and effort on termination applications that it cannot approve. If the request is approved, it moves forward to the Foundation to determine whether the land may be farmed profitably.

Governor Larry Hogan's budget also supported the agriculture community by increasing funding from \$6 million to \$8 million dollars for the Maryland Agricultural Water Quality Cost-Share (MACS) program, which provides farmers with grants to cover up to 87.5 percent of the cost to install conservation measures known as best management practices on their farms to prevent soil erosion, manage nutrients and safeguard water quality in streams, rivers and the Chesapeake Bay.

The Governor also included an additional \$2.5 million in his supplemental budget to pay for the record cover crop acres planted by farmers this year. Cover crops are one of the most cost-effective practices to help the State reach its Chesapeake Bay clean up goals. During budget deliberations, the legislature cut the funding for this important program.

The General Assembly also passed following legislation of interest to the agricultural community:

- **SB 422 - Keep Antibiotics Effective Act of 2017.** After being severely amended, this prohibits the administration of a medically important antimicrobial drug to cattle, swine, or poultry solely for the purpose of promoting weight gain or improving feed efficiency. The Maryland Department of Agriculture must annually collect, and report on, specified publicly available data on the statewide use of medically important antimicrobial drugs in cattle, swine, and poultry. The Secretary of Agriculture is authorized to impose an administrative penalty for a violation of the bill's provisions and may adopt regulations to carry out the bill. As amended, this bill conforms to the federal rule that went into effect on January 1, 2017. This bill is effective October 1, 2017.
- **HB 1063 - Maryland Healthy Soils Program.** This establishes the Maryland Healthy Soils Program within the Maryland Department of Agriculture. The primary

function of this bill is to assist and educate farmers on how to improve their soil health. The key objective of this bill is to improve soil quality. The removal of greenhouse gases from the atmosphere, also known as carbon sequestration, will also be reviewed and studied through the program.

- **HB1035 - Motor Vehicles - Seasonal Exceptional Milk Hauling Permit.** This re-establishes the Exceptional Milk Hauling Permit that was allowed to sunset in October 2016. This bill would make permanent the annual permit to allow up to 88,000 pounds on a 5-axle truck during the "spring flush," which includes the months of March through June. This bill was signed into law by the Governor on April 11, 2017.
- **SB 917- Motor Vehicles - Gross Weight and Axle Load and Exceptional Hauling.** This establishes an Exceptional Hauling Permit for hauling live poultry within the nine Eastern Shore counties. This permit would be similar to the Exceptional Milk Hauling Permit and allow up to 88,000 pounds on a 5-axle truck. However, the permit is only valid for 6 months of the year (November through April) and has a five-year sunset. Additional data and reporting requirements must also be sent from the poultry haulers to the State Highway Administration. This bill was signed into law by the Governor on April 18, 2017.
- **SB 416 - Income Tax Credit - Qualified Farms - Food Donation Pilot Program.** This creates a pilot program for a state tax income credit of up to \$5,000 for qualified farms donating food to authorized organizations. The program, which goes into effect on July 1, 2017, would be limited to Anne Arundel, Calvert, Charles, Montgomery, Prince George's and St. Mary's counties. This bill was signed into law by the Governor on April 18, 2017.

MEETINGS WITH FEDERAL OFFICIALS

Secretary Bartenfelder along with Deputy Secretary Jim Eichhorst and the Department's government relations team, traveled to Capitol Hill to meet with Congressional Leadership and members of Maryland's House Congressional Delegation. Meetings promoted Maryland agriculture as a leader in Bay clean up, local specialty crops, and improving pollinator health. The department advocated the importance for Maryland's federal elected officials to continue their support for Maryland's number one industry.

Meeting with U.S. Department of Agriculture Secretary Perdue, who was just recently confirmed by the U.S. Senate, Secretary Bartenfelder stressed the importance of the

upcoming 2018 Farm Bill, which provides a number of conservation programs to Maryland farmers. These programs have been invaluable in offsetting the capital costs of installing conservation practices necessary for Chesapeake Bay restoration. Other programs, such as Maryland's Specialty Block Grant is made possible by the Farm Bill. This grant has been made available since 2003 to Maryland farmers to help address food safety issues, manage plant diseases and pest with the focus to help increase sales of produce, nursery and other specialty products.

Secretary Bartenfelder and the Department updated House Members including, Rep. Andy Harris, Rep. Steny Hoyer, Rep. Dutch Ruppersberger, Rep. John Delaney and Congressional staff on the Department's commitment to pollinator health and Maryland's beekeeping industry. The Department is a national leading state agency that is implementing a Managed Pollinator Protection Plan (MP3). This plan will focus on educational awareness on pesticide usage, incorporating pollinator habitat and expanding enhanced practices to address things like bee hive management, quick access to report bee kills, and best management practices for pesticide applications.

COMMUNICATIONS & PUBLIC INFORMATION

The Communications and Public Information Office serves as the department's liaison to the media, government agencies, elected officials, the agriculture industry, agency employees and the general public. Its goal is to ensure all stakeholders understand the state of Maryland's agriculture industry, department activities and the department's policy initiatives.

Media Monitoring. The Communications Office regularly distributes news releases to traditional media outlets about agency programs, activities and announcements. The office uses a media monitoring system to track and research media contacts, distribute news releases, maintain media lists for targeted stories, and distribute news clippings of interest to the agency and its constituencies. During FY 2017, staff distributed 212 news releases to nearly 400 news outlets and interested parties, which generated 302 logged inquiries from the media. Each business day, relevant news stories are identified and distributed to all staff and other interested parties.

News Stories. The communications offices handled a variety of inquiries throughout FY 2017. Highlights included:

- Coverage of the department's National Ag Day event at Frederick Douglass High School in Baltimore City. Secretary Bartenfelder joined Lt. Governor Boyd Rutherford and Mayor Catherine Pugh to help students plant flowers in their new greenhouse. The goal was for each student to have a flower to bring home for Mothers Day.
- International press coverage for a manure-to-energy project funded by the department's Animal Waste

Technology Fund. Irish firm NHSL installed a system at Murphy Farm that will convert poultry litter into energy. The energy generated will be used to heat the chicken houses, with any excess energy sold back to the grid.

- Unscheduled mosquito sprayings are conducted in areas not typically sprayed after a human or a mosquito pool tests positive for West Nile Virus or Zika virus. During the year, the Communications Office posted information on any unscheduled spray activity on the agency website and social media platforms as well as through news releases.
- Communications surrounding various Buy Local promotions, including the Buy Local Challenge, the Governor's Buy Local Cookout, the Maryland's Best Ice Cream Trail, and farmers market activities and offerings; as well as Homegrown School Lunch Week and the Farm to School program. Also launched the Maryland's Best Homegrown By Heroes program.

Digital Engagement. During FY 2017, the Communications Office continued to strategically integrate its online presence (i.e., website and social media platforms) under the overarching practice of "digital engagement." Rather than each platform having its own goals and metrics, the department now uses them together to create more comprehensive, coordinated and far-reaching messaging. The goal of the agency's digital engagement is to ensure that the public sees this agency as the authoritative, honest, credible source for information about the agricultural activities, services, regulations and issues under the agency's purview. The website is home base, the place where all other digital platforms lead.

Website. In FY 2017, the Communications Office has continued to build out the agency's website which received a re-design during FY 2015. This new design makes it easier to share content across platforms and is more accessible to mobile users, which make up an increasing share of the site's traffic.

There were 343,212 sessions on the site during FY 2017 – down 38,588 (-10 percent) from the year before. Of this year's visitors, 119,088 (35 percent) came to the site more than once. About 35 percent came to the site through mobile devices – up 2 percent over last year.

This year, 15,881 sessions came via Facebook referral, down 17 percent from FY 2015. Another 2,594 came from Twitter, which is up 12 percent from last year.

Note: The Maryland's Best website is a marketing website, designed to connect consumers with producers rather than to promote agency information. It is hosted by a private vendor and populated by the marketing office.

Social Media. More and more organizations, agencies, nonprofits and regular people are communicating via social media. Traditional media as well are moving to online, digital platforms. By its nature, social media is fast moving and immediate. Rumors and misunderstandings can "go viral" very quickly. By being online and engaged with a following, the department can not only become part of relevant discussions, it can also stop bad information from taking off. The department's social media activities allow the agency:

- To maintain a constant and consistent presence in online communities and discussions;
- To provide credible information directly to the public, without relying solely on the media;
- To monitor trends and issues in public discourse, to correct rumors and provide alternative viewpoints on emerging controversies;
- To improve the image and increase citizen understanding of agriculture;
- To regularly and routinely – both seriously and informally – engage citizens in a variety of issues;
- To continually promote the agency's website as the authoritative source of information.

The department continued to expand its social media presence during FY 2017 with growing followings on Twitter and Facebook and a less prominent presence on Instagram, Flickr, YouTube, and Soundcloud. These social media

platforms provide the agency direct access to a new, younger, more tech savvy audience.

MDA's official Facebook page ended FY 2017 with 10,164 followers (9 percent increase). MDA's official Twitter feed ended the year with 11,327 10,652 followers (6 percent increase).

Agency Social Media Accounts. The department continues to maintain several program-specific accounts in addition to its official Facebook and Twitter.

Twitter. The department maintains the following accounts:

- @MdAgDept – Main Maryland Department of Agriculture account
- @MdsBest – The department's marketing office account
- @MdEquines – The Maryland Horse Industry Board account
- @MdFarm2School – The Farm to School Program account
- @MdAgMosquito – The Mosquito Control program account.
- @MdGypsyMoth – A small feed that live tweets when planes are spraying trees and forests for gypsy moth.

Facebook. The department maintains several accounts:

- Maryland Department of Agriculture
- Maryland Horse Industry Board
- Maryland Farm to School
- Maryland's Best

*The department also maintains Flickr, Instagram, YouTube, and Soundcloud accounts.

News Digest. The Communications Office also distributes an electronic news digest, which is distributed every 4 to 6 weeks, as events warrant. The digest highlights selected news releases, website additions and updates, as well as social media campaigns. It is distributed to more than 1,000 subscribers.

Emergency Management. Planning for emergency communications in the event of plant and animal disease outbreaks, as well as natural disasters, is an important component of the program. The office is actively involved in several multi-agency efforts to refine response and communications plans in the event of an animal disease outbreak or natural disaster. The communications office

also assists in statewide emergency management efforts. Staff is responsible for assisting the Maryland Emergency Management Agency (MEMA) Joint Information Center. When/if necessary, staff handles information requests from traditional and social media and the public during times of emergency and monitors emergency events and helps manage rumor control.

Special Projects for FY 2017. The introduction of High Path Avian Influenza that entered the United States in December 2014 and moved swiftly across the country put the department on special alert, and remains an animal health priority. The Communications Office worked closely with Animal Health staff to develop and print various materials, encouraging both commercial and backyard poultry growers to use enhanced biosecurity practices. During FY 2017, the Communications Office partnered with its colleagues at USDA to produce videos on good biosecurity and obtain stock footage to keep on file in case of an outbreak. The department also used the website and social media to post frequent reminders and updates about biosecurity practices.

The communications office continued to work closely with its counterparts at the Department of Health and Mental

Hygiene (DHMH) and local departments of health as part of the state's response to Zika virus. A major part of this effort focused on outreach and education. This effort included a proclamation from Governor Larry Hogan declaring April 23-29 "Zika Virus Awareness Week" in Maryland.

The department serves as the co-producer with Maryland Public Television (MPT) in the 13-part television series called "Maryland Farm and Harvest," which debuted in November 2013. The Communications Office is the lead contact working with MPT. The series enjoyed continued success during its fourth season, which began November 2016. It is MPT's highest rated locally produced show with more than 4 million viewers.

The office also represents MDA with exhibits at the Maryland State Fair and conferences sponsored by the Maryland Municipal League, the Maryland Association of Counties, and the Maryland Farm Bureau.

During the year, staff also represented the agency on the Maryland Agricultural Education Council. Additionally, staff is actively involved in the leadership of the Communications Officers of State Departments of Agriculture.

ADMINISTRATIVE SERVICES

The Office of Administrative Services manages all technical and support services for the department. It is comprised of four sections – Human Resources, Central Services, Fiscal Services, and Emergency Management. The department has about 500 permanent and seasonal employees, and the Human Resources Office facilitates the recruitment, training, compensation, and retention of qualified individuals. Additionally, the office assists with the transition of those employees leaving government service. Programs and services for employees include employee leave bank, teleworking, wellness, blood drives, and training as well as employee recognition. In FY 2016, the agency successfully implemented the new Workday payroll system, which automated several payroll and HR functions.

Central Services manages facilities, records, inventory, telecommunications, warehousing, the agency motor fleet, and the distribution of supplies and mail. The office also oversees departmental procurement and is responsible for the maintenance of facilities. The motor pool provides quality

maintenance and repairs of the department's 255 vehicles in addition to semi-annual inspections on all vehicles. The departmental fleet traveled more than 2.3 million miles last year.

Fiscal Services handles all centralized accounting transactions for the department. This encompasses all phases of the budget, grants management, accounts receivable, and accounts payable.

Emergency Management for the department addresses all emergencies within the department. The department is in the process of completing a new management plan that will be tailored to the department and in concert with the statewide emergency operations plan. Additionally, the department continues to provide annual training and drills for first responders.

MDA's IT function has been absorbed and transitioned into DoIT. The transition started in FY 2016 and should be complete by FY 2018.

MARYLAND AGRICULTURAL COMMISSION

The Maryland Agriculture Commission is an advisory group to the Maryland Secretary of Agriculture. Its 30 members represent the state's major commodity groups as well as representatives from the University of Maryland, consumer interests, food processing and various other agricultural business segments.

The commission meets monthly and discusses issues of agricultural consequence. This year the commission had notable speakers and subsequent in-depth discussions on the subjects of: the Maryland Ag Land Preservation Foundation, the Maryland Poultry Industry, Maryland's Farm to School Program and the Maryland's Best Program, the Animal

Disease Traceability Program, LEAD Maryland, Department of Natural Resources on Crop Damage Permits, Harry Hughes Center for Agro-Ecology, Maryland Agriculture Education Foundation, Maryland Agricultural & Resource-Based Industry Development Corporation and legislative issues.

These topics along with reports from each of the represented commodity and business groups keep the commission proactive with agricultural issues and assure the fulfillment of the commission's statutory mission. In addition, the commission conducted its bi-annual farm tours in Calvert and St. Mary's Counties in the fall; and Dorchester and Wicomico Counties in the spring.

MARYLAND YOUNG FARMERS ADVISORY BOARD

The Maryland Young Farmers Advisory Board is an advisory group to the Maryland Secretary of Agriculture and the Maryland Agricultural Commission. Its 12 members represent young farmers from across Maryland. The board also includes representatives from the Maryland Farm Bureau, Maryland Department of Natural Resources Forestry Program, Maryland Department of Commerce and Maryland Department of Agriculture.

The advisory board meets quarterly and discusses current agriculture issues relating to Maryland Young Farmers.

This year the board heard presentations and conducted subsequent in-depth discussions about: the Maryland Agriculture Land Preservation Foundation, Maryland Agricultural & Resource-Based Industry Development Corporation, and toured Dorchester and Wicomico counties in the spring with the Maryland Agricultural Commission.

These matters, along with reports from each of the young farmers and agency representatives, keep the board current with young farmer challenges and opportunities and ensure the fulfillment of the board's statutory mission.

GOVERNOR'S INTERGOVERNMENTAL COMMISSION FOR AGRICULTURE (GICA)

The Governor's Intergovernmental Commission for Agriculture was established on June 29, 2006, to "promote the economic profitability of agriculture in the State by ensuring that all appropriate State agencies work in a cooperative, coordinated manner with local government and industry groups in planning, implementing, overseeing and evaluating intergovernmental initiatives related to agricultural affairs of the State."

The commission met twice during FY 2017—the first time on September 27, 2016, and the second time on June 1, 2017. The following presenters touched on a wide-range of areas that are important to the agriculture community.

- Ashley Jones, Entomologist, Plant Protection & Weed Management Program - Presentation on Maryland's Pollinator Protection Plan (MP3)
- Joe Tassone, Program Manager, Geospatial Data Analysis - Presentation on The Future of Sustainable Farming and Forestry in Maryland

- Gail Ownings, Chair, Eastern Shore Land Conservancy Policy Committee - Presentation on Placement of Large-scale Solar Operations on Agricultural Land
- Kevin Atticks, Grow and Fortify - Presentation on Maryland's Value-Added Agriculture - Baltimore Metropolitan Council Report
- Brian S Geraci, State Fire Marshal - Presentation on Inspections Guidelines for Wedding Barns
- Kirk Engle, Department of Health and Mental Hygiene - Update on Food Safety Programs at Department of Health and Mental Hygiene
- Charlotte Davis, Rural Maryland Council Presentation on Where to Find the Ag Money & How to Get It

The commission has also discussed its plan for FY 2018, which includes discussions and updates on more value added markets and opportunities in the state and looking at policy changes to help address crop damage caused by wildlife on Maryland farms.

USDA/NATIONAL AGRICULTURAL STATISTIC SERVICE (NASS)

The Maryland Field office of the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS) – which has offices in the Maryland Department of Agriculture building in Annapolis – provides the public with data relating to the production of most crops grown and livestock raised in the state. Annual information is provided on the general economic well-being of the state's agricultural sector. NASS statistics are used to administer and support USDA farm programs that benefit Maryland farmers, to determine the feasibility of new ventures affecting the state's farmers, and to direct program research and development. NASS has a rich history of collecting and distributing agricultural statistics, dating back more than 150 years. Each year the employees of NASS conduct hundreds of surveys and prepare reports that impact every facet of Maryland's agricultural community.

Its mission to provide timely, accurate and useful statistics in service to U.S. agriculture would not be possible without the voluntary cooperation of Maryland farmers who take valuable time to respond to NASS surveys.

Agriculture generated more than \$2.2 billion in cash receipts for the state's farmers, not accounting for the additional impact provided by related jobs and services. Maryland's leading cash commodities were broiler chickens, greenhouse/nursery products, corn, soybeans, milk and dairy products. The Maryland Field office of NASS estimated there were 12,300 farms in 2016 with an average size of 165 acres. Total land in farms in Maryland was 2.03 million acres, one third of the state's entire land area.



2017 Annual Report | Office of Marketing, Animal Industries, and Consumer Services

AGRICULTURE MARKETING AND DEVELOPMENT

The goal of the Maryland Department of Agriculture's Marketing Section is to develop markets for Maryland agriculture and to connect farmers, watermen, and food producers to markets. Through this economic development and promotion activity, the department helps develop a profitable future for Maryland agriculture

MARYLAND'S BEST

From in-store promotions of Maryland-grown apples and watermelons, to advertising, media events and press releases, the department's marketing projects continued to build demand and connect farmers with markets for their products during FY 2017. A 2015 analysis of the department's Marketing program, Maryland's Best, showed the effort increasing farm sales by \$7.6 million over 5 years. For every \$1 spent in advertising and promotions by Maryland's Best, \$15 is returned to the Maryland farmer and state economy.

Primarily funded by the U.S. Department of Agriculture Specialty Crop Block Grant Program, the department's Maryland's Best program encourages consumers to buy Maryland-grown fruits, vegetables, flowers, nursery products, wine and Christmas trees. Because of restrictions on federal funds, state funds were used to promote dairy, meat, poultry and the agritourism sectors. Advertising and media placements targeted food buyers and promoted Maryland consumers' preference for local and the local supply of Maryland produce. More than three million consumers received promotional messages from the department during the year through radio, print and online advertising. Press releases promoting Maryland agriculture products were distributed to more than 400 media outlets.

For consumers, the Maryland's Best website (www.marylandsbest.net) is the primary source of information about local farm stands, farmers' markets and Maryland farms.

The website includes farm contact information, websites, directions, and video interviews with about 1,000 farmers, wineries and small food processors. During FY 2017, there were 109,120 visits to the site by 93,091 users.

Governor Larry Hogan supported the department's Buy Local program and Maryland's Best by kicking off the 2017 Buy Local Challenge Week with the Buy Local Cookout at Government House in July. The Governor encouraged Marylanders to seek out Maryland-grown food during the event, which included farmers, food writers, chefs, grocery store representatives and the media.

Marketing staff conducted meetings with produce buyers and marketing professionals from many of the major grocery store chains to increase Maryland-grown produce sales and develop in-store promotional materials using the Maryland's Best logo. Staff took buyers from major grocery store chains on tours of Maryland farms, developing business relationships between farmers and retailers. The department's annual Buyer-Grower meeting, connecting farmers and small food processors directly with buyers, had more than 60 farms and 300 buyers registered in FY 2017.

Also in FY 2017, the Maryland's Best Ice Cream Trail promoted the dairy sector in the state and encourage buyers to visit nine dairy farms selling ice cream directly to consumers. This project was featured in articles by The Washington Post and Baltimore Sun, to name a few. Over 100 participants completed the Ice Cream Trail in FY 2016 and submitted their passports for a chance to be named the 2017 Maryland's Best Ice Cream Trailblazer.

MARYLAND FARM TO SCHOOL PROGRAM

Governor Larry Hogan designated September 19-23, 2016 as Maryland Homegrown School Lunch Week, a time when schools across the state help students understand that their

food comes from farms. Students in hundreds of public schools across the state will get a taste of fresh, Maryland-grown and produced food in their lunches during the week.

“Maryland spends \$18 million dollars annually on local products in school meals. Maryland ranks 9th in the nation with the average school district spending 23 percent of their food budget on local products, according to the latest USDA Farm to School Census,” said Lt. Governor Boyd Rutherford who joined educators, farmers, and federal, state and local officials, and students from Frederick Douglass High School in Baltimore City today to kick off the celebration. “It is essential that students learn and understand where our food comes from, and how vital our agriculture industry is to Maryland’s economy and our quality of life. We are extremely encouraged that nearly all 24 of our public school systems participating in this important educational program.”

At the statewide kickoff event, students at Baltimore’s Frederick Douglass High School heard state, agriculture and education officials talk about the connection between farms and food. Students and dignitaries also had the opportunity to taste local carrot and apple salad prepared by the Baltimore City Public Schools Food and Nutrition Services. The event concluded with a ribbon-cutting ceremony and tour of new hoop houses and gardens for the school’s new urban agricultural class. Professional expertise and materials were donated by the Maryland Nursery Landscape and Greenhouse Association, Maryland Agriculture Education Foundation and other community partners for the school’s garden and hoop houses

During the week, the school will serve home-grown salads featuring as much Maryland-grown produce as possible including microgreens from City Schools Great Kids Farm, along with fresh fruit, sandwiches, and milk. The names of the farms that grew the food will be posted on the lunch menu and website. Those local farms include: Colora Orchards, Nash Produce, Richardson Farm, and Baywater Greens.

Local products used in school meals include: apples (Gala, Golden and Red Delicious), cucumbers, nectarines, peaches, plums, spinach, watermelon, tomatoes, milk, and pears. Baltimore City Public Schools buys local when feasible throughout the school year through Coastal Sunbelt Produce distributor, Schmidt Bakery, and Cloverland Dairy.

Speakers at the kickoff included: Lt. Governor Rutherford, Maryland Agriculture Secretary Joe Bartenfelder, Baltimore City Public Schools CEO Dr. Sonja Santelises, Maryland State Department of Education Deputy State Superintendent for School Effectiveness and Chief Performance Officer Dr. Sylvia

A. Lawson, Baltimore City Public Schools Food and Nutrition Department Executive Director Liz Marchetta, and Frederick Douglass High School Principal Kelvin E. Bridgers.

Other schools in the state planned various activities to celebrate 2016 Homegrown School Lunch Week including taste testing of recipes created by high school culinary students with a pig and lamb raised by agricultural and FFA students in Caroline County Public Schools. Information about activities in other counties is available on the department’s website.

SCHOOL COLLATERAL MATERIALS:

The Farm to School program distributed more than 900 posters, 45,000 window clings, 130,000 stickers, and 439,000 Farmer trading cards among the 24 school systems. The program also distributed 135 signs that said, “This Farm Feeds Schools” to producers who provided products to the schools during Maryland Homegrown School Lunch Week. A Maryland Farm to School brochure was also created with new seasonality charts for Maryland specialty crops for schools, parents and the public. The Farmer-Specialty Crop was piloted last year and it was distributed statewide this year. The card featured a specialty crop product on one-side and the farmer on the other side. The producer on the card sold Maryland-grown product to the particular school system.

The department is on the Leadership Team for the Maryland Department of Natural Resources’ Children in Nature Partnership and contributed to its Health and Food (Agricultural) Connections subcommittee which focused on integrating agriculture education into schools and non-formal education venues as a component of environmental literacy.

SPECIALTY CROP GRANTS

The department’s marketing program administers USDA’s Specialty Crop grants. During FY 2017, the department awarded over \$376,000 to seven projects that enhanced the competitiveness of specialty crops in Maryland. Some projects are designed to:

- Continue to mitigate specialty crop food safety risks by reducing barriers to implementing Good Agricultural Practices (GAP) programs through specialty crop producer technical assistance, training programs, one-on-one assistance on developing GAP programs, and U.S. Department of Agriculture GAP and USDA Harmonized GAP audit certification cost share assistance;
- Continue to strengthen consumer awareness of local

specialty crops and connect specialty crop farmers with markets through seasonal promotions of Maryland specialty crops via mass media, www.marylandsbest.net, direct partnerships with Maryland specialty crop associations such as the Mar-Del Watermelon Association and Maryland Apple Promotion Board, and other strategic promotional avenues

- Develop a low-cost, shared infrastructure system for post-harvest handling and storage of winter crops to help expand sales to restaurants.
- Develop a state and county-level regulatory matrix that will provide an outline of the permits and processes required for specialty crop producers to sell and market raw and value-added agricultural products.
- Perform pre-award and post-award activities to administer Specialty Crop Block Grant Program funding and ensure that the State Agency and sub-awardees abide by Federal and State requirements and regulations
- “Reach for the Peach” education and program campaign will create a social media platform and marketing “toolbox” for peach growers to use during the season to increase consumer awareness of locally produced peaches for the retail and farm market segments;
- Create new recommendations for small fruit growers to sustainably manage spotted wing drosophila (SWD) in red raspberries through the evaluation of on-farm management practices (i.e. carrier water volume, sprayer type, and canopy density).

GOVERNOR’S ADVISORY COMMISSION FOR MARYLAND WINE AND GRAPE GROWING

The Governor’s Advisory Commission on Maryland Wine and Grape Growing (§10-1201 Agricultural Article) was authorized in 2005. The Commission advises the Maryland Wine and Grape Promotion Council (§ 2-1103 Agriculture Article) on the allocation of funds from the Maryland Wine and Grape Promotion Fund. On recommendation from the Council, the Board of Public Works approves the expenditures from the Fund (§ 2-1102 Agriculture Article). The Commission is also responsible for collecting data to assist the Secretary of Agriculture in determining the supply of Maryland grapes pursuant to Article 2B Section 2-205.

MARYLAND WINE AND GRAPE PROMOTION FUND

The Maryland Wine and Grape Promotion Fund, authorized in 2005, provides grants to non-governmental organizations to encourage: (1) the production and consumption of Maryland

wine; and (2) the production of wine grapes in the State. The department administers the grants from the Maryland Wine and Grape Promotion Fund.

The Fund was created with two types of funding mechanisms: 1) direct allocations in the supplemental budget; and 2) a self-funding mechanism. The passage of 2015 HB 827 (Chapter 282) created the Fund’s self-funding mechanism. The statute altered the distribution of alcoholic beverages tax revenue so that the revenue generated from the tax on wine produced at Class 4 wineries licensed in the State must be distributed to the Maryland Wine and Grape Promotion Fund (§ 5–105(E) Tax - General Article).

Since December 2015, the department has received quarterly installments from the Comptroller’s Office for the Fund; there is \$93,438 in the Wine and Grape Promotion Fund as of June 30, 2017. The amount of funding will vary from quarter to quarter based on wine sales from Class 4 wineries. It’s projected that the Fund will receive up to \$160,000 annually. The Commission allocated \$85,000 for grants from the Wine and Grape Promotion Fund which was approved by the Wine and Grape Promotion Council and by the Board of Public Works in December 2016.

The following applications were approved by the Board of Public Works to the Maryland Wine and Grape Promotion Fund:

- Vineyard Capital Assistance Program
- Maryland Wine Economic Impact Study
- Maryland Wine and Grape Speaker Series
- Rebranding and Promotion of Maryland Wine Industry

FARMERS’ MARKET PROGRAMS

The goal of the Farmers’ market programs within the department’s Marketing Section is to help farmers and farmers’ market managers connect to the general public and consumers who want to purchase Maryland products. Through this economic development and promotion activity, the department helps develop a sustainable future for Maryland’s diversified agricultural products.

FARMERS’ MARKET NUTRITION PROGRAM (FNMP)

The Farmers’ Market Nutrition Program is a USDA Funded Nutrition Grant Program that is administered by the Maryland Department of Agriculture, in conjunction with the Maryland Department of Health and Mental Hygiene and the Maryland

Department of Aging. The USDA gives grants to state agencies to provide checks to low-income participants. The two federal programs funded are the Women, Infants and Children and Seniors Farmers' market Nutrition Program. Checks can be used to buy fresh fruits, vegetables, and cut herbs (and honey for seniors only) at Maryland farmers' markets. The program runs every year from June 1 through Nov 30. In Maryland, about 400 farmers participate annually.

The Farmers' Market Nutrition Program helps expand access for low-income Marylanders to be able to purchase fresh local produce at their local farmers' markets. In addition to their economic importance, farmers' markets are popular community meeting places where residents catch up with each other and purchase fresh, nutritious, locally produced fruits, vegetables, baked goods, and other food products. In Maryland, all of the 140 recognized markets have authorized farmers present who participate in the Farmers' Market Nutrition Program. In 2016, WIC recipients and seniors spent the \$471,255 of the federal and state funded benefits with produce farmers.

FARMERS' MARKET DIRECTORY

Over 60,000 printed Maryland Farmers' Market Directories are distributed to the general public every year through tourism offices, libraries, farmers' markets, senior clinics, welcome centers and other facilities. This directory includes all the farmers' markets recognized by the department in all 23 counties and Baltimore City. The online version is also available on the department's website and the Maryland's Best website.

INTERNATIONAL MARKETING

The department's international marketing program represents Maryland's farmers, breeders, processed food companies and nurseries in the Southern United States Trade Association (SUSTA). The department is a member of the trade association through its membership in the Southern Association of State Departments of Agriculture (SASDA).

The trade association's activities for Maryland in FY 2017 included food trade shows in the United Arab Emirates, South Korea as well as a trade mission to China. The department is also a member of the United States Livestock and Genetics Export Association. With funding from this organization, the department promoted the Maryland Angus breeders at the World Angus Forum in Scotland. The department took University of Maryland Wye Angus program leaders as well as Baltimore County's Roseda Farms to the event.

The department also hosted an inbound mission of Canadian produce buyers who visited several Eastern Shore produce and watermelon operations. Sales were made on the spot for shipment to Canadian markets.

In November 2016, the department took a Maryland trade delegation to the Havana International Trade Fair in Cuba. Department staff met with Cuban agriculture officials and supported Salisbury-based Perdue Farms' Grain and Oilseeds Division in its efforts to sell soybeans and crushed soybeans to Cuba.

All the international activities resulted in sales of approximately \$72 million from Maryland companies and farms—up from \$25.7 million in FY2016.

ACRES AND CROP INSURANCE PROMOTION

The department administers two federally funded programs: Crop insurance promotion and the Maryland Agricultural Conflict Resolution Service (ACReS), an agricultural mediation program.

Crop insurance promotion is funded with \$285,000 from the USDA Risk Management Agency. Through press releases, newsletters, presentations and advertisements in agricultural media, the department has increased participation of Maryland farmers in federal crop insurance programs to 4,435 farmers in FY 2017, up from 3,700 in FY 2002. Farmer investment in crop insurance helps stabilize the Maryland agriculture economy as weather and market volatility make farming a challenging sector. In FY 2017, more than \$300 million of agricultural production is insured on more than 880,000 acres.

The ACRES program, funded by USDA, helps keep farmers out of court by providing voluntary mediation services. As more urbanites move to rural areas, conflicts are expected to grow. The number of requests for mediation grew from eight requests in 2005 to an average of 24 per year. Eighty percent of mediations conducted result in a solution that both parties agree with. Additionally, farmers and others who do not use mediation and have agricultural-related disputes are provided assistance in developing solutions that effectively eliminate or manage conflict.

The Maryland Right to Farm statutes help ensure that farmers have the opportunity to respond to complaints from neighbors and others. Many counties have ordinances that support the Right to Farm statute. These ordinances contain clauses that provide for real estate notices and disclosures to alert people moving next to farms of the potential impacts that the farm may have such as noise, odors and dust, etc.

SPAY AND NEUTER GRANTS PROGRAM

Created in 2014 by the General Assembly, the Spay and Neuter Grants Program was established to assist in the reduction of animal shelter overpopulation, and cat and dog euthanasia rates by financing grants to local governments and qualifying animal welfare organizations for programs, on a competitive basis, that will effectively facilitate and promote spay and neuter services for cats and dogs. Follow this link to see the Regulations 15.01.10.00 (Spay Neuter Grant Program) on COMAR.

Funding for this program comes wholly from fees paid by the pet food industry. As mandated by the General Assembly, a fee is levied on all pet food companies that sell their product(s) in the state. In the first year, companies paid \$50/product. In 2014 the fee increased to \$75/product and in 2015, the fee capped at \$100/product.

As of June 30, 2017, the program has funded 24,348 spay and neuter procedures.

ANIMAL HEALTH & DIAGNOSTIC LABS

ANIMAL HEALTH PROGRAM

The MDA Animal Health Program prevents and controls infectious and contagious diseases in Maryland livestock and poultry with particular emphasis on those diseases that threaten the public health endanger food supplies or threaten the economic security of the animal industries. Staff members work closely with partners in the animal industries, local, state and federal governments and the public to ensure an efficient team effort for disease prevention, detection and control. The Animal Health Program consists of three subprograms, including the Animal Health Headquarters and Administration with eight full time staff, the Field Operations with six full time and 3 part time staff and the Diagnostic Laboratory System with 15 full time and 1 part time staff.

In addition to routine or scheduled work, the Animal Health Program also responds to all animal emergencies under the State Emergency Operations Plan, Emergency Support Functions 6 and 16. Animal emergencies are categorized as 1) animal health emergencies, such as a disease outbreak in livestock or poultry; and 2) animals in emergencies, such as assisting with feed provisions or managing pet sheltering operations in a natural disaster. The program works closely with the Maryland Emergency Management Agency (MEMA) and the majority of Animal Health personnel are emergency essential employees due to the critical nature of animal emergency response.

MDA has a small but important regulatory role in protecting and promoting animal welfare that is limited to livestock at auction markets and certain aspects of animal transport and exhibition. MDA frequently assists local animal control agencies and other agencies to protect animal welfare through field consultation, training, investigative support, and diagnostic evaluations of affected animals.

PROGRAM OPERATIONS

Regulatory and outreach activities are designed to help support compliance with animal health regulations and other efforts to promote animal health, public health and agricultural productivity.

Interstate Movement. All animals moving into or out of Maryland, or being imported or exported into or from Maryland, must be examined for signs of contagious or infectious disease, have required vaccines and disease testing, and be accompanied by a Certificate of Veterinary Inspection. Animal Health staff processed certificates of movement for 65,246 livestock animals, including horses, in FY 2017, a notable increase of 9.9% percent from movement in FY 2015 (59,385).

Animal Exhibitions and Non-commercial Herds and Flocks. Animal Health staff performed 54 inspections of exhibitions (fairs and shows) and processed 6,895 interstate health certificates in FY 2017 for exhibitions, races and sales in state.. The field inspection staff, augmented by other MDA program staff, federal partners, exhibition officials and trained volunteers, inspected and tested livestock and poultry upon entry to events and during the course of the exhibition. Animals with signs of infectious or contagious disease were isolated and excluded from the exhibition. Outreach and education efforts, particularly for zoonotic diseases affecting humans and animals, continued throughout the year.

During FY 2017, Animal Health staff continued outreach, inspection and training in the noncommercial poultry sector, as this sector continues to increase in size and disease risk due to the popularity of "Backyard" chicken flocks and local food sourcing, stimulating growth in small commercial meat and egg production. Internet sales of poultry continue to grow,

and the Animal Health program began in earnest identifying, inspecting and regulating small flocks selling over the internet to improve sanitation and disease traceability, and to bring flocks into compliance with existing State regulations and interstate movement requirements to other states. Maryland continues to have a large import and export market of poultry. The majority of poultry coming into the state stocks the large broiler (meat) industry located on the Eastern Shore of Maryland, with egg-type chickens being the most prevalent backyard/small flock poultry imported.

Animal Health certifies individuals in poultry sampling techniques for Salmonella pullorum and avian influenza as part of the Poultry Testing Agent program, allowing them to provide low-cost services to owners and producers who wish to exhibit or sell birds in Maryland or other states. Animal Health held six trainings in FY2016, for a total of 83 MD Authorized Poultry Testing Agents.

Livestock and Poultry Auctions and Dealers. During FY 2017, Animal Health staff inspected 279 commercial livestock auctions held at the five USDA/MDA “Approved Livestock Auctions” in Maryland. During the inspections, animals are observed for signs of infectious or contagious disease, including foreign animal diseases, and for compliance with welfare, identification and other market regulations. Disease surveillance is conducted for diseases of concern such as avian or swine influenza. No major violations of market regulations and no avian or swine influenza or other diseases of significance were detected in livestock or poultry at auction markets in FY 2017. 89 Dealer inspections were done for the 32 livestock dealers and all dealers of poultry, primarily farm stores which sell chicks. Dealers are inspected for diseased animals, record-keeping compliance, and education regarding the Animal Disease Traceability regulations.

Biologics. The Animal Health Program evaluated 53 commercial animal biological products, mostly vaccines, and issued authorization letters to pharmaceutical companies, distributors, veterinarians or researchers allowing them to import, manufacture, market, distribute or use the biologic agent in Maryland. The program responded to 19 inquiries regarding biologics, primarily regarding the new Food and Drug Administration (FDA) Veterinary Feed Directive (VFD) rule, which requires veterinarian oversight for distribution and use of all medically important antibiotics, which are antibiotics important for use in human medicine. Public and veterinarian specific outreach regarding the VFD rule was done to educate stakeholders regarding these changing requirements for antibiotic use.

Contagious Equine Metritis (CEM) Import Quarantine Station. MDA operates one USDA CEM quarantine stations in partnership with a private business. At the quarantine station, imported horses receive extensive testing to ensure they are free of CEM prior to being released for breeding activity in the United States. CEM is a disease that is common around the world but has been eradicated in the United States. MDA issued 193 import permits through the CEM program in FY 2017, a significant increase of 14% from FY 2016 activity (169), consistent with a gradual increase in equine imports over the past 6 years since the low in 2010 of 109 annual import permits.

Animal Disease Traceability (ADT) Program. All five markets throughout the State continued to function as approved “Livestock Tagging Stations” under USDA and MDA authority, allowing them to provide tagging and recordkeeping services to livestock producers at the market, facilitating interstate movement and official identification of Maryland animals. Official identification is usually an ear tag, and tag distributors are required to maintain records of tag issuance. Outreach to producers, markets, veterinarians and Extension continued thru FY 2017 to increase compliance with ADT requirements for animals moving interstate to have “official identification”. Most cattle, sheep and goats are now, as of February 2013, required to have official tags to move interstate as part of the federal ADT rule. Maryland implemented a new ADT policy in FY 2017, requiring the use of radio-frequency identification tags (RFID) in animals entering exhibitions, allowing automated reading of identification tags. This change enables better and more efficient tracking of animals moving in, out and within Maryland. To implement this requirement, Animal Health first met with the ADT Advisory Board, a consortium of livestock stakeholders, and the Maryland Association of Fairs and Shows, followed by outreach and education to producers, exhibition sponsors, Extension and veterinarians throughout the state.

The eventual goal of ADT is to use automated recordkeeping for all livestock movements, similar to that used for tracking packages, to trace the movements of animals implicated in a disease outbreak within 24-48 hours. Traceback tests for cattle, swine and poultry in FY 2017 indicated that Maryland can still meet the 24-48 hour proposed federal standard for tracing individual animals. MDA uses the federal Surveillance Collaboration Services (SCS) CORE ONE database, installed at MDA headquarters in FY 2012, to maintain identification data. This enables tracing of many animals rapidly when necessary in a disease outbreak investigation. The Core One system is compatible with systems in use by other states and will better enable rapid sharing of data between states during a disease

event. While identifying animals of concern is a priority, an equally important priority is identifying those animals, farms and facilities which are not involved in a disease investigation so they can maintain normal commerce with little or no delay, minimizing economic losses and business disruptions.

In order to create Official Identification, producers must register their Premises. Premise registration is needed to improve the ability to trace animals. To date, property owners and operators with livestock have registered 7,432 premises in Maryland. Livestock premise registration is required for animals to move interstate. Under Maryland law, most poultry premises must be registered with MDA. In the event of disease outbreaks, the database allows staff to quickly identify nearby premises, test birds and provide appropriate information to producers. MDA staff aggressively registers poultry premises as they are encountered. Some local jurisdictions require MDA registration as part of the local approval process for backyard flocks. To date, 7,350 poultry premises are registered under the state program.

EMERGENCY RESPONSE READINESS

The Animal Health program maintains a robust capacity for emergency response. During FY 2017, Animal Health staff continued to work closely with the poultry industry and State and Federal agencies to prevent and prepare for a Highly Pathogenic Avian Influenza (“HPAI”) outbreak, subsequent to a major HPAI outbreak nationwide in 2014 and 2015. Program staff led or participated in ten (10) emergency response exercises or trainings in FY 2017, primarily focused on HPAI response. Through continued training, MDA personnel are assigned and trained to respond to all agricultural emergencies, including animal emergencies. Staff is trained in and routinely uses the Incident Command System and the Web EOC system in emergency events under the departmental Emergency Operations and Incident Command System/Unified Command Plan. In addition, Animal Health personnel collaborate with the Maryland Department of Health, the Maryland Emergency Management Agency (MEMA), the State Board of Veterinary Medical Examiners and the Maryland veterinary community to recruit, train and organize the State Voluntary Veterinary Corps, a group of about 230 veterinarians and technicians willing to support emergency operations when activated.

FY 2017 was the sixth year of MDA participation in the Mid Atlantic Secure Milk Supply (SMS) initiative, a multistate continuity of business planning effort for the dairy industry in the event of a foot and mouth disease (FMD) outbreak. The voluntary initiative is partially funded by USDA with

significant contributions by the industry and participating states. This coalition includes twelve Eastern states (DE, GA, NC, NJ, NY, MD, OH, PA, SC, TN, VA and WV) as full members. The greater the cooperation among states to promote biosecurity procedures on dairy farms, the greater the ability of the dairy industry to ship milk across state borders with minimal delay or disruption during an FMD outbreak which results in less market disruptions and less financial hardship to producers, processors and haulers. In FY 2017, Maryland certified its first dairy producer, Teabow Farm, as “qualified” under the Secure Milk Supply Program to move milk in the event of a FMD outbreak. The program also worked with the large Laurel Processing Plant to bring them closer to certification under SMS.

DISEASE SURVEILLANCE AND RESPONSE

The Animal Health Program oversees or conducts ongoing routine, active or enhanced surveillance for several livestock and poultry diseases, including foreign animal diseases. The Program has one federal-state Cooperative Agreement for disease control programs for multiple livestock and poultry species which fund much of the enhanced surveillance and outreach and education. Enhanced surveillance is an increased frequency or number of tests for a disease of particular significance or risk. Specific surveillance programs and/or investigations are highlighted below.

Avian Influenza. The Program conducts enhanced surveillance for avian influenza and other high consequence diseases of poultry in commercial and non-commercial flocks with federal funding, and maintains readiness to respond to avian influenza outbreaks in the state or Delmarva region. With the continued increased threat of a Highly Pathogenic strain of Avian Influenza in the United States in FY 2017, MDA continued enhanced surveillance at auction markets, continued requirements for Avian Influenza testing of poultry entering exhibitions but expanded the testing lead time to within 21 days of entry, and continued required testing of poultry entering into Maryland within 10 days of entry. MDA performed 8,495 Avian Influenza tests in FY 2017; no live virus was detected in this testing.

Foreign Animal Disease. No foreign animal disease (FAD) was detected in Maryland during FY 2017; one (1) foreign animal disease investigation was conducted. Two FAD trainings for Maryland Accredited private practice veterinarians were conducted as part of the CORE training for new Maryland Accredited veterinarians. MDA has three qualified Foreign Animal Disease Diagnosticians (FADD) on staff; one veterinarian attended FADD training this year.

Tuberculosis. Maryland remains free of bovine tuberculosis (BTB); nevertheless, the ongoing reemergence of BTB in cattle and white tailed deer elsewhere in the United States during the past several years is of concern. Animal Health staff continued refresher training for BTB testing for Accredited Veterinarians in response to an identified testing concern. Three (3) BTB responders were identified and retested in FY201 with all three being determined healthy.

Equine Herpes Virus. The neurologic strain of Equine Herpes Virus (EHV) is a contagious and potentially fatal disease of horses that can result in racetrack quarantines and disruption of the horse industry overall; therefore the Program has developed the ability to rapidly test for this disease of high concern to prevent spread of the disease. Seventy three (73) EHV tests were run at MDA Animal Health labs in FY 2017 on horses with neurologic symptoms suspect of EHV. None of the horses tested positive For Equine Herpes Virus, neuro-type.

Other livestock and poultry diseases and issues that continue to be part of MDA's surveillance programs include: Brucellosis in cattle, goats and swine; pseudorabies, swine influenza and Swine Enteric Corona Disease Virus (SECDv) in swine; bovine spongiform encephalopathy (aka BSE or mad cow disease) in cattle; Rabies in all livestock species; illegal garbage feeding to swine and stray swine that can become feral; Salmonella pullorum and exotic Newcastle disease in poultry; and scrapie in sheep and goats.

Quarantines. As a result of disease surveillance and response efforts in FY 2017, twenty-six (26) quarantines ("hold orders") were placed and twenty-three (23) quarantines were released on farms for: suspect (negative) brucellosis in cattle; suspect (negative) tuberculosis in cattle; suspect (negative) equine herpes virus and neurologic syndrome in horses; rabies or rabies suspect in cattle, goat and horses; suspect (negative) vesicular stomatitis in a horse; low path avian influenza suspect (negative) in poultry; and Infectious laryngotracheitis, Infectious bronchitis virus, Mycoplasma gallisepticum and Mycoplasma synoviae in poultry; and 324 routine 30-day quarantines for swine entering the state were placed through the Swine Permit process. In addition, there were 193 quarantine actions associated with horses moving through the CEM Quarantine Import Stations in Maryland.

A majority of the quarantines and actions were in response to sick birds identified on small commercial or backyard flocks (11 cases). The Animal Health Program works diligently to control the spread of poultry diseases from farm to farm by placing quarantines, determining the cause of disease, enforcing control measures that include sanitation and

biosecurity, providing education and outreach regarding contagious diseases, assisting with depopulation where indicated, and referring owners/producers to Extension or private veterinarians for follow-up treatment to control and prevent disease within the flock.

Selected parameters of Animal Health Activities are shown on the chart on the following page.

LABORATORY SYSTEM MISSIONS AND STAFF

The Animal Health Laboratory System supports the animal and public health regulatory and emergency response missions of MDA, other state agencies, and local and federal governments. It assists veterinarians, livestock and poultry producers, and the equine industry in maintaining healthy herds and flocks. The regulatory activities of other state, federal and local governmental entities involved in animal health depend on the surveillance and compliance testing carried out in these laboratories. Examples include the diagnosis of certain high consequence pathogens to support 1) national disease control programs of the USDA, e.g. avian influenza in poultry, tuberculosis in cattle, and brucellosis in swine; 2) the FDA Center for Veterinary Medicine initiative to promote animal and human health by investigating potential biologic contaminants in animal feeds, animal products, or produce; 3) the Department of Health in diagnosing animal rabies and other animal diseases of public health significance; and 4) the Department of Natural Resources disease surveillance programs of wildlife diseases of concern such as chronic wasting disease in deer and brucellosis in marine mammals. Additionally, the system provides post mortem and related diagnostic support to animal control agencies for certain matters involving cruelty and neglect.

To accomplish these missions, the system performs a wide array of diagnostic procedures on a variety of specimens and samples submitted by producers, agricultural businesses, animal owners, veterinarians and government agencies. To ensure full continuity of services on a day to day basis as well as providing surge capacity in the event of a disease outbreak, the laboratory scientists in the system are cross trained so that a minimum of three are able to perform each critical diagnostic test.

Both Animal Health diagnostic laboratories are accredited by the American Association of Laboratory Accreditation (A2LA), a rigorous process that promotes and ensures quality and reliability of test results by requiring strict maintenance to standard operating procedures, internal audits, and best practices. Both laboratories are members of the National

ANIMAL HEALTH PROGRAM FY 2017– SELECTED PARAMETERS

Parameter	Total Number
Animals Certified to Move In, Out or Within Maryland	59,887
Avian/Poultry Export	519,000
Avian/Poultry Import	1,552,387,430
Biological Authorizations	53
CEM Permits (Quarantines)	193
Dealer Inspections	89
Equine Health Certificate – Export	10,246
Equine Health Certificate – Import	5,905
Exhibition Inspections	54
Export Certificates (Non Equine)	16,552
Foreign Animal Disease Investigations	1
Import Certificates (Non Equine)	32,543
Inspections and Investigations – Total Combined	265
Intrastate Certificates Total (Show)	6,895
Livestock Dealer Licenses	47
Market Inspections	279
Quarantines Issued for Disease Investigations	22
Swine Permits Issued (Quarantines)	324

Animal Health Laboratory Network (NAHLN), a network led by the National Veterinary Services Laboratory (NVSL) in Ames, Iowa. NAHLN laboratories must maintain strict adherence to best practices and standard procedures, and scientists must pass proficiency testing set forth by the NVSL. The Salisbury Laboratory is a National Poultry Improvement Plan (NPIP) laboratory, therefore meeting requirements of this national program for specific poultry disease testing. In addition, both laboratories serve as Sentinel Laboratories for the State of Maryland, providing zoonotic disease testing services in collaboration with the state Health department.

The Laboratory System also provides educational and training opportunities to a diverse group of students, including students of the Virginia-Maryland Regional College of Veterinary Medicine and other U.S. veterinary schools, the University of Maryland, Salisbury University and other U.S. colleges and universities, veterinary pathology residents from Johns Hopkins University and the Armed Forces Institute of

Pathology, poultry industry veterinarians and high school interns. Students in the laboratory system are mentored by the directors and members of the staff.

Both labs are staffed with a veterinary pathologist, four laboratory scientists, one laboratory technician and two administrative staff to perform or assist with diagnostic activities in necropsy, molecular biology, bacteriology, serology, parasitology, virology and mycology as well as important duties of supervision, quality assurance, safety assurance and operational support. The veterinary pathologist conducts post mortem examination of animals and interprets results generated by the science staff. This person also serves as the Laboratory Director with responsibility for all activities of the laboratory. A Quality and Safety Manager assists both laboratories in maintaining the quality assurance programs to meet accreditation standards. In addition, an IT specialist manages and troubleshoots the laboratory information management system, essential for rapid and efficient data input and reporting.

Within the broad system missions, each laboratory has specific geographic and technical missions. The primary mission of the Frederick Laboratory focuses on food animal livestock and horses. Secondary missions include diagnostics for high consequence diseases of poultry, to include regional service and back-up for the poultry laboratory at Salisbury during an emergency. The Frederick laboratory primarily serves constituents on the western shore of the state. The laboratory testing capability includes rabies, brucellosis, contagious equine metritis, equine herpes virus, equine infectious anemia, Lyme disease, Johne’s disease, avian influenza and exotic Newcastle disease. Equine herpes virus testing capability was developed to be able to rapidly detect and control the spread of this disease which is of significant concern to the horse racing industry. Avian influenza testing of poultry was added to the Frederick mission in FY 2011 to provide the agency with additional equipment and trained staff to support that activity in the event of a poultry health emergency requiring a substantial surge in testing capability.

The primary mission of the Salisbury Laboratory focuses on infectious diseases of poultry within Maryland. The Salisbury Laboratory primarily serves the large commercial poultry industry of Delmarva and the Eastern Shore region of Maryland but also provides expertise for the growing organic, free-range and “backyard” poultry sector. Secondary missions include full service post mortem diagnostic support for certain diseases in other domestic animals of public health significance, support of disease and welfare investigations involving mammals, equine infectious anemia testing for horses and swine influenza testing. The facility has a large molecular diagnostic capability to assist the high volume of testing needed for the poultry industry, primarily used for the detection of avian influenza, Newcastle disease, infectious bronchitis virus, infectious laryngotracheitis, Salmonella and mycoplasmal diseases. The facility has a close working relationship with the University of Delaware Poultry Diagnostic Laboratory. Together they operate a poultry health

diagnostic network that seamlessly serves poultry producers of the Delmarva Peninsula.

A summary of testing carried out in FY 2017 at MDA Animal Health diagnostic laboratories for regulatory or otherwise select significant diseases is provided in the chart below.

OTHER ANIMAL HEALTH PROGRAM ACTIVITIES

Other MDA Animal Health program activities include: the licensing of livestock markets and dealers, accreditation of federal-state veterinarians, and active participation in the National Poultry Improvement Plan which provides standard monitoring and certification programs for commercial poultry for significant diseases including avian influenza and salmonella, and for hatchery sanitation.

Diagnostic Activity	Number
Total Accessions	14,044
Total Tests	56,167
Mammalian Necropsy	178
Poultry Necropsies (flocks)	598
Avian Influenza	8,211
Brucellosis	1,167
Contagious Equine Metritis	2,543
Equine Herpes Virus (EHV-1)	73
Equine Infectious Anemia	11,109
Johne’s Disease in Cattle	1,803
Rabies	64
Salmonella Pullorum	3,199

MARYLAND STATE BOARD OF VETERINARY MEDICAL EXAMINERS

The State Board of Veterinary Medical Examiners sets the standards that veterinarians, registered veterinary technicians, and veterinary hospital owners must comply with. These standards are set by statutes adopted by the General Assembly or regulations adopted or amended by the Board. The Board also licenses and registers veterinarians; licenses and inspects veterinary hospitals; licenses animal control

facilities; registers veterinary technicians; provides disciplinary information to other state veterinary Boards and the public; and submits licensure verification to other state licensing Boards upon request. Additionally, the Board investigates consumer complaints, initiates its own investigations, and determines whether disciplinary action shall be taken against licensees. Requests for approval of continuing education

credits are reviewed by the Board. A Veterinary Technician Committee, which falls under the Board's jurisdiction, recommends changes to the laws and regulations governing registered veterinary technicians in the state.

The Board is comprised of seven members appointed by the Governor to serve five-year terms. Five members are veterinarians, at least two of whom must be primarily large animal practitioners. The remaining two members are consumer advocates. The Board is also an active, voting member of the American Association of Veterinary State Boards, a non-profit organization that provides programs and services to veterinary Boards to assist them in carrying out their statutory responsibilities for the public's protection.

Under current regulations, veterinarians are required to follow certain standards in the way they manage controlled dangerous substances, issue prescriptions, dispense federal legend or veterinary prescription drugs, and also in the way they manage expired medications. Recently, the Board has become very cognizant of possible opioid abuse among its own ranks as well as among consumers. During FY 2017, the Board instructed its inspectors to review much more closely how the logs for Controlled Dangerous Substances (CDS) are being kept and how other medications are being managed at veterinary practices. (The Board can, and often does, sanction veterinarians for poor record keeping and for violations of other drug management protocols.) The Board added an "inspection page" to its website with more information and resources to help veterinary practices better manage their medications. The Board also considered this year of inspections to be one of educating practices on the information CDS logs are expected to contain. The Board intends to begin sanctioning hospitals next calendar year with regulation violations if the logs are not up to minimal standards.

Other highlights of FY 2017:

- The Board licensed 212 veterinarians new to Maryland and renewed the licenses of 2,871 veterinarians throughout the state.
- The Board licensed or renewed licenses for 595 veterinary hospitals and completed sanitation inspections of 469 of those facilities.
- The Board renewed the licenses of 189 Registered Veterinary Technicians (RVTs), who have three-year license. There are a total of 542 RVTs in the state.
- The Board received a total of 61 consumer complaints during FY 2017. Because of significant staff turnover in the last year, the Board had 53 open investigations from FY 2016 and FY 2017 at the end of the year.
- The Board began discussion with the Virginia-Maryland Regional College of Veterinary Medicine and the University of Maryland about the possibility of implementing a combined animal pathology service for private practitioners around a rotational teaching program in applied pathology for veterinary students at College Park. Feasibility planning is now being conducted.
- While the Board has always announced on its website when disciplinary actions had been taken against a licensee, during FY 2017, the Board began posting the final orders of each case on its website to increase transparency and consumer protection. Final orders from earlier years will be added as materials become available.

LEGISLATION

During the 2017 Legislative Session, two bills were passed that will have an impact on the State Board.

HB 1463 - Veterinary Practitioners - Animal Cruelty and Animal Fighting - Reporting. This bill took effect October 1, 2017 and requires veterinarians who have reason to suspect that an animal has been subject to cruelty or abuse to report it to the appropriate authorities. Those who don't may be subject to disciplinary action by the Board. The Board will be drafting regulations for this bill in the year ahead as well as working with veterinary organizations to offer training to veterinarians so that they may better identify intentional vs. accidental infliction of injury.

HB 626 - Agriculture - Animal Shelters - Standards of Care and Protocol Implementation and Enforcement. This bill requires the Department of Agriculture to establish minimal standards of care for animal shelters owned by local governments, nonprofit organizations that local governments contract with to provide animal control services, and shelters owned by nonprofits that have received a grant from the Maryland Spay and Neuter Grants program. The Board was tasked with developing those standards for the Department and will be drafting regulations before January 1, 2018, as required by the bill.

MARYLAND HORSE INDUSTRY BOARD

The Maryland Horse Industry Board (MHIB) consists of the Secretary of Agriculture or his designee and 11 members from a cross-section of the horse industry appointed by the governor to four-year terms. During FY 2017, the horse board operated with a full slate of board members, conducted 10 monthly board meetings, moved aggressively to institute improvements at major equine competition venues, and completed its 19th year of operation. Long-time board member Dorothy Troutman, representing the Maryland Horse Council, retired. The governor appointed incoming Horse Council President, Neil Agate, to replace her.

Maryland law defines six statutory duties of the horse board. These duties are to:

- Promote the use and development of horses in Maryland;
- Support research related to equine health and related issues;
- Create public awareness of the value of equine activities as they relate to green space preservation;
- Develop and disseminate information concerning the equine industry;
- Advise the department regarding matters affecting the state's horse industry; and
- License and inspect commercial stables that solicit business from the public, either by giving lessons, boarding horses, renting them for activities such as trail and carriage rides, or offering them a rescue or sanctuary.

As the commodity board for the state's horse industry, the horse board develops projects to help spur the economic development of the entire equine industry and particularly to initiate marketing efforts to help grow the recreational riding sector.

Key accomplishments of the horse board in FY 2017 are listed below.

Licensing. The Maryland Horse Industry Board licensed 773 stables in FY 2017. The number of licensed stables showed a slight decrease of five stables from a record number of 778 in 2016. The decrease was due to a number of small "mom and pop" stables closing and three stables not renewing because of financial reasons despite aggressive measures to charge

them with penalties. Still, the figure represents the second highest number of stables licensed by the board. The horse board's Feed Assessment Fund reported its highest income since the board's inception in 1998, bringing in \$213,532, an increase of nearly \$20,000 from Fiscal Year 2016. An additional 1,000 tons of feed were sold.

Moving Forward to Make Major improvements at Equine Competition Venues in the Maryland Horse Park System.

Fair Hill became one of two finalists during Fiscal Year 2017 to host a new international four-star, three-day event competition. A study conducted by the Maryland Stadium Authority was published in September 2015 and identified two venues in need of major upgrades to comprise a world class system: the Fair Hill Natural Resources Management Area in Elkton as the major field event venue and the Prince George's Equestrian Center as the major show/expo complex. A third site to be recommended as the cultural and education center was not identified at that time.

- **Fair Hill.** The horse board established a Fair Hill Task Force, chaired by board member Jay Griswold, to bring together the major equestrian entities at Fair Hill and to formulate short-term and long-range goals. Then, in conjunction with the Maryland Sports Commission/ Maryland Stadium Authority, the two groups helped Fair Hill International respond to a proposal to bring a four-star, three-day event competition, one of only seven in the world, to Fair Hill.

Four other equestrian venues submitted bids, two in Virginia and one each in North Carolina and Florida. The group hosted the United States Equestrian Federation's selection team during a site visit to Fair's Hill three-star competition in October 2016. Following that visit, the USEF narrowed the five-bid field to two—Fair Hill and Great Meadow in Virginia.

In February the horse board helped host an Open House at Fair Hill to engage the surrounding community in the bid process. Nearly 300 people attended. In April the horse board hosted a similar Open House for the state's three-day event community at Waredaca Farm in Laytonsville. Also in April, the USEF site selection team made a second visit to Fair Hill to ask more questions and delve deeper into the plans. Over 40 government officials, including cabinet secretaries Mike Gill and Mark Belton and Cecil County Executive Alan McCarthy

attended the meeting to show support as well as members of the bid team and supporting stakeholder organizations. The selection committee was scheduled to make their final recommendation on the winning site in late July, 2017, during the 2018 Fiscal Year.

Even if Fair Hill is not successful in winning the bid, efforts are being made to improve the racecourse and grandstand as part of a plan to develop a national racing and training steeplechase center for the National Steeplechase Association, which is headquartered there.

- **Goucher College.** In another major development, the Maryland Horse Breeders Association moved its headquarters to the Towson campus of Goucher College, which has a nationally-renowned equestrian team. The school's stable and riding center is licensed by the horse board. Plans include development of a Maryland horse museum and sporting library as well as a plan by Goucher to build a new \$10 million equestrian complex. This facility could eventually serve as the Horse Park System's cultural and educational center.
- **Prince George's Equestrian Center.** Efforts are also under way to explore options to make improvements to the Prince George's Equestrian Center.

MARYLAND HORSE INDUSTRY 2016 ECONOMIC IMPACT STUDY

The industry grew 23 percent from 2010 to 2015. The survey conducted by the Sage Policy Group showed that economic activity attributed to the equine industry grew from \$930 million in 2010 to \$1.15 billion in 2015, growing by 23 percent in that five-year period. If that rate of growth continues, Maryland's horse industry is on track to reach \$1.5 billion economic impact by 2020. The survey was based on data collected from 700 completed surveys from Maryland horsemen and women. It showed that the hemorrhaging of the economic growth in the state's horse industry brought on by the competition from slots revenues in neighboring states and the 2008 recession has ceased. Economic activity still has not rebounded, however, to the industry's economic impact level of the early 2000s.

STRATEGIC MARKETING PLAN

The horse board continued to implement its strategic marketing plan which includes the following key components:

- **HorseLand doubles number of visitors in its second year at the Maryland State Fair—Horse Show for**

Military Veterans and Mounted Police Officers is introduced. Famed Caisson Platoon from Ft. Myer, VA. is among exhibitors.

In conjunction with a group of horse industry partners, the 11-day exhibit, designed to introduce new folks to horses, became entrenched as a major industry outreach initiative. Folks could pet horses, learn how to work around them, make stick horses and jump a miniature course, dress in jockey silks and ride a simulated racehorse and take part in a myriad of interactive activities and demonstrations provided by 18 stables and horse discovery centers. In addition, folks were introduced to farms and stables in their neighborhoods where they could learn to ride and learn more about horses. The exhibit drew 30,000 visitors, double the number from its initial year in 2016. The horse board and its network of therapeutic riding programs that offer horsemanship programs to veterans ("Horses Healing Maryland's Military") instituted a new horse show for military veterans and mounted police units. Veterans from the STAR Equestrian Center in Hagerstown and Freedom Hills Therapeutic Riding in Port Deposit as well as veterans from the Caisson Platoon from Ft. Myer, Va. and six area mounted police units competed in equitation and obstacle classes. The show was such a success that plans were made to repeat it at the 2017 Maryland State Fair.

- **Horse Discovery Center program wins National Award; the program expands; and the Horse School Curriculum, "Horses for Courses," is completed and implemented.**

The pilot program that established a Horse Discovery Center network in 2016 was recognized by the board of the Washington International Horse Show with its prestigious "Klinger Award." The WIHS board cited the program for its innovation and potential in growing the equine industry. The award was presented during the show's President's Cup program at the Verizon Center in Washington DC. A total of 13 more stables applied for Discovery Center certification in 2017. Of these, 10 were approved, bringing the total to 44 centers in 17 counties. Also during the year a horse curriculum for grades 4-8 that the horse board developed in partnership with the Maryland Agricultural Education Foundation was completed. The foundation's Peggy Eppig worked with a team of 10 stable operators to write the curriculum and then held a series of three workshops to train farm personnel to implement it. Days End Farm Horse Rescue used the lesson plan to teach over 400 students in

home school and public school farm visits. Cedar Grove Elementary in Germantown used the curriculum on a day-long visit to Waredaca Farm in Laytonsville for 75 fourth graders. Use of the curriculum is expected to grow in coming years.

- **Christmas Ranch movie made in Maryland wins award at New York EQUUS Film Festival; Second Maryland EQUUS Film Festival held in May.**

A new feature length movie, "Christmas Ranch", was shot at a Baltimore County horse farm (Green Mount Farm in Glyndon) and included extras from the state's horse community. The film was named "Best Family Feature" for producer/director Doug Maddox of Towson at the EQUUS international film festival in New York in November 2016. A few weeks later, with support from the horse board, the movie premiered in Maryland at the Senator Theatre with over 500 attendees. The film was sold to Showtime Family and is widely distributed through Netflix and Amazon. In May the Winners Tour of the EQUUS Film Festival came to our state for the second straight year, giving Marylanders a chance to see 20 of the winning films over a 3-day period at Clark's Elioak Farm, one of our Horse Discovery Centers, in Ellicott City.

- **The horse board continued the Touch of Class Award, Horse Pals and Social Media programs.**

During 2017, the horse board honored Maryland horses and riders who won national and international recognition with the monthly Touch of Class Award in these disciplines: interscholastic polo, Standardbred racing, hunter/jumper competitions, 3-day eventing, 4-H horse programs, equine filmmaking and steeplechasing. The horse board now has more than 1,300 Horse Pals and more than 5,000 Facebook and Twitter followers. Horse Pals is an online community that is given periodic updates on horse events in the state.

- **The horse board distributed 30,000 promotional brochures throughout the state in FY 2017 and advertised recreational horse riding throughout Maryland and the horse racing industry internationally.**

The horse board distributed 30,000 horse trails brochures and Horse Discovery rack cards throughout the state through Toth Distributors of Bowie who placed these guides statewide in tourism welcome centers, public recreation facilities, parks and other public outlets. All publications can be downloaded on the horse board website. The horse board participated in a 2-page horse industry spread in Destination Maryland, the state's official tourism magazine; and advertised trail

riding opportunities and equine spectator events in the Howard County and Baltimore County tourism guides as well as in Recreation News. The horse board continued advertising Maryland racing and the Fair Hill Training Center in particular in Gallop, an international horse racing magazine, and also advertised HorseLand locally in The Equiry.

- **The horse board conducted national and international outreach.**

In September 2016, the horse board helped host the Ayrshire World Tour. Although these were largely dairy cattle farmers, some were also horsemen and the group as a whole wanted to see Maryland horse country. The group of more than 50 delegates from nine foreign countries were given an overview of the industry and a tour of the stallions and breeding operation at Country Life Farm in Bel Air. Also during that month Thora Pollak hosted a reunion at her Beall Spring Farm in Beallsville of Marylanders who were part of an equine trade mission to Sweden the previous year. The reunion was held during an inspection of her horses by the Swedish Warmblood Society. The executive director represented the horse board on trips to the Badminton Horse Trials in England to learn more about organizing and operating a Four Star Event and also attended the Pan American Racing Conference in Washington DC which was partly sponsored by the Maryland Jockey Club. Maryland horsemen turned out in force to help the state's office of Tourism, Film & the Arts welcome tour operators from all over the world at a welcome reception at National Harbor in June. The horse board also hosted Kristina Yngwe, a Swedish member of Parliament, who is Vice Chair of the Swedish Agriculture and Environmental Committee, on a tour of Maryland farms. Ms. Yngwe, a farmer, had given our Maryland equine trade mission a tour of the Swedish Parliament in 2015.

- **Promotions and participation at 73 Maryland horse events.**

During the year, the horse board provided a \$1,500 sponsorship for the Kid's Korral at the Maryland Million horse race and had booths and/or made presentations at 46 venues: Horse Land for 11 days at the Maryland State Fair, the Maryland Travel & Tourism Summit, horse board night at Ocean Downs, the Ayrshire World Tour (visiting Country Life horse farm in Bel Air), Montgomery County Harvest Festival, Montgomery County legislative day, MD Horse Industry economic survey news conference at Goucher, two site visits by the United States Equestrian Federation to Fair Hill, the Washington International

Horse Show, the EQUUS Film Festival, Maryland Horse Shows Association annual banquet, Grow Maryland Summit, Christmas Ranch movie premiere, Lisbon Horse Parade, Horse World Expo, Maryland Association of Environmental and Outdoors Educators Conference, Horse Industry Day in Annapolis, Maryland Horse Council quarterly and annual meetings, World Trade Center annual dinner, the Md. Association of Jousting annual meeting, LEAD Maryland visit and tour at Fair Hill, Cecil County Economic Development reception, World Trade Center dinner, World Bank officials visit to Laurel Park, Four Star Evening at Waredaca, Maryland Horse Breeders' Association Easter Egg Hunt at a horse farm, Rolex Four Star event, Maryland Tourism Day, Preakness/State of Maryland tent, the International Tourism POW WOW at National Harbor, the American Horse Council annual meeting and Fair Hill Races. The horse board also attended and participated in another 27 equine industry meetings and events and hosted meetings of the MD High School Rodeo Association at department headquarters.

- **The horse board awarded \$29,000 in grants to 27 Maryland horse organizations and individuals.**
The board distributed \$29,000 in grants funding, the fourth highest amount in the board's 19-year history.

- **Cross Disciplinary Cooperation.**

The horse board continued coordinating meetings with the Maryland Horse Industry Marketing/Leadership Circle, comprised of 14 industry partner organizations. About 30 people, representing a cross section of racing and non-racing organizations, who are largely CEOs, executive directors and marketing staff, meet to discuss prospective initiatives and provide industry updates. For the third year, the group hosted "Horse Industry Day" in Annapolis which included legislative training sessions, visits to legislative offices and a reception for public officials at the Governor Calvert House. About 150 industry folks attended with outreach to nearly 70 legislators and their aides. The group has also funded the "Racing the Times" documentary film, the writers for the School Horse Curriculum project, the "Horse Land" exhibit at the Maryland State Fair, the industry's 2016 Economic Impact Survey and the American Horse Council's 2017 national economic impact survey as well as other marketing and advertising programs. The horse board also became a major \$5,000 sponsor of the Maryland Horse Council.

MHIB SELECTED STATISTICS: 2017

Category	
Number of Stable Licenses Issued	773
Number of Inspections Performed Annually	727
Percentage of Facilities Inspected and Brought into Compliance	100%
Revenue Collected from Licensing Horse Stables in Maryland	\$100,600
Revenue Collected from Assessment Based on Tons of Horse Feed Sold in Maryland	\$213, 532
Outcomes	
Total Amount of Money Distributed as Grants for Promotional, Educational or Research Projects for Maryland Horse Industry	\$29,000
Percentage of Total Revenue Distributed as Grants for Maryland Horse Industry	13.6%
Staffed Booths or Presented Talks at Trade Shows, Conferences, Fairs and Exhibitions Promoting Maryland Equine	46

FOOD QUALITY ASSURANCE

QUALITY, GRADE AND WEIGHT CERTIFICATION

The Food Quality Assurance Program offers producers and processors a voluntary certification program for agricultural commodities including meat, poultry, eggs, fruit, vegetables and grain. MDA graders sample commodities and compare them with standards developed by the U.S. Department of Agriculture (USDA) and/or MDA for microbial/chemical/physical contamination, quality, size, labeling and packaging. Official certification provides a uniform quality basis for agricultural commodities that enhances their marketability. Foreign countries, wholesale food suppliers, large grocery store chains, and state institutions, among others, often require official certification to ensure they are purchasing agricultural commodities that meet their specifications. Demand for services varies by year and season depending on the type of commodities being harvested and exported. A cost-effective and service-oriented grading program is crucial to Maryland producers competing in these markets.

The primary commodities graded by the section this year were:

- 155 million pounds of poultry,
- 27 million dozens of shell eggs,
- 16 million pounds of meat
- 8 million pounds of vegetables
- 44 million metric tons of grain.

COMPLIANCE AUDITS

Many buyers require compliance audits of production practices as well as product certification. The Food Quality Assurance program conducts compliance audits to ensure agricultural production facilities comply with standards related to animal welfare, good agricultural practices, food security, food safety and quality assurance. As buyers and consumers continue to demand verification of compliance with these standards, MDA anticipates increased demand for compliance audits and is training additional staff members to meet that demand.

The Food Quality Assurance Program has adapted to continual changes in the agricultural commodity industry by offering the services necessary for the industry to market its products. The MDA Good Agricultural Practices (GAP) food safety program for fruit and vegetable producers has experienced a

significant increase in participation. The number of producers participating in MDA GAP increased to 36 growers inspected and certified in FY 2017. Although there were several growers new to the program, the number did not increase significantly as some MDA-certified growers instead obtained USDA Harmonized GAP certification through the department.

The MDA program has been funded to date through USDA Specialty Crop grants and has also provided food safety training to over 1,000 fruit and vegetable producers. An additional 23 fruit and vegetable producers were audited by FQAP compliance auditors and received USDA GAP certification. The MDA GAP program requirements have been revised to fully meet the requirements of the U.S. Food and Drug Administration (FDA) Food Safety Modernization Act (FSMA) Produce Rule.

FOOD SAFETY MODERNIZATION ACT PRODUCE SAFETY RULE

MDA completed its first year of work related to a five-year cooperative, fully-funded agreement with the FDA to assist growers with compliance by developing a Produce Safety Program to implement the new FSMA Produce Rule. MDA, University of Maryland Plant Sciences Department and University of Maryland Extension cooperatively provided education, outreach, and technical assistance to Maryland fruit and vegetable growers to assist them in compliance with the rule.

The department provided outreach to agricultural organizations, produce growers, and relevant state/local government agencies via mailings, informational meetings and attendance at various grower meetings. The FDA-approved Produce Safety Alliance Produce Safety Rule course was held regionally to assist producers and growers in meeting the mandated training requirements. MDA inspection and enforcement for the Produce Safety Program will not start until FY 2018.

EGG INSPECTION

The Egg Inspection program enforces the Maryland Egg Law. Inspections are performed at the producer, wholesale, food service and retail levels to ensure eggs sold in Maryland meet the standards for quality, size, refrigeration, microbial and physical contamination, labeling and record keeping. The section also registers egg wholesalers and packers.

Portions of the labeling, record keeping and registration requirements provide traceability in case of a Salmonella enteritidis outbreak. Other sections of the law were established to reduce the risk to consumers of food-borne illness. Eggs found to be out of compliance with the established standards are removed from sale, and violation notices are issued to the responsible parties. Inspection activities are funded through the collection of \$.0026 per dozen of eggs sold in Maryland.

The department continues to conduct Country of Origin labeling reviews for USDA in conjunction with egg inspections. Federal reimbursement for Country of Origin reviews has helped reduce the costs of conducting egg inspections.

In FY 2017, the percentage of sampled eggs found to be in compliance with the Maryland Egg Law decreased to 80.76 percent—down from 83.03 percent in FY 2016.

ORGANIC CERTIFICATION

The USDA-accredited Maryland Organic Certification Program certified 111 farms and handlers of organic products during FY 2017. The program also registered an additional 23 farms as organic that are exempt from the certification requirements as they have organic sales of less than \$5,000 per year.

Maryland organic producers and handlers continue to benefit from the federal Cost-Share Reimbursement Program funded by USDA. This cost-share program allowed MDA to reimburse 75 percent of the fees growers paid for certification.

GRAIN LAWS

All persons in the business of buying, receiving, exchanging or storing grain from a grain producers are regulated by MDA. Licenses are issued to businesses that meet requirements set by law for insurance and financial status. There are four categories of licenses issued based on the number of bushels purchased in a calendar year. Fees range from \$50 to \$300. A Directory of Licensed Grain Dealers is published and distributed annually. MDA licensed 73 businesses with 85 locations in FY 2017.

POULTRY AND RABBIT SLAUGHTER

The poultry and rabbit slaughter program helps small poultry and rabbit producers to slaughter their animals on farm and sell them to restaurants, at farmer's markets and other locations in Maryland. The program consists of food safety training, basic food safety requirements during slaughter, and inspections to verify that good food safety practices are followed. Producers who follow the requirements are certified by MDA. The program began in May 2010 and has trained more than 700 producers to date. In FY 2017, the program had 47 certified producers.

WEIGHTS AND MEASURES

The regulation of Weights and Measures is one of the oldest continual functions of government. The Weights and Measures Program ensures that consumers get what they pay for whether it is a gallon of gasoline, a truckload of gravel, or a pound of hamburger. Purchases that require measurement affect virtually every resident in the state and involve millions of individual transactions annually. Having uniform standards of measurement creates fairness and confidence in the marketplace and benefits both buyers and sellers.

MDA is an active, voting member of the National Conference on Weights and Measures (NCWM). The NCWM is comprised of state and federal government officials, as well as private industry representatives throughout the United States. The NCWM provides a professional forum for the discussion and development of uniform policy and protocols that guide the regulation of weights and measures.

There are a total of 60,927 weighing and measuring devices in commercial use in Maryland at 8,930 separate businesses locations. The Department has 18 inspectors who are specially trained and certified to test and inspect these devices according to established protocols to make sure they are within the required tolerances. Devices failing inspection may be taken out of service until corrected by the owner. Inspectors also visit stores to verify that packaged products contain the quantities specified and that consumers are being charged the correct prices at checkout.

In FY 2017, the field staff conducted 25,266 device inspections. Inspectors also tested 4,460 individual lots of prepackaged commodities. Price verification inspections were conducted at 58 stores.

In FY 2017, the field staff investigated 430 consumer complaints. The majority of the complaints were related to

gasoline sales. Consumer complaints are given priority over routine inspections and require a significant amount of staff hours to investigate.

The registration of approximately 6,800 businesses has created a database that has become an effective management tool. The purchase of electronic inspection software for inspections has replaced the need for paper reports. These programs will maximize efficiency, government transparency and assist in cost reductions. Administrative staff is able to target the most critical areas and all field inspectors now possess a tool to plan inspection work more efficiently, thereby reducing driving time and providing more uniform inspection coverage. This information has helped management prioritize the use of limited program resources to better protect Maryland consumers and maintain a level playing field for industries that operate in the State.

Maryland's Metrology Laboratory is being reorganized due to the retirement of the lab manager and a metrologist. The program has hired one full time replacement metrologists who is recognized as a signatory with the National Institute of Standards and Technology (NIST) Office of Weights and Measures Metrology. Our goal is increase our laboratory calibrating scope and anticipate hiring another laboratory position.

The Weights and Measures Program also participates in the National Type Evaluation Program (NTEP) which tests and inspects the accuracy of new measuring and weighing devices and systems before they are approved for use in

commerce. NTEP laboratories are authorized by the National Conference on Weights and Measures. Meeting the required NTEP performance standards and procedures denotes a high degree of technical and professional competence. Authorization is specific to a type of weighing or measuring device. The Maryland NTEP laboratory is authorized in 14 areas of evaluation. All related costs are paid by the participating manufacturers requesting NTEP services.

The program is currently in the midst of replacing aging lab and field equipment necessary to carry out the program's responsibilities and improve the efficiency of the program. This includes the HVAC systems in the metrology laboratories, of which 3 have been replaced and the final 2 are slated for completion this fiscal year. The field program and laboratory are special funded, and industry has always been very supportive of Weights and Measures and assisting the program in securing adequate funds to ensure our presence in the marketplace. As technology changes in the marketplace, so must the Weights and Measures program. Inspectors utilize electronic inspection software which has allowed the field staff to go paperless and increase efficiency. Inspectors also participate in specialized training and accredited testing in order to stay on top of the latest trends in the field. In addition, Inspectors have recently taken on the responsibility of inspecting gas pumps and scales for credit card skimming devices as their presence increases throughout the state. Weights and Measures is as much needed today as in the past and continues to provide a vital service to consumers and business owners alike.

WEIGHTS AND MEASURES ACTIVITIES TABLES: ADMINISTRATIVE CONTROLS AND MISCELLANEOUS

Activity	2015	2016	2017
Weighing and Measuring Devices Registration Certificates Issued	6,928	6,824	6,810
Type Evaluation of Devices Conducted (NTEP)	40	50	32
Citizen Complaints Received and Investigated	516	423	430
Disciplinary Hearings, Criminal Arrests, Summonses Obtained and/or Civil Penalties	12	2	3

Aside from day-to-day administration, coordination and support of the laboratory and field activities, Weights and Measures is involved in the registration of commercial weighing and measuring devices, and the examination and licensing of individuals for specific functions.

WEIGHTS AND MEASURES ACTIVITIES TABLES: FIELD INSPECTION AND TEST EFFORT

Activity	2015		2016		2017	
	Violati	Total Tests	% Violations	Total Tests	% Violations	Total Tests
Weighing Systems						
Large Scales	19.1	850	17.1	661	15.5	817
Medium Scales	12.2	507	8.1	394	13.6	398
Small Scales	19.3	9,213	16.3	5,527	15.8	4,399
Liquid Measuring Systems						
Retail Gasoline Meters	22.5	21,333	17.5	16,472	16.8	18,247
L P Gas Meters	25.3	383	16.6	538	13.0	407
Vehicle Tank Meters and Other Large Meters	13.3	1,038	14.0	964	11.2	890
Grain Moisture Meters	19.3	114	6.3	95	3.7	108
Programmed Tare Inspections	11.6	1,752	15.6	1,369	11.6	856
Price Scanning and Method of Sale	2.7	10,851	2.0	2,621	2.3	3,255
Delivery Ticket Inspections	0.5	1,559	0.4	1,575	0.4	1,484
Package Lots	20.9	6,606	21.6	7,518	22.7	4,460

Inspection and testing of packages involve not only correct weight or measure determinations, but compliance with method of sale and labeling requirements.

WEIGHTS AND MEASURES ACTIVITIES TABLES: LABORATORY EFFORT

Inspection and Test	2015		*2016		*2017	
	# Tested	% Rejected	# Tested	% Rejected	# Tested	% Rejected
Weights	0	0.0	167	15	593	19
Volumetric Measures, (Non-Glass)	0	0.0	37	35	32	53
Length Devices	0	0.0	0	0.0	0	0
Temperature Devices	0	0.0	0	0.0	0	0
Timing Devices	0	0.0	0	0.0	0	0
Volumetric (Glass)	0	0.0	0	0.0	0	0
Scales/Meters	0	0.0	0	0.0	0	0
Standard Grain Samples	278	N/A	266	N/A	147	N/A

**The laboratory is reorganizing with one full time metrologist and in hopes of increasing laboratory scope within pursuing years.*

MARYLAND AGRICULTURAL FAIR BOARD

The Maryland Agricultural Fair Board was established by an act of the state legislature in 1937. Originally known as the Maryland State Fair Board, the office was based at the Maryland State Fairgrounds in Timonium. When MDA was established, the office was moved to Annapolis and renamed the Maryland Agricultural Fair Board.

The board is composed of nine members appointed by the Governor. Term of office is five years and a member may serve a maximum of two terms. They may come back on the board after a break in service. The current board divided the state into regions that individual board members manage. The Board meets three times a year and communicates throughout the year by phone and e-mail. Most meetings are held at MDA.

Funding comes through the Maryland Racing Commission through a special grant and is made up of unclaimed pari-mutuel tickets and various fees. The current annual budget is \$1.46 million. The grant process starts in December and

is finalized by May 15. Grants to fairs and shows may be used for ribbons, awards, and premiums only. Currently the board funds approximately 165 events. These range from the Maryland State Fair, to county fairs, to local community shows, to youth activities in 4-H and FFA.

The board publishes an annual guide listing fairs and shows that it funds. These brochures are distributed to all welcome centers on state highways, all Extension offices, all fairs and shows, all chambers of commerce, all libraries, all county farm bureau's and the Maryland Farm Bureau. It is also posted on the MDA website.

Racing revenue continues to be in a state of change and this affects the grants given out by the board. The board holds regional budget meetings throughout the state to meet with each group to review their request, financial reports, and fair activities.

FY 2017 FINAL BUDGET FIGURES

0100 – Personnel Costs	\$3,663
0300 – Communication Costs	\$530
0400 – Travel	\$6,349
0700 – Motor Vehicle Operations	\$134
0800 – Contractual Services	\$6,326
0900 – Supplies and Materials	\$321
1036 – Replacement Equipment	\$0
1207 – Grants to non government entities	\$688,467
1299 – Grants, Subsidies & Contributions	\$709,302
1300 – Fixed Charges	\$4,574

TOTAL APPROPRIATION - \$1,459,667



2017 Annual Report | Office of Plant Industries and Pest Management

PLANT PROTECTION AND WEED MANAGEMENT

APIARY INSPECTION

MDA's Apiary Inspection Program works with beekeepers, helping to control honey bee diseases, parasitic mites and other pests, to maintain healthy colonies for the pollination of Maryland crops. Honey bees pollinate crops valued at more than \$40 million. Maryland fruit and vegetable growers rent 5,000 colonies a year to improve pollination. Beekeepers' colonies are essential to Maryland because two parasitic mites have nearly eliminated feral honey bee colonies.

American Foulbrood is the most serious brood disease of honey bees and can destroy a colony in one year. The nine colonies that inspectors found to have American foulbrood, as diagnosed by the USDA Bee Laboratory in Beltsville, MD, were destroyed to prevent the spread of this bacterial disease into healthy colonies. The incidence of disease remains relatively low – .4% of the colonies inspected.

Canine Training and Certification. In 2015, the apiary program trained and certified a dog and handler to detect American foulbrood disease in honey bee colonies. Mack is a yellow Labrador retriever who has been trained to detect, and alert to his handler, the presence of American foulbrood disease. Now that he's on the job, Mack will work to reduce the incidence of American foulbrood in Maryland bee colonies during fall and winter when the bees are dormant. A trained dog can inspect 100 honey bee colonies in 45 minutes; an average human inspector can inspect 45 colonies in one day. Early detection of the disease will save Maryland beekeepers substantial monetary loss from eradication of diseased bees and destruction of infected equipment. Mack inspected over 1,736 colonies in CY 2016.

Varroa mite (*Varroa destructor*) populations were again very high in Maryland in CY 2016, and brood problems were

attributed to this. There are six products available to control varroa mite. One of the serious problems caused by varroa is the transmission to honey bees of viruses, which can be fatal to the hive. Nearly twenty honey bee viruses have been discovered and the majority have an association with varroa mites. Therefore, controlling varroa populations in a hive will often control the associated viruses and symptoms of the viral diseases.

Tracheal mite (*Acarapis woodi*) populations, as documented by the USDA honey bee laboratory, continue to be so low that tracheal mite is no longer considered a threat to honey bees if colonies are monitored on a regular basis.

Africanized honey bees (AHB). MDA is working with two groups – the Mid-Atlantic Apiculture Research and Extension Consortium (MAAREC) to provide information to the general public about emergency incidents, and the Apiary Inspectors of America (AIA) for information on the control of AHB movement, other than through natural spread.

The small hive beetle (*Aethina tumida*) was detected in packaged bees and reported or detected in all 23 counties in 2016. Colonies are treated and monitored to ensure successful control of the beetles. There have been reports of larval damage to established colonies. The small hive beetle is a major pest of stored equipment and in honey houses, rendering stored honey in the hive unmarketable.

Apiary Inspection Permits. Entry permits were issued for 2,800 honey bee colonies to move into Maryland, primarily for overwintering. Exit permits were issued for 3,367 colonies to move out of Maryland, primarily for pollination services. For the ninth year, Maryland beekeepers have sent colonies to California for almond pollination. 1,600 were transported to California in the winter of FY 2017.

Surveys. The Apiary Inspection Program assisted with two surveys in 2015. The survey information can be found listed in the Pest Survey section of this report.

NURSERY INSPECTION AND PLANT QUARANTINE

The Maryland Nursery Inspection Program serves the state's nursery and greenhouse industry which continues to be a leading component of Maryland's number one industry, agriculture. The most recent census (2012) for the green industry in Maryland currently ranks it second among commodities, with a total of approximately \$960 million in farm income. Other horticultural products and services boost total gross receipts to more than \$1.96 billion.

A primary goal of state plant protection and quarantine efforts is to facilitate the production, sale, and distribution of Maryland nursery stock. This is accomplished in large part by inspection and certification activities conducted on-site by Maryland Department of Agriculture Plant Protection & Weed Management staff. Maryland law and reciprocal agreements with other states require annual production facility and sales location licensing for all producers and suppliers of nursery stock in the state. Production nurseries are inspected, at minimum annually, to ensure that plant material is free of dangerously injurious plant pests. Additionally, plant dealers are inspected regularly to insure plant materials are received and maintained in a healthy and pest-free condition for wholesale and retail sale.

In CY 2017, the Maryland Nursery Inspection Program licensed 311 nurseries, as well as 1,434 plant dealers and plant brokers. In CY 2016, 8,754 acres of nursery stock and nearly 10,000,000 square feet of greenhouse production were certified. Plant Protection & Weed Management staff performed routine inspections at 673 Maryland locations.

In general, the health of Maryland-produced nursery stock was found to be excellent. Additional certification activities for FY 2017 involved shipment specific inspections. These included 239 state phytosanitary certificates issued to 17 states and U.S. territories. Phytosanitary inspection and certification is performed to assure Maryland agriculture and green industry compliance with established U.S and state domestic quarantines and phytosanitary requirements for Maryland produced plant material and grains. In 2016, 87 shipment specific inspections were performed, and federal phytosanitary certificates were issued to export Maryland grown and produced plant material and grain to six foreign countries, assuring Maryland produced agricultural commodities meet international quarantine regulations.

Specific events of note. As was the case last year, FY 2017 again presented many challenges for the Nursery Inspection Program staff. The effort to prevent the introduction to and slow the spread of boxwood blight (*Calonectria pseudonaviculata*) in Maryland occupied hundreds of hours of staff time throughout the year. Nursery Inspection Program staff were again involved not only in the process of inspecting for evidence of the disease at the majority of establishments visited, but were also engaged in issuing condemnation/seizure and treatment orders when infected plant material was found, and tasked with overseeing the destruction of boxwoods infected with this highly destructive, infective and easily spread disease. An additional plant pathogen, *Phytophthora ramorum*—the causal agent of Sudden Oak death, and a plant disease which has many host species that are common in the green industry and nursery trade—was detected by survey. The detection at a single location resulted in hundreds of additional staff hours dedicated to delimitation, eradication and follow-up survey for this very destructive disease. Since the disease is not known to occur in Maryland, and is under federal quarantine, MDA worked with the USDA, taking necessary action. An additional challenge for program staff in FY 2017 was distribution of information to the green industry and enforcement of new invasive plant regulations that took effect in 2016.

Serious plant pests and diseases are, on occasion, introduced into Maryland on plant material that is not directly regulated by our Plant Pest/Disease Control laws. In addition to chrysanthemum white rust, past examples of serious plant pathogens and pests introduced into Maryland on unregulated nursery stock such as tropical plants and annual or herbaceous plant material include: bacterial wilt (*Ralstonia solanacearum* race 3, biovar 2), daylily rust (*Puccinea hemerocallidis*), daylily leaf miner (*Ophiomyia kwansonis*), imported fire ant (*Solenopsis invicta*), brown garden snail (*Helix aspersa*) and spotted wing drosophila (*Drosophila suzukii*). Onion leaf miner (*Phytomyza gymnostoma*) and Swede midge (*Contarinia nasturtii*) are examples of additional pests that occur in the region and are likely to find their way into Maryland on unregulated plant material. There are many other plant pests and diseases that could easily go undetected if the host plant material is not subject to the scrutiny of inspection regulations. MDA staff is aware of this inadvertent gap in the Maryland Plant Pest/Disease Control laws and regulations, and is ever vigilant regarding detection of pest and disease problems on unregulated plant material in addition to the plant material that is required by law to be inspected and certified. (The definition of plant material that requires licensing for sale and/or distribution in Maryland

is: “any hardy plant or plant that survives Maryland winters,” which may overlook the possibility of plant pest and/or disease introduction on herbaceous annual, and certain perennial and tropical plants).

MDA Staff was also involved in the detection of imported fire ant (*Solenopsis invicta*). Survey for this pest is now an annual event due to the fact that this species, a serious threat to human, animal and environmental health, is regularly re-introduced into Maryland in the soil or root masses of infested tropical plant material (especially palm trees) arriving from the southern United States for seasonal outdoor decorative purposes. Staff continues to be vigilant and participates in inspections and surveys aimed at early detection and slowing the spread of serious pests and diseases such as insect pests; Asian Longhorned Beetle (*Anoplophora glabripennis*) and spotted lanternfly (*Lycorma delicatula*) and the plant diseases; sudden oak death (*Phytophthora ramorum*) as well as thousand cankers disease of Walnut (*Geosmithia morbida*).

Additionally, field and clerical staff work year-round to ensure that licensing and compliance regulatory statutes are met by industry.

Two Nursery Inspection Program staff members were hired in late 2015 to replace the two long-time PPWM, Nursery Inspection Program employees who retired in the fall of 2015. These staff members have now completed training, studied for, and passed examinations, and received necessary accreditation, and are fully integrated into the program. Both have assumed regional program responsibilities. In FY 2017, staff members participated in, and continued to attend, training workshops, professional meetings and field exercises, both in-state and regionally, to remain informed of newly developing issues and to gain expertise in order to better serve the program, the Department, industry stakeholders and the citizens of Maryland.

PEST SURVEY

The Cooperative Agricultural Pest Survey (CAPS) and Farm Bill surveys are joint projects between MDA and USDA’s Animal and Plant Health Inspection Service (APHIS) and USDA Plant Protection and Quarantine (PPQ). The USDA recommends specific pests of quarantine export significance as survey priorities and provides funding for these surveys. These cooperative survey programs provide necessary data used to certify Maryland products for export to many countries. These surveys also allow for continued outreach and education.

CAPS and Farm Bill surveys document the presence or absence of exotic pests in Maryland, support PPQ exotic pest

survey activities and provide state-specific data for exotic pests in the United States. Early detection of exotic pests before they become established aids in eradication or control efforts, and protects Maryland agriculture, nursery stock, and the environment from potential devastating losses. Federally funded CAPS surveys include: exotic wood borers, soybean commodity, and imported fire ant (*Solenopsis invicta*); the farm bill surveys include: *Phytophthora ramorum* (nursery), exotic pests of honey bees, national honey bee, and grape commodity.

In CY 2016, MDA deployed and monitored 424 insect traps and collected 3,107 samples from these various traps. Survey and trapping techniques vary, depending on the pest being surveyed for. Some trapping devices include bucket traps, delta traps, Jackson body traps and Lindgren funnel traps. All traps include an attractant; pheromone lure, food bait and host volatiles are some examples. There were seven extensive surveys targeting 52 exotic pests that impact trees, apiaries, fields, vineyards, and nursery stock.

CAPS SURVEYS

Red Imported Fire Ant. The red imported fire ant (IFA), *Solenopsis invicta*, a stinging insect native to South America, is occasionally shipped out of its regulated area in the southern United States. Despite its quarantine, which requires a wide variety of commodities to be treated or certified free of fire ants before being transported, some nursery stock does make its way into Maryland, infested with fire ants. The yearly fire ant survey focuses on tropical plants arriving from the southern United States. In CY 2016, 129 sites were surveyed and two were found positive for IFA. Sites were issued eradication treatment orders under an MDA Treatment Order; they have completed the treatments, have been resurveyed, and were found free of IFA.

Soybean Commodity. Soybean is the second most valuable crop grown in Maryland, behind corn. For this reason, ensuring that our state is free of known exotic pests of this commodity is of great importance. This survey was conducted from early June through mid-October in five counties known to have high production rates of soybean, based on harvested acreage in previous years. Four sites with planted soybeans were located within each county, and four yellow bucket traps were placed at each of these sites, for a total of 80 traps. Each of the bucket traps was baited with a pheromone lure known to be an attractant of a potentially destructive exotic moth pest. None of the targeted pests were found to be present in any of the traps throughout the sampling period. Additionally, a visual survey was conducted for the bean plataspid

(*Megacopta cribraria*), a true bug of particular concern within Maryland, and a known pest of soybean. A visual survey was conducted at each site on a bi-weekly basis, and resulted in no findings of this pest.

Exotic Wood Boring Beetles. USDA regulations require all imported wood packing material to be treated, so that any insect living in the wood should be killed. However, some packing material is not properly treated, which can cause exotic wood borers to be shipped to the US, and thus be introduced into our environment. Bark beetles can be extremely destructive and in parts of the world have been known to destroy large acreages of forest. In 2016, ten sites that receive goods packed with wood dunnage were surveyed for exotic wood boring bark beetles. During the bi-weekly trap checks, a visual survey for spotted lanternfly (*Lycorma delicatula*), a newly introduced invasive insect from Asia, was also completed. This survey ran from late March until late October. Each site had four black Lindgren funnel traps, and each of these traps had a specific lure used as an attractant to one or more of the exotic beetles being surveyed for. All samples were negative for the species being targeted. Additionally, one of the sites surveyed for EWBB pests also housed a blacklight trap. The blacklight trap is used for long-horned beetle detection, and this trap did not detect any of the high priority pests for which we were surveying.

FARM BILL SURVEYS

Exotic Pests of Honey Bees. Honey bees are important for many reasons, but perhaps the most important is that they are the sole or main pollinator of various crops, which makes them a vital part of Maryland's agriculture. As honey bee populations decline from a variety of issues, it is vital to identify and screen for any possible exotic pests which could exacerbate the situation. Honey bees have many exotic and invasive insect pests. A partial list includes members of the same genus, but different species or subspecies, such as the Asian or Eastern honey bee and its subspecies or strains (*Apis cerana species*), the Africanized honey bees (*Apis mellifera scutellata*), and the Cape honey bees (*Apis mellifera capensis*). Asian giant hornets (*Vespa mandarinia*) and its subspecies, the Japanese giant hornet (*V. m. japonica*), the Asian hornet (*V. velutina*), and other *Vespa* species are also included in this list of exotic pests. Rounding out the list are *Tropilaelaps* species, parasitic mites which feed on the hemolymph (blood) of developing honey bees. Although these pests have not been found in Maryland, it is important to have a plan in place to survey for these pests, and react swiftly and appropriately should they appear, to prevent them from becoming established. Eight sites were selected throughout Maryland.

Particular emphasis was put on sites near transportation routes or other high-risk pathways, which are known as possible areas of introduction for foreign species. From late May until mid-October, Lindgren funnels and modified bottle traps were placed at each site and examined bi-weekly for the presence of any of these pests, particularly *Vespa* species. No target species were found throughout the survey. This survey was conducted by the apiary inspection staff.

National Honey Bee Survey. Since 2009, USDA-APHIS, in conjunction with Bee Informed Partnership, has sponsored the National Honey Bee Survey (NHBS), a comprehensive examination of colony health among apiaries across the country. Maryland has been a participant in the NHBS since 2011. At each apiary surveyed, samples of bees are collected from eight different hives; half of these bees are kept alive and half are preserved in ethanol, then both live and preserved samples are sent to a laboratory for further testing. In addition, comb debris is collected from all eight hives, preserved in ethanol, and submitted for further testing. The samples were submitted to the USDA Beltsville and the University of Maryland bee labs. Results from these samples have not yet been received. While samples are being collected, any visible signs of disease or distress are also noted. These visual observations have noted symptoms of parasitic mite syndrome, deformed wing virus, small hive beetle infestation, wax moth and malnutrition. An additional objective of this survey is a colony pesticide analysis to assess both the variety and quantity of pesticides present in honey bee hives. The apiary inspection staff completed two surveys in the fall of 2016 and surveyed nine more sites in the spring of 2017.

Grape Commodity Survey. Vineyards and wineries are an expanding industry in the state of Maryland. However, as vineyard acreage increases, the opportunities for invasive pests to be introduced and become established also increase. This survey was conducted from the middle of June until late October in 15 vineyards, covering eight Maryland counties, in order to confirm the absence of invasive moth pests. At each vineyard, two standard bucket traps, one delta sticky trap, and one Jackson body trap were placed. Each trap was baited with a lure attractive to a different moth of concern. These traps were checked on a bi-weekly basis throughout the sampling period, and no target species were discovered. During the bi-weekly trap checks, a visual survey for spotted lanternfly (*Lycorma delicatula*), a newly introduced invasive insect from Asia, was also done, although none were found to be present. An additional part of this survey involved a visual survey of grape vines, looking for a grape phytoplasma and a fungal disease, brown rot. PPWM's plant disease specialist ran both

surveys. There were 301 leaf samples taken, all samples were negative for both the grape phytoplasma and brown rot.

Phytophthora ramorum Nursery Survey. The *P. ramorum* survey covered nurseries, garden centers, and landscape sites. Staff visited 13 nurseries and garden centers receiving plant material from Oregon, California, and Canada and inspected 15,032 azalea, camellia, kalmia, pieris, rhododendron, and viburnum plants. Less than 6 percent of plants examined exhibited symptoms similar to those caused by *P. ramorum*. Eight hundred sixty-eight symptomatic samples of different plant species were collected and tested for *Phytophthora spp.* by ELISA kit, and 14 percent of samples were found positive. Of these samples, rhododendron had the highest percentage (41 percent) of *Phytophthora* infection, and azalea and camellia were free from the pathogen. All *Phytophthora spp.* positive samples were submitted to the Cornell University Diagnostic Clinic for *P. ramorum* confirmation. At one nursery site, two Rhododendron 'Cunningham White' and one Kalmia 'Olympic Wedding', were found positive for *P. ramorum*. Staff visited suspect homeowner properties as trace forwards from the infected nursery, inspecting, sampling and destroying 78 plants. These samples were tested for *Phytophthora spp.* by ELISA kit. Of these trace forward samples, 20 suspect/symptomatic samples were tested for *P. ramorum*. All of these samples were found negative for *P. ramorum* except one Rhododendron 'Cunningham White' plant from one homeowner site. The PP&WM plant disease specialist supervised and conducted this survey.

DIAGNOSTIC LABORATORIES

The Plant Protection and Weed Management Section laboratories provide testing, analyses and identifications to support MDA programs, as well as providing answers to inquiries from outside the department.

Entomology Laboratory. Specimens of the balsam woolly adelgid (*Adelges piceae*), were collected from gouty galls on Fraser fir (*Abies fraseri*), in Garrett County at a Christmas tree farm. This tiny, aphid-like, close relative of the hemlock woolly adelgid (*Adelges tsugae*), was accidentally introduced to North America in the early 1900's and feeds on many true firs (*Abies spp.*) Along with the scores of common and uncommon specimens submitted in 2016 by inspectors, survey personnel, outside agencies, and the public, inquiries about bat bug and bed bugs increased from last year. There was also an increase in the number and kinds of insects sent/photographed as possible conenose assassin bugs, although no *Triatoma spp.* (which do naturally occur in Maryland) were seen.

Brood V of *Magicicada spp.*, the periodical cicadas, which emerged only in Garrett County as predicted, caused the usual stir due to the large amount of bad information that circulated. Other specimens of note included: *Myrmecophilus pergandii*, the ant nest cricket, a tiny specialized insect that manages to exist and thrive while surrounded by ants that would kill most intruders, and *Micromalthus debilis* the telephone pole beetle, a tiny wood-boring beetle that has several unique methods of reproduction. Identification of a group of beautifully marked orb-weaving spiders- *Verrucosa arenata*- the arrowhead spider, was a first for the lab. A rather rare *Merope tuber*, earwig-like scorpionfly and an uncommon *Cuterebra sp.* (warble fly) were collected in survey trap catches. Also considered rare, a wasp that parasitizes lacewing larvae, *Helorus anomalipes*, was recovered in perfect condition from an exotics survey trap.

Plant Pathology Laboratory. The plant pathology diagnostic laboratory provides testing, analysis, and recommendation services for problems caused by biotic pathogens such as fungi, bacteria, viruses, and nematodes, as well as abiotic issues, such as soil and environmental related problems, to support MDA programs. It also provides answers to inquiries from outside the department. MDA's plant disease specialist continued relocation, refitting, and updating of equipment in the laboratory as well as obtaining, collecting, maintaining, and calibrating equipment, plus updating and improving the lab's molecular capabilities.

The pathology laboratory received more than 239 samples for diagnosis and management solutions during the 2016 growing season. A majority of the samples came from nursery inspectors, some from pesticide inspectors, landscapers, and homeowners. About 10 percent of samples were abiotic-related such as watering issues, soil management, cold damage, etc. while the other problems were caused by biotic pathogens such as fungi, bacteria, viruses and nematodes. Most samples received involved fungal pathogens. Management strategies based on an integrated pest management approach were recommended.

The exotic disease, boxwood blight, *Cylindrocladium buxicola* (syn. *Calonectria pseudonaviculata*) remained a high priority. Several samples were received, to confirm absence of *C. buxicola* fungi from multiple nurseries and retail establishments. Seven nurseries, three landscaping companies, and one homeowner site were found positive for boxwood blight this year. The plant disease specialist also visited nurseries to investigate the disease in the field and took extensive samples. Several thousand plants in positive nurseries were destroyed in an effort to eradicate

this pathogen. Complete destruction of boxwood plants was recommended to a nursery because of continued presence of the pathogen and a potential danger of spreading it by human activities. A boxwood blight presentation was given at an IPM training organized by the University of Maryland Extension.

In CY 2016, the plant diagnostic laboratory obtained Farm Bill funding for: a survey of *Phytophthora ramorum* in nursery stocks and a grape commodity survey, visually surveying for grape phytoplasma and brown rot, a fungal disease based on symptoms. Both surveys are a continuation of those completed in 2014 and 2015. All information is found in the Pest Survey section of this report.

Greenhouse Laboratory. Mile-a-minute (MAM) weed plants (*Persicaria perfoliata*) were produced for the integrated pest management and biological control program of insect colonies that require food and plant material. Over 1,650 MAM stem cuttings were taken and 1,632 MAM plants were transplanted and grown in the greenhouse to be used as food for colonies of the stem boring weevil, *Rhinoncomimus latipes*.

Virus testing began on eight varieties of strawberry plants in support of a Memorandum of Understanding with a strawberry breeding company. Testing continues on one additional variety (12 plants) of strawberry brought into the greenhouse in 2015. The poor condition of the original plants from the breeding company required testing of the variety to continue into the 2016 season. Indicator strawberry plants and positive control strawberry plants are maintained throughout the year to support this testing.

Virus indicator (plants that show virus symptoms in the presence of certain viruses) plants of fifteen different genera and species, are seeded and transplanted weekly to be used, when needed, to test plants submitted by the nursery inspection staff for the possible presence of virus diseases.

A variety of support programs takes place at the greenhouse on a yearly basis. These include plants produced to support MDA displays at the Maryland Home and Garden Show as well as the Maryland State Fair. Plants are also grown and maintained in support of the Certified Professional Horticulturist (CPH) exam which is given at MDA headquarters twice a year and proctored by PP&WM staff in cooperation with the Maryland Nursery, Landscape, and Greenhouse Association.

PLANT CERTIFICATION

The Maryland Ginseng Management Program protects American ginseng, *Panax quinquefolius*, by monitoring the harvest, and by licensing diggers and dealers of wild, wild-simulated, woods-grown and cultivated ginseng. MDA conducts a management program in cooperation with the U.S. Fish and Wildlife Service (FWS) that follows established protocols and Convention on the International Trade in Endangered Species (CITES) regulations to ensure the continued viability of this potentially threatened native resource and to protect it from over-harvest. Harvested ginseng is certified through this program to enable licensed dealers to sell the wild-harvested plant product in international markets.

MDA also works with growers of wild-simulated and woods-grown ginseng to allow them to market and export their highly valued crops. The dried roots are highly prized, especially in China and Korea, for properties that putatively promote good health. High quality native ginseng root continues to be in great demand on the international market, and prices for wild American ginseng generally increase over time. In 2016, however, prices dropped precipitously, rarely exceeding \$500 per pound for dry ginseng. Possible factors contributing to this decrease are mentioned below. During the 2015-2016 season, the program licensed 19 ginseng dealers and 247 ginseng collectors in the state. For the 2016-2017 season, those numbers are 18 and 209, respectively. Licensing for ginseng dealers and collectors starts after July 1 of each year as the season doesn't begin until September 1. The harvest season ends December 15 and the sales season ends March 31 of the following year. The harvest numbers reported below are for the program season beginning September 1, 2015 and ending March 31, 2016.

Over the 2015-2016 harvest and sales season, the certification program inspected, collected size and age data from, weighed, and certified 223.87 pounds of dry wild ginseng root, 4.75 pounds of green (fresh) wild ginseng root, 25 pounds of wild simulated dry ginseng root, 5 pounds of wild simulated green ginseng root, 45 pounds of green woods-grown ginseng root and 1.65 pounds of cultivated green ginseng root. (For the purpose of this report, both artificially propagated and wild simulated ginseng harvests are being recorded as artificially propagated. Both artificially propagated and wild simulated ginseng, distinctions recognized by the U.S. Fish and Wildlife Service and CITES, are being grown as alternative agricultural crops in Maryland).

The 2015-2016 harvest and certification numbers are about

14 percent greater than the numbers for dry wild ginseng and 64 percent less than those for artificially propagated dry ginseng, as compared to numbers recorded for 2014-2015. The amount of wild green ginseng root certified in the 2015-2016 season represents about a 16 percent decline compared to 2014-2015, and for wild simulated green root the decrease was dramatic, as there was about a 98 percent decrease in wild simulated green ginseng root certified in 2015-2016 as compared to 2014-2015. As reported in 2014 and 2015, changes in certification of green (fresh) ginseng likely parallel market demand for and the domestic use of fresh ginseng in the U.S. domestic market and the rise of a relatively novel type of ginseng buyer. When root is sold in a green (fresh) condition, it generally weighs about 3 times the weight of the same root when dried.

As is generally the case, fluctuations in the amount of Maryland ginseng certified and sold likely reflect the demand and pricing on the international market, (and more recently a specialty sector in the domestic market) and do not necessarily directly reflect the status or abundance of wild American ginseng in Maryland. Many ginseng collectors and growers refuse to sell ginseng in a depressed market, preferring to wait until the price increases with a market rebound. As is done each year, harvest and sales data were gathered and reported in accordance with U.S. Fish and Wildlife Service (USF&WS) and CITES requirements. The USF&WS, Office of Management Authority continues to find Maryland's wild ginseng harvest as sustainable and "non-detrimental" to wild American ginseng populations in Maryland.

The amount of ginseng cultivated, including woods-grown and wild-simulated designations in Maryland, and certified by the department continues to keep pace with the amount of wild ginseng harvested and certified in the state. This reflects both continuing interest in ginseng as an alternative crop, and the ability of Maryland growers to produce high quality ginseng. There were many calls to the Ginseng Management Program coordinator again this year inquiring about growing ginseng on one's own property. With an increased interest in and production of American ginseng in Maryland as an alternative agricultural crop, harvest pressure on wild ginseng may be reduced, which would, in turn, reduce pressure on wild ginseng populations in Maryland.

Responses to annual questionnaires mailed to ginseng collectors and dealers at time of licensing were modified in 2015, and again in 2016 to gather currently pertinent information on program participants concerns and opinions. Participants responses to the survey questions continued to

reflect a substantial amount of support for a State sanctioned "Ginseng Growers Permit" mentioned above.

There continue to be many survey responses expressing concerns about the ginseng harvest moratorium placed on all state managed property, including State forests and wildlife management areas, by the Maryland Department of Natural Resources in 2013. Many of the respondents continue to relate that the incidence of out-of season poaching of wild ginseng in Maryland remains high. There was also continued concern regarding the lack of on-the-ground enforcement relative to illegal ginseng harvest. Also expressed was the sentiment that prevention of legally licensed collectors from harvesting on state managed land actually promotes poaching as there are fewer legal harvesters active to report illegal activity. Most participants in the Maryland Ginseng Management Program view themselves as stewards and protectors of a natural heritage.

In 2015-2016, MDA continued to evaluate harvest trends and watch for positive developments resulting from a regulation change made July 1, 2010. As of that date, the harvest season for wild American ginseng in Maryland was changed from August 20th through December 15th, to September first through December 15th. This change effectively gives the ginseng fruit longer to ripen (on average) and insures a higher percentage viability of seed. This allows wild ginseng populations a better opportunity for recovery from harvest pressures. It remains to be documented that these changes have affected any population increase in the field. It is expected that any change will be gradual, and that detection of positive trends may not be apparent for years. This revision in harvest dates also complies with harvest season modifications highly recommended by the U.S. Fish and Wildlife Service. This change will not only bring all states with wild American ginseng populations into harmony in terms of parallel harvest season dates, but is also based on long term research that indicates the change is necessary to ensure a longer season for seed development and ripening that will enhance long term survival of wild American ginseng in its native range. To date, neighboring states of West Virginia, Virginia and Pennsylvania have made the recommended changes to their harvest season.

WEED INTEGRATED PEST MANAGEMENT (IPM)

MDA Plant Protection and Weed Management Section entomologists and staff continued to work with the Maryland Department of Transportation, State Highway Administration (SHA) to conduct an integrated pest management (IPM) program aimed at providing biological control for certain

targeted weed species on SHA rights of way. In CY 2016, continuing a program that dates back nearly 30 years, weed IPM research and demonstration activities were conducted on SHA rights of way, using funding from SHA and the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine (USDA /APHIS/PPQ). MDA weed management and biological control research and demonstration projects have been conducted over each of the past 18 years under current program management, and have involved cooperation with the Maryland State Highway Administration, the Howard County Department of Recreation and Parks, the Maryland National Capitol Park and Planning Commission, the Maryland Department of Natural Resources, the U.S. Department of Agriculture (both the Agricultural Research Service (ARS) and APHIS), the U.S. Forest Service, The U.S. Fish and Wildlife Service, the U.S. Geological Survey and, in certain cases, private Maryland businesses and landowners.

Over the past 18 years, research has focused on one or more of the following: the evaluation and release of organisms for biocontrol of thistles, purple loosestrife, and mile-a-minute weed, testing herbicide formulation efficacy for thistle (*Cirsium* and *Carduus* spp.) and Japanese stiltgrass (*Microstegium vimineum*) management, testing the effects of the rose rosette disease on multiflora rose (*Rosa multiflora*) and other rose species and cultivars, and evaluating the use of competitive vegetation (including native grasses and forbs) in an effort to provide environmentally sound and cost-effective methods for suppression of noxious thistle species in Maryland.

Currently MDA is focused on biological control of mile-a-minute weed, *Persicaria perfoliata*, and purple loosestrife, *Lythrum salicaria*, using very specific insect biological control agents. In FY 2017, MDA finished the second year of a two year agreement, and beginning in July 2017, entering into a new two year agreement, with the Landscape Operations Division of the Maryland State Highway Administration to administer a program to continue biological control driven suppression of mile-a-minute weed, and to reinstate a program aimed at suppression of purple loosestrife on state highway rights of way. These programs include lab, greenhouse rearing, and field release and monitoring of the weevil, *Rhynoncomimus latipes*, and field release and monitoring of Galerucella (*Neogalerucella*) leaf beetles. Funding for rearing, release and monitoring of the weevil and purchase, release and monitoring of the leaf beetle is provided in part by SHA. An additional source of funds for this project comes from a cooperative agreement with USDA APHIS PPQ that has been renewed on an annual basis.

In 2016, a long term MDA staff member with over 16 years experience, including many years working with the MDA Weed Biological Control Program retired. The program was able to hire an entomologist part time in June 2016 to work with the retiring staff member, and to take over and continue the lab-rearing and field release and monitoring components of the program.

The program also involves greenhouse growing of the host plant, *Persicaria perfoliata* (mile-a-minute weed). The host plants are grown in the MDA greenhouse in Annapolis. In 2016, nearly 1,682 *Persicaria perfoliata* plants were grown. At the MDA Plant Protection and Weed Management Section Insect Rearing Lab, MDA staff reared 4,433 weevils in 2016. Release numbers were supplemented by 4,000 additional weevils acquired from the New Jersey Department of Agriculture, Phillip Alampi Beneficial Insects Laboratory. In 2016, 7,615 adult weevils were released at a total of 14 sites statewide, 10 of which were new locations.

Rhynoncomimus latipes has now been released by MDA staff and is established in at least portions of the following Maryland counties: Allegany, Anne Arundel, Baltimore, Carroll, Cecil, Charles, Frederick, Garrett, Harford, Howard, Kent, Montgomery, Prince George's, Queen Anne's, Somerset, Washington, and Wicomico.

NOXIOUS WEED MANAGEMENT

The purpose of this program is the control and eradication of designated noxious weeds in order to reduce their economic and aesthetic impact on farmers and landowners. Noxious weeds (Johnsongrass, shattercane, thistles) cause losses in excess of \$25 million annually to Maryland agriculture due to reduced yields and quality of crops and forages and increased control costs. Increased expenses are also incurred for roadside and non-crop property management.

The Maryland General Assembly enacted the first Nuisance Weed Law on Johnsongrass in 1969. In 1987, it was rewritten and renamed the Noxious Weed Law (Title 9, Subtitle 4, Agriculture Article, Annotated Code of Maryland). The Noxious Weed Law requires that a landowner, or a person who possesses and manages land, eradicate or control the noxious weeds on that land by using practices prescribed by the department, including mowing, cultivating, or treating with an approved herbicide. The law prohibits the importation of these weeds into or within the state and it also prohibits transportation of viable noxious weed seed and rhizomes in seed, topsoil, mulch, nursery stock, on farm machinery, or any other method.

The Noxious Weed Law has a provision that the Maryland Department of Agriculture may enter into a cooperative agreement with a county or political subdivision to provide management, technical assistance, training, and education for implementing a noxious weed control program. The county weed control programs are supervised by state personnel as specified by these cooperative agreements.

In the 16 participating counties, a weed control advisory committee with representatives from farming organizations, governmental agencies, local farmers, and property owners, provides guidance for the noxious weed control program in that county. A county weed control coordinator is employed to determine noxious weed infestations within the county, inspect uncontrolled infestations, provide information on appropriate control practices, and initiate control agreements with landowners to implement control. In many counties, the weed control coordinator also performs herbicide treatments for a fee on private lands, Maryland State Highway Administration and county rights-of-way, as well as parks and other public lands. Spray revenues support program activities in the county. Statewide, spray revenue for all the county programs was in excess of a million dollars.

In CY 2016, noxious weed advisory notices were sent to 318 managers of property infested with noxious weeds. Generally, these notices were effective in obtaining compliance. When notifications are unsuccessful the Department may take legal action.

The weed control program also responds to citizens' requests for technical assistance in controlling invasive, difficult to control, persistent weeds such as *Phragmites*, multiflora rose, kudzu and Callery pear trees. The weed control program also monitors giant hogweed, a federal noxious weed, that was first detected in Maryland in 2003. It exists on sites in Baltimore, Harford and Garrett counties. In 2016, six sites were treated, two in Baltimore county, two in Garrett county and two in Harford county. County weed control programs

provided the spray crews and materials to treat the giant hogweed infestations. Eradication is a multi-year effort and the weed control program will treat infestations at the landowners' expense.

The weed control staff partnered with the Maryland Department of Natural Resources (DNR) for the sixteenth year to provide a *Phragmites* management program. Upon request from landowners or managers, the weed control program staff supplies technical and spraying assistance for control.

DNR provided 100 percent of the herbicides applied in the nine eastern shore counties for spraying *Phragmites*. Spray program revenues for *Phragmites* control totaled more than \$100,000 for treating approximately 88 acres at 121 locations in 17 counties.

In all counties, due to the likelihood of weed problems, the noxious weed control program's technical and spraying services are provided to landowners participating in the Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), as well as assisting with wildlife and pollinator plantings. On land in these programs, services were provided for noxious weed control.

OTHER ACTIVITIES

During FY 2017, the Plant Protection & Weed Management staff continued to administer basic and specialist examinations for the Maryland Certified Professional Horticultural program. The program was developed by the Maryland Nursery, Landscape, and Greenhouse Association (MNLGA) to raise and improve the professional standards of Maryland's nursery, landscape, and garden center industry by giving special recognition to individuals who have shown a high level of attainment, and allowing them to be recognized by the gardening public. The program has also expanded to high school programs that specialize in horticultural curriculum, approximately 70 Maryland high school students participated in the exam in CY 2016.

PLANT PROTECTION AND WEED MANAGEMENT SUMMARY OF ACTIVITIES: CY 2014 - 2016

Activity	CY 2014	CY 2015	CY16
Beekeepers Registered	1,838	1,895	2,017
Honeybee Colonies Registered	14,412	14,594	15,550
Honeybee Colonies Inspected	4,515	2,224	2,095
Ginseng Dealers Registered	15	19	18
Ginseng Collectors Licensed	257	24	209
Nurseries Certified	309	315	311
Plant Dealers and Brokers Licensed	1349	1315	1434
Phytosanitary Certificates Issued	466	247	326
Plant Pest Surveys # Target Pests	41	52	52
Plant Pest Surveys # Samples Processed	2,656	2,906	3,107
Target Pests Detected	2	9	6
Number of Noxious Weed Advisory Notices Issued	303	361	318

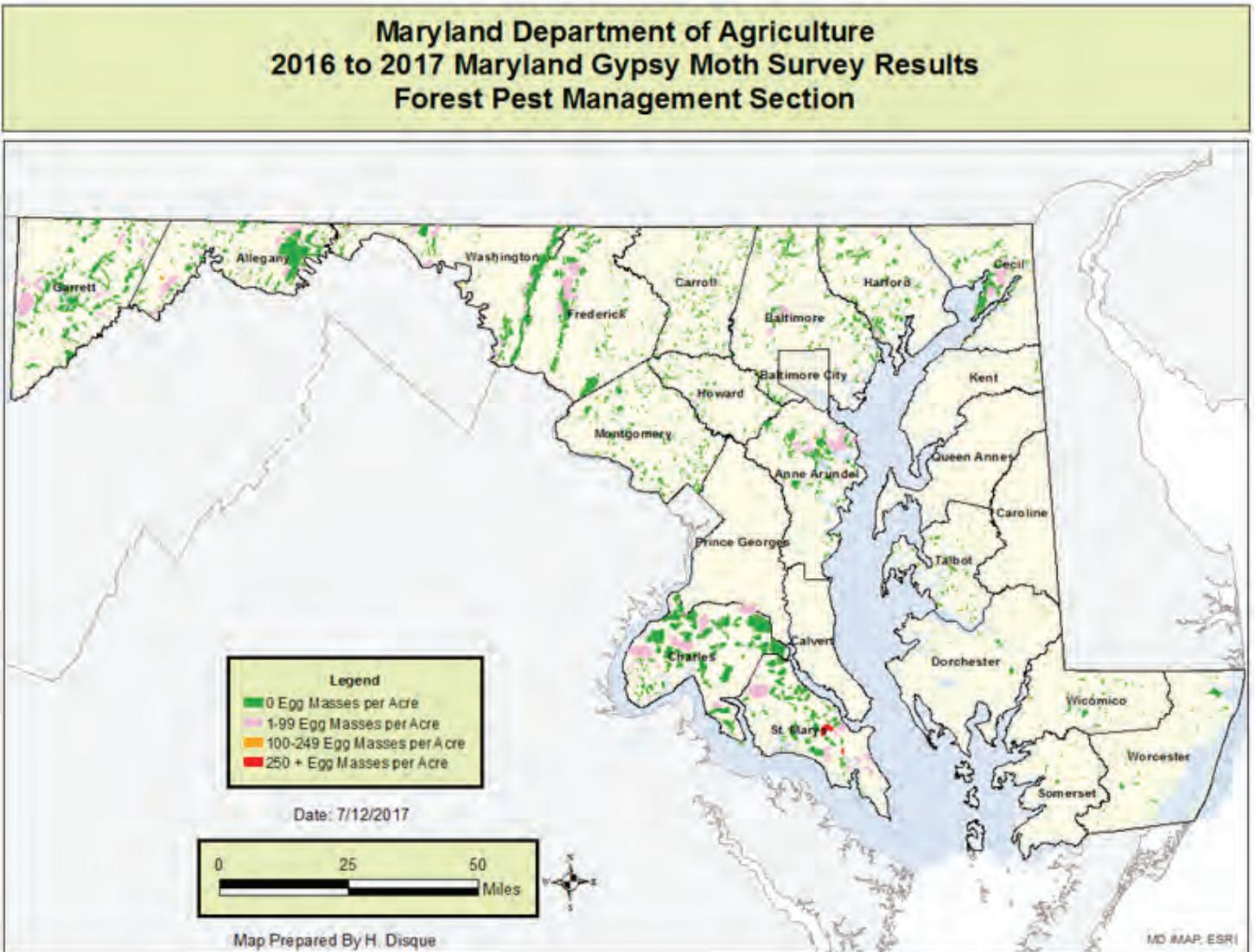
** Because of the seasonal nature of this program and calendar year federal reporting requirements, data are reported on a calendar year basis.*

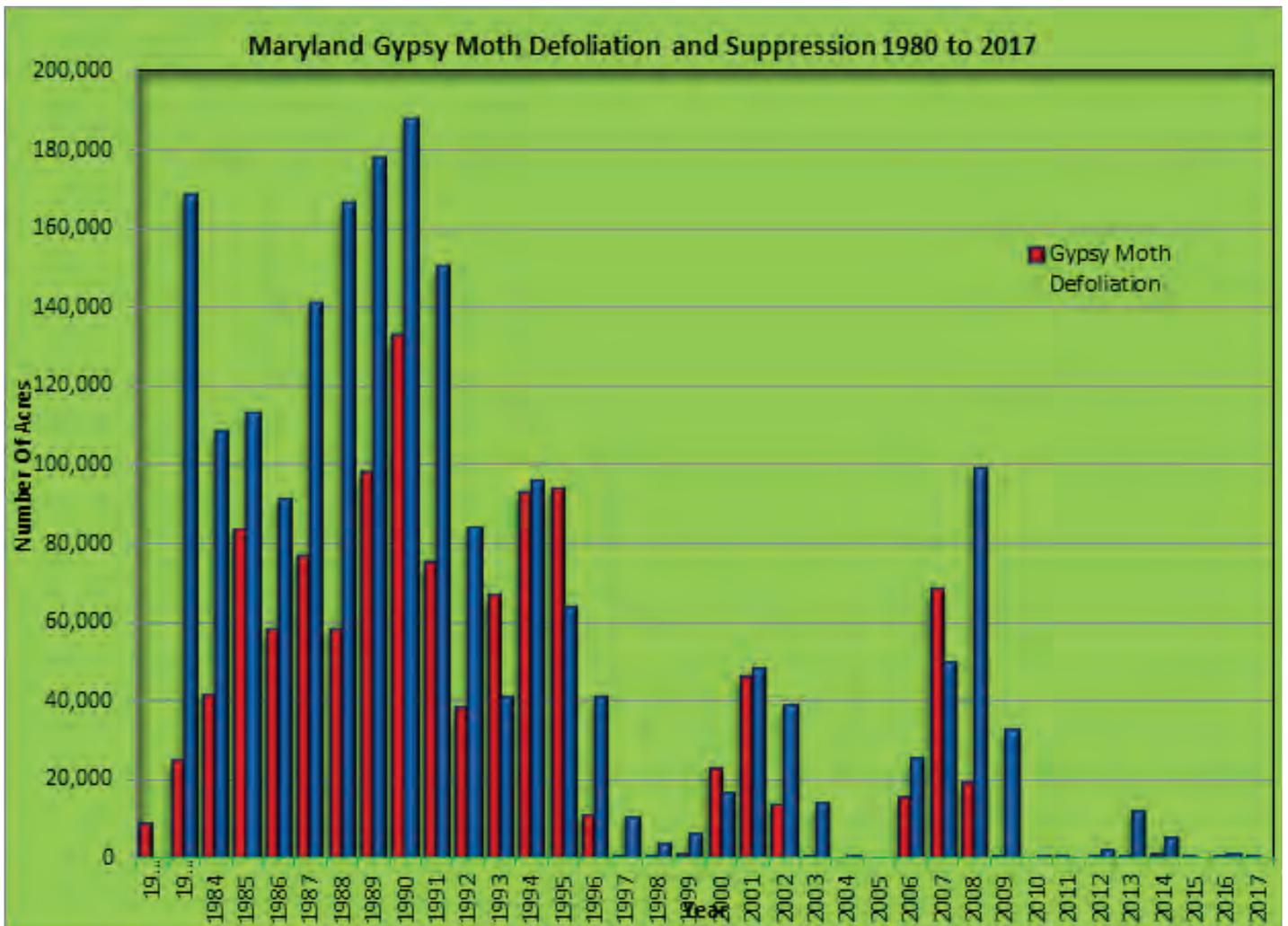
FOREST PEST MANAGEMENT

FOREST PEST MONITORING AND SURVEYING

The gypsy moth is the most serious threat to oak forests in the United States. The first eggs were detected in Maryland in 1971 and the first extensive defoliation occurred in 1981. Each fall and winter, MDA conducts an extensive survey for gypsy moth egg masses to determine potential areas of defoliation. From August 2016 through March 2017, MDA personnel conducted gypsy moth egg mass surveys on 481,162 acres of “high value” forested lands. “High value” forested sites

include areas with development, recreational use, managed forest and wildlife resources and other site conditions that render dieback and mortality to be economically and socially important. The survey results indicated that the current populations were insufficient to cause moderate to heavy defoliation. St. Mary’s, Garrett, and Washington counties recorded several blocks with high populations of gypsy moth. Gypsy moth defoliation was less than 100 acres this year, and was seen in Southern Maryland and on the Eastern Shore.





Maryland Department of Agriculture
2016 - 2017 Maryland Gypsy Moth Egg Mass Survey Summary
Forest Pest Management

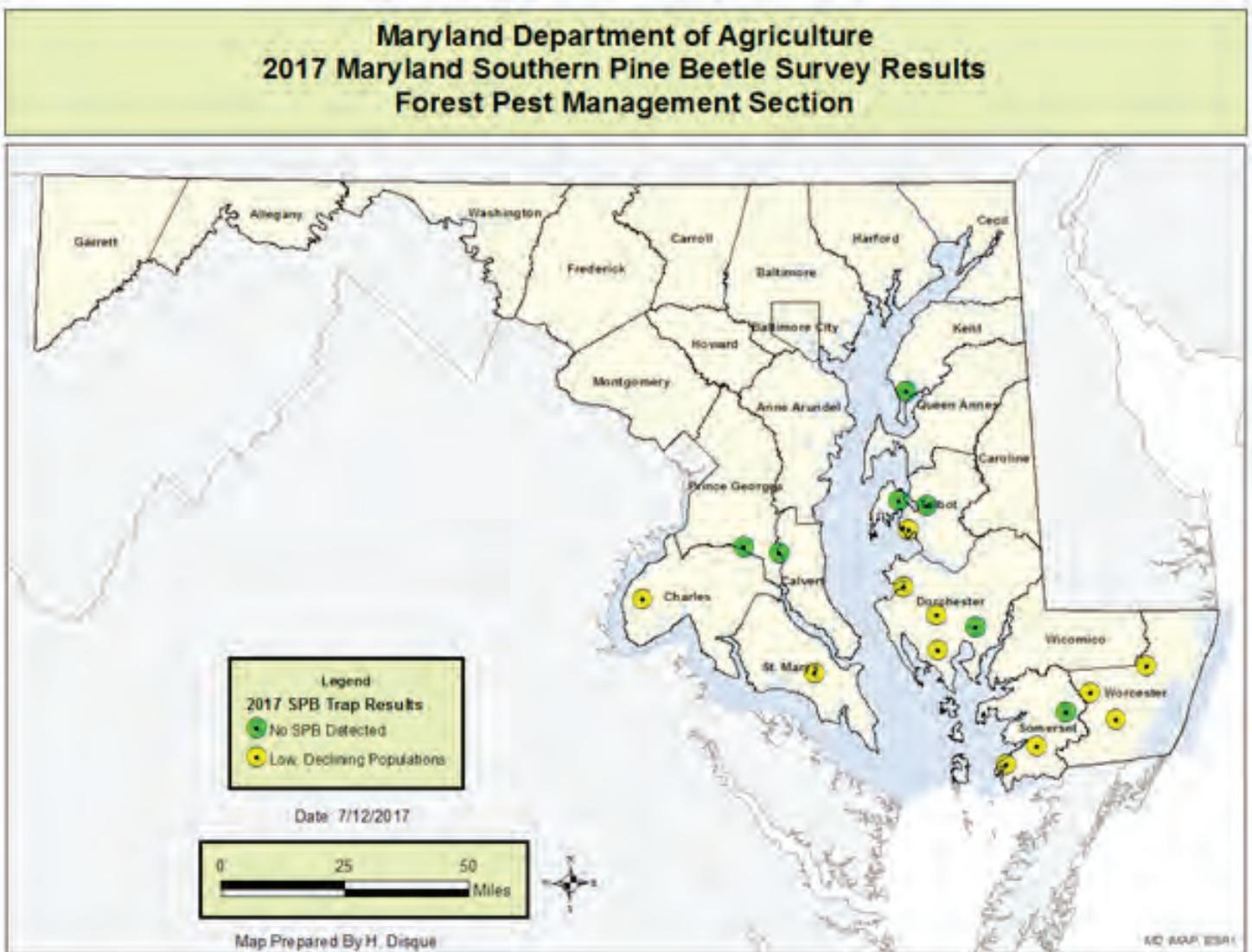
County	Total	Private & County	State	# Positive	% Positive	# Blocks	# Acres	% Positive 2015-2016
EASTERN SHORE								
Caroline	42	0	42	0	0.0	6	3,848	7.5
Dorchester	118	80	38	7	5.9	39	2,826	17.4
Queen Anne's	18	0	18	0	0.0	7	402	0
Somerset	52	52	0	7	13.5	18	1,297	42.6
Talbot	195	191	4	7	3.6	77	6,445	8.4
Wicomico	219	213	6	19	8.7	69	6,121	21
Worcester	148	110	38	13	8.8	43	4,950	19.2
TOTALS	792	646	146	53	6.7	259	25,889	17.2
SOUTHERN								
Charles	228	198	30	30	13.2	58	82,075	5.3
St Marys	238	228	10	21	8.8	61	43,475	12.3
Anne Arundel	356	353	3	32	9.0	67	28,461	18.7
Prince Georges	0	0	0	0	0.0	0	0	0
Calvert	0	0	0	0	0.0	0	0	0
TOTALS	822	779	43	83	10.1	186	152,011	13.6
NORTHEAST								
Baltimore	852	767	85	49	5.8	189	28,748	6.4
Cecil	448	363	85	15	3.3	76	22,390	3.2
Harford	512	485	27	6	1.2	126	20,219	2.8
Kent	10	0	10	0	0.0	3	734	0
Baltimore City	0	0	0	0	0.0	0	0	0
TOTALS	1,822	1,615	207	70	3.8	394	72,089	4.6
WESTERN								
Allegany	839	405	434	54	6.4	158	47,194	11.4
Garrett	1,064	600	464	59	5.5	183	61,295	6
Washington West	333	205	128	26	7.8	52	10,953	12.7
TOTALS	2,236	1,210	1,026	139	6.2	394	119,442	9
CENTRAL								
Carroll	541	419	32	4	0.7	181	13,819	2.8
Frederick	740	607	133	35	4.7	171	47,998	10.1
Howard	195	159	36	0	0.0	68	6,544	0.3
Montgomery	586	504	82	0	0.0	161	19,197	1.1
Washington East	386	284	102	20	5.2	73	24,173	19.1
TOTALS	2,448	1,973	385	385	15.7	654	111,731	6.8
TOTALS	8,120	6,223	1,807	730	9.0	1887	481,162	8.3

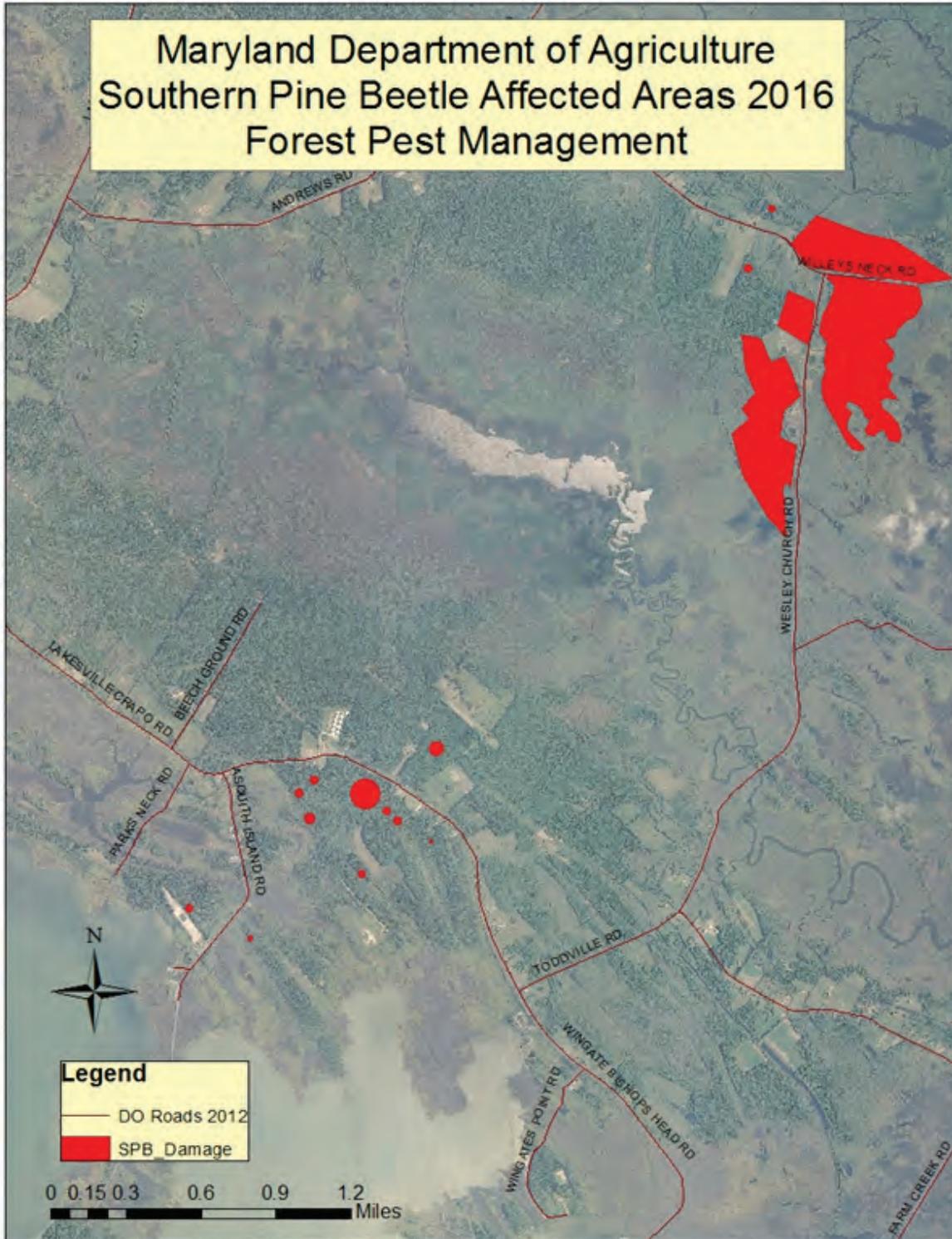
The **southern pine beetle** is one of the most destructive insect pests of pines. Maryland is at the northern edge of the insect's range and is commonly found on the lower Eastern Shore and Southern Maryland. Since 1989, Maryland has participated in a multi-state SPB survey throughout the southern United States using pheromone-baited traps. Trap data indicated that SPB numbers are to remain low in 2017. Populations have been below outbreak level since 1994.

An isolated outbreak of southern pine beetle killed over 300+ acres of Loblolly pine in southern Dorchester County during 2015-2016. Three small tracts of pine were harvested, and the outbreak has not grown since the fall of 2016. A trap was set

up in the affected area and very little SPB was caught there this spring.

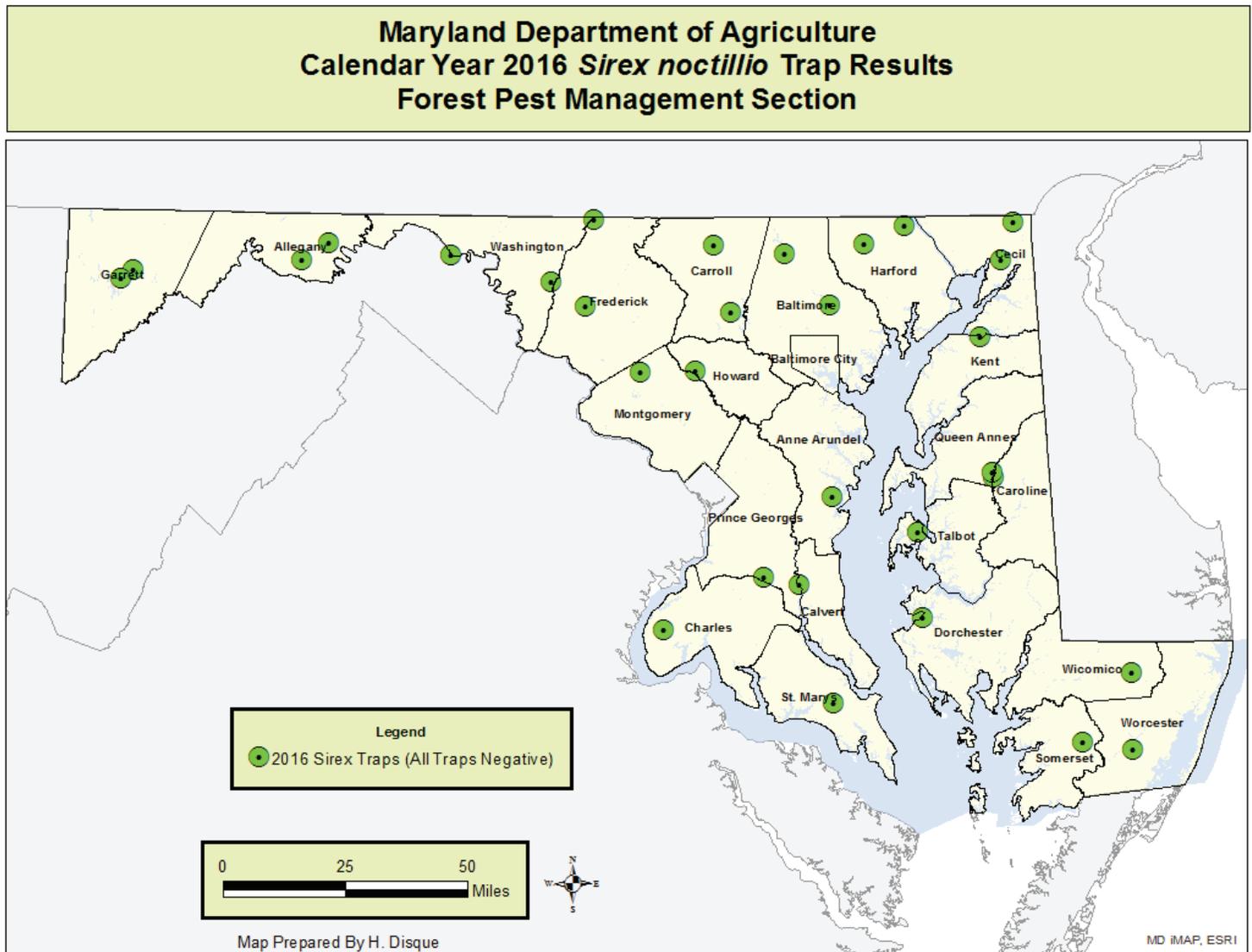
This spring FPM participated in a SPB Experimental Lure Trial. Nine traps with three different lure combinations were set up in three counties with the most SPB activity. Data was forwarded to the Texas Forest Service and USFS. Lure combinations included the traditional lures and endo-brevicommin, and a Caribbean turpentine lure combination. All treatments collected SPB and the predatory Clerid beetle. The endo-brevicommin treatment collected more SPB across all sites.





***Sirex noctilio* (Wood Wasp).** *Sirex* wood wasp has been the most common species of exotic wood wasp detected at United States ports-of-entry associated with solid wood packing materials. Recent detections of this wood wasp outside of port areas in the United States have raised concerns because this insect has the potential to

cause significant mortality of pines. The *sirex* wood wasp has not been detected in Maryland but is known to be in Pennsylvania. To detect this insect, MDA placed two traps per county on the northern tier counties and one trap for all other counties, for a total of 31 traps in pine woods. All traps were negative during FY 2017.

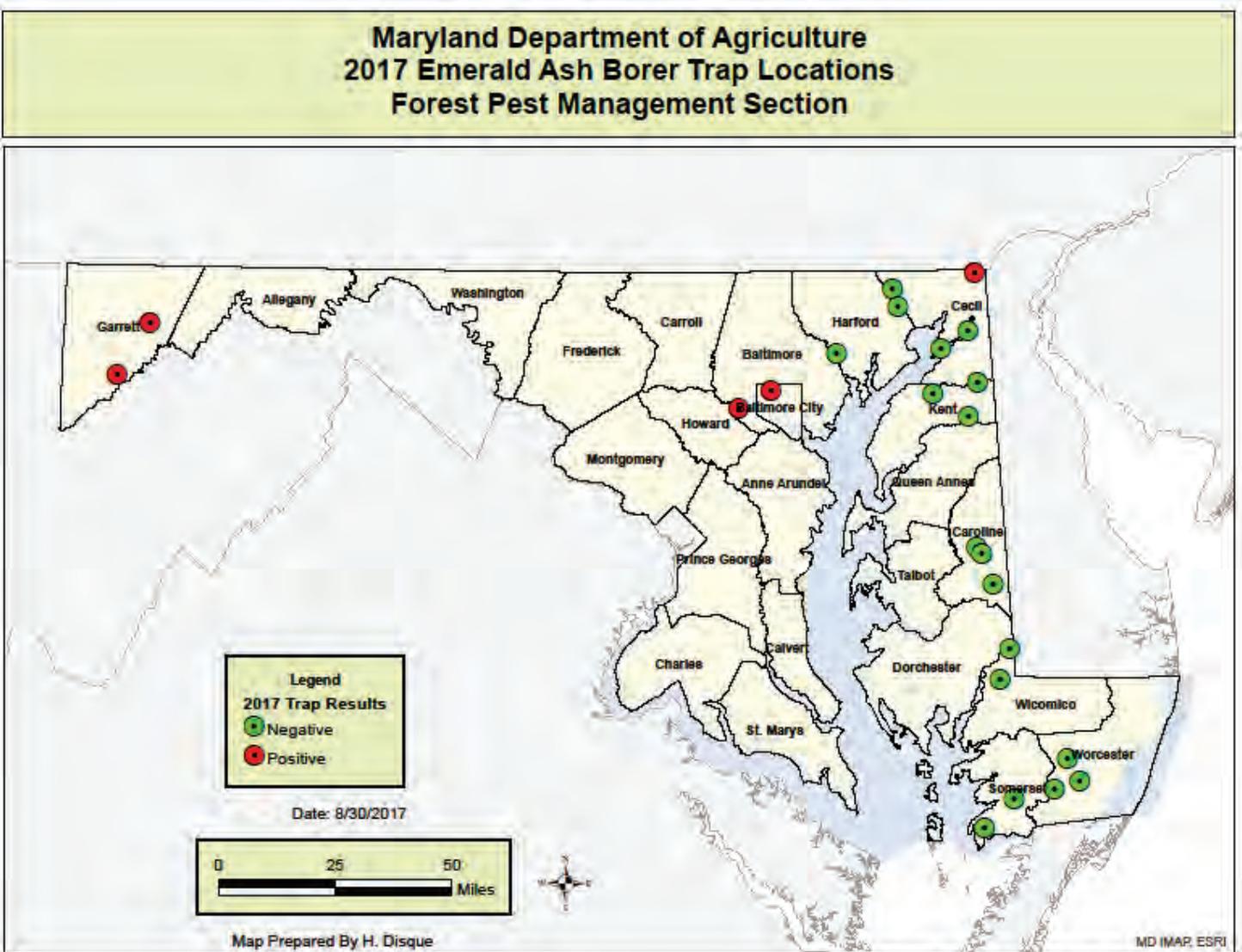


Emerald Ash Borer (EAB). MDA Forest Pest Management put up 24 green funnel traps. Five traps were positive for EAB in 2017. Cecil and Kent Counties both recorded their first EAB detection. In March 2017 EAB was found in a tree in Kent County and was confirmed by a USDA identifier in April. This detection came from a land manager sick tree call.

Emerald ash borer parasitoids were released in five state parks and one Arboretum. Locations were chosen based on the presence of ash and low populations of Emerald Ash Borer. The locations were Big Run State Park in Western Maryland, Martinak State Park on the Eastern Shore of Maryland, and

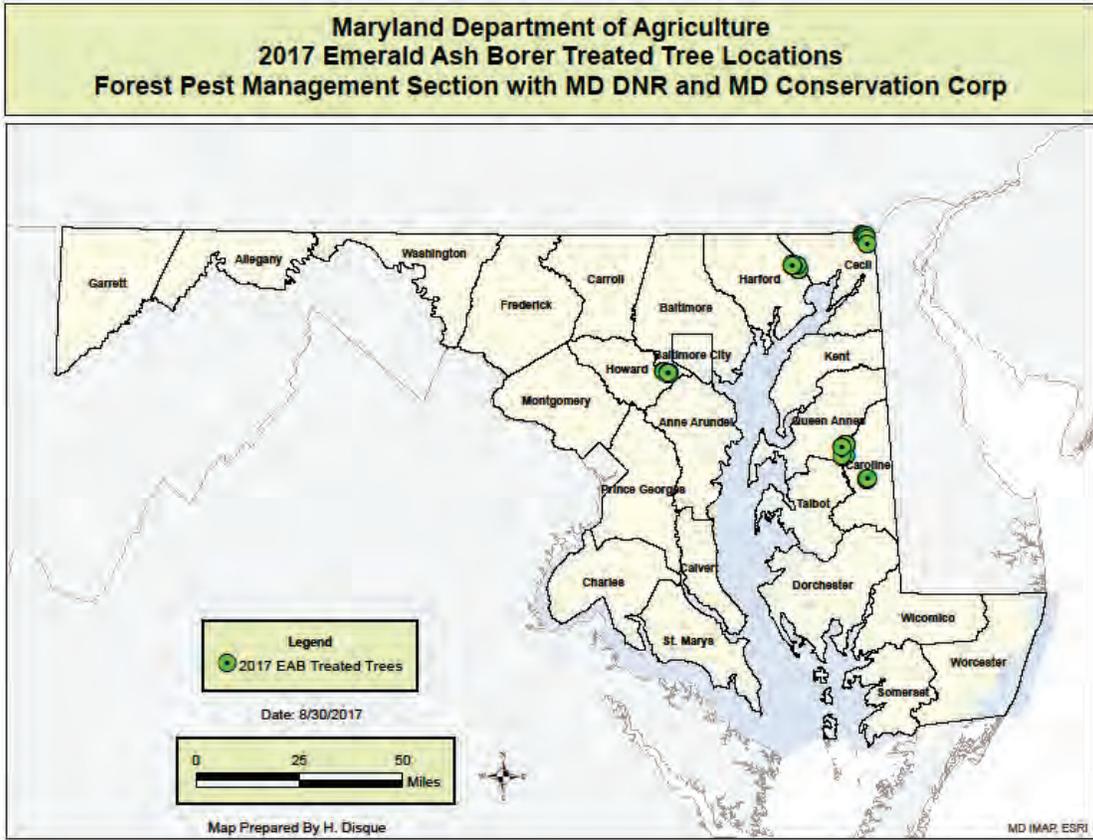
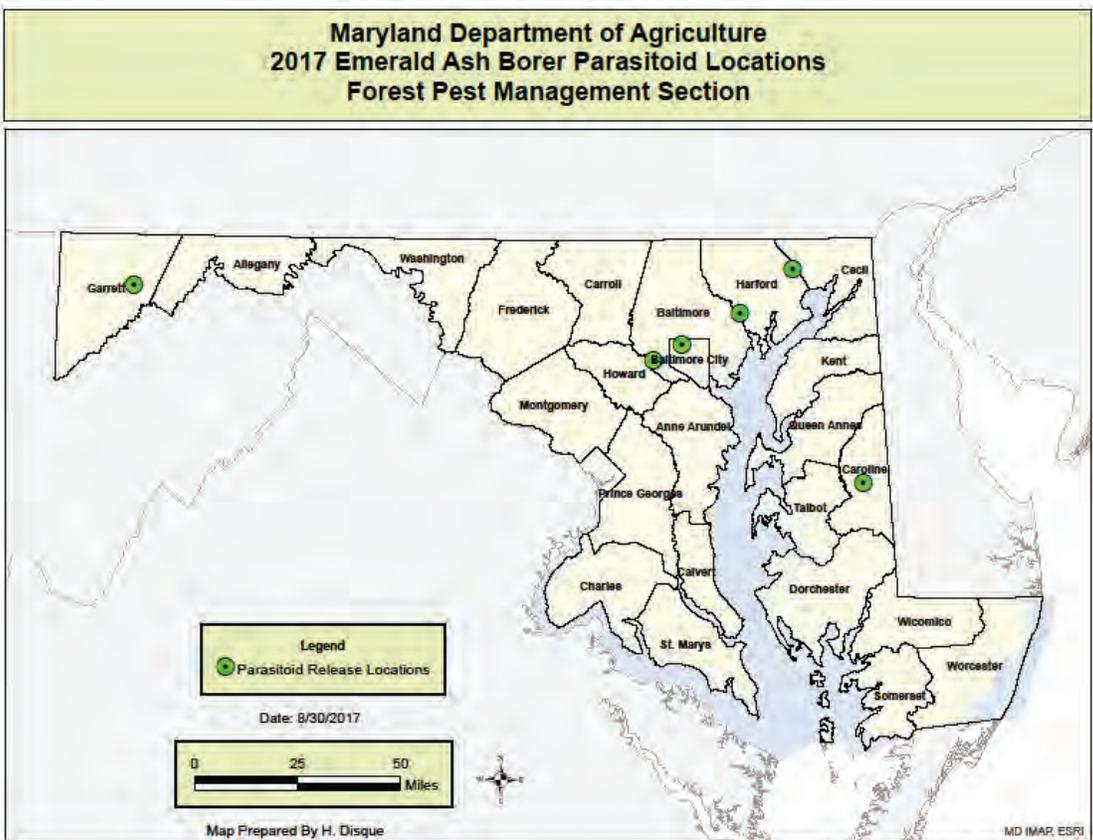
Cylburn Arboretum, Susquehanna State Park, Gunpowder State Park, and Patapsco Valley State Park in Central Maryland. In 2016, 39,500 *Oobius agrili*, 30,038 *Tetrastichus planipennis*, and 1,867 *Spathius agrili* were released across these six sites.

In addition, Forest Pest Management personnel supervised treatments of ash trees across Maryland. This work was done in Parks in cooperation with the Maryland Department of Natural Resources and the Maryland Conservation Corp. In total 299 ash trees, 4,980" DBH were treated using 31,495 ml of Tree-age (emamectin benzoate).



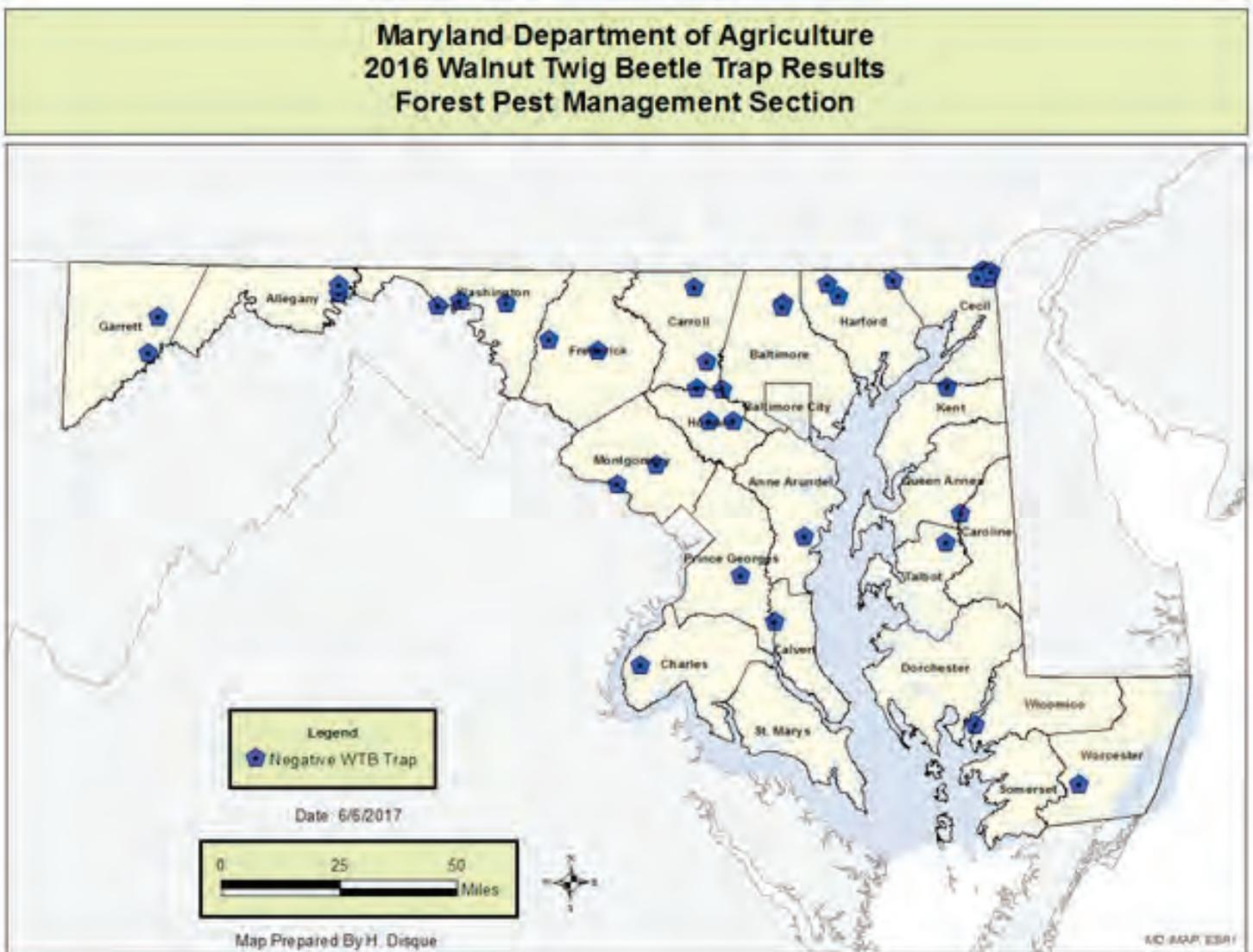
MARYLAND DEPARTMENT OF AGRICULTURE FOREST PEST MANAGEMENT CY-2016 EMERALD ASH BORER PARASITOID RELEASE SUMMARY

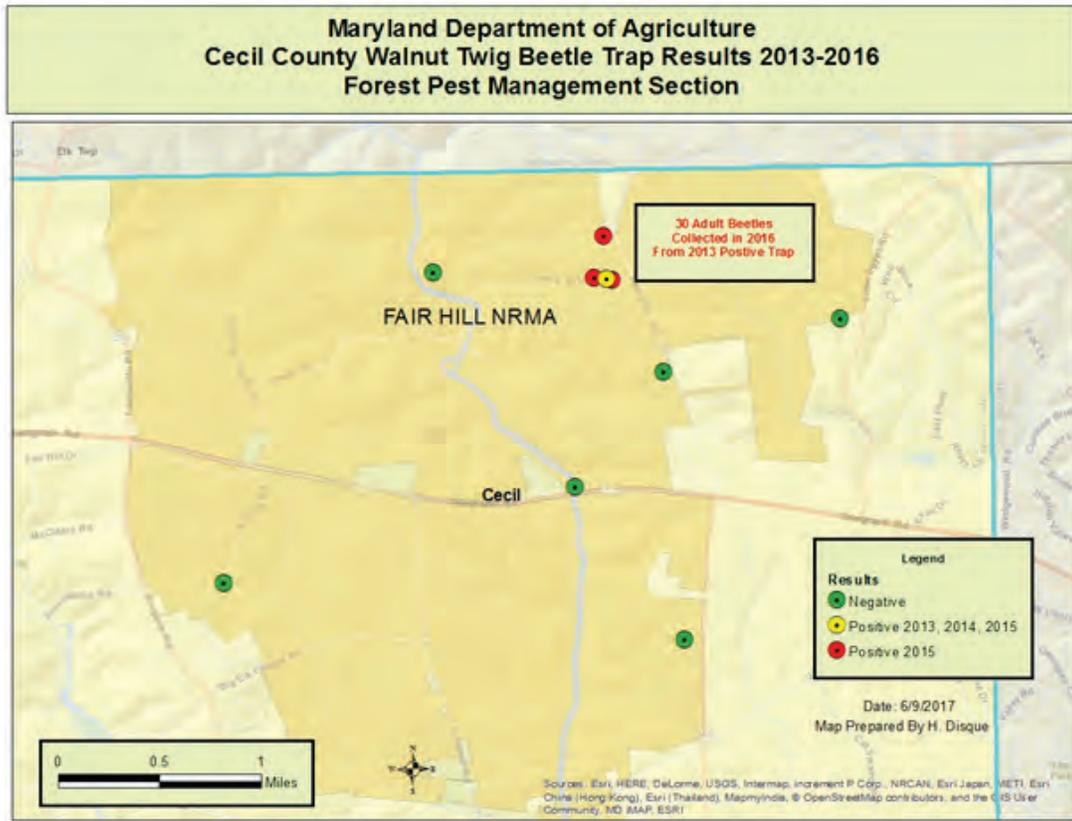
Site Name	Latitude	Longitude	Oobius agrili		Tetrastichus planipennisi		Tetrastichus planipennisi Adults			Spathius agrili	
			# vials	Total	# bolts	Total	# female	# male	Total	# cups	Total
Susquehanna State Park	39.61383	-76.15099	60	6,000	59	3,213	800	279	1079	0	0
Patapsco Valley State Park	39.29593	-76.78358	52	5,200	68	3,236	609	201	910	22	774
Gunpowder Falls State Park	39.46263	-76.39238	61	6,100	61	3,014	796	230	1,026	0	0
Cylburn Arboretum	39.3513	-76.65368	48	4,800	67	3,269	1,000	299	1,299	16	584
Martinak State Park	38.86002	-75.84153	106	10,800	149	6,430	1543	371	1,914	8	299
Big Run State Park	39.5449	-79.13853	66	6,600	83	4,021	483	144	627	8	210
TOTAL			393	39,500	487	23,183	5,231	1,524	6,855	54	1,867



Thousand Canker Disease of Black Walnut (TCD) and Walnut Twig Beetle (WTB). Thousand Canker Disease was first recognized in 2008 as a complex consisting of the walnut twig beetle *Pityophthorus juglandis* and the fungus *Geosmithia morbida*, and is blamed for widespread mortality of eastern black walnut planted in the western United States. It has since spread east and was first reported in the natural range of the eastern black walnut in 2010 when it was discovered in Tennessee. Since then, it has been found in seven eastern states. In 2011, Maryland along with several other mid-Atlantic states started surveying for this disease. The walnut twig beetle was first detected in Maryland in 2013 and by October 2014 thousand cankers disease was confirmed. A quarantine order was issued by the Maryland Department of Agriculture in January 2015 to limit the spread of Thousand Canker Disease of Black Walnut with the quarantined area being the northeastern corner of Cecil County.

Thirty eight (38) Lindgren Funnel Traps baited with the Walnut Twig Beetle lure were set across 18 counties in MD in 2016. Eight (8) traps were set in Cecil County to try to delimit the outbreak near the positive site discovered in 2013, and positive again in 2014 and 2015. Traps were checked every two weeks, field samples collected, sorted and labeled in office, and sent to Pennsylvania Department of Agriculture for identification. No traps were positive for WTB in 2016. Trap # CE01 was the only trap set in a previously positive site. Trees at the original positive site have not shown evidence of decline as of yet. Dr Matthew Kasson of West Virginia University did recover over 30 *Pityophthorus juglandis* (WTB) from a bolt taken from a previously confirmed positive tree in June of 2016 while doing research on TCD. No *Geosmithia morbida* (TCD) was found in the beetles sampled.





Hemlock Woolly Adelgid Suppression. The Hemlock Woolly Adelgid (HWA) remains the major threat to the health of eastern hemlock. Infested hemlocks occur in the metropolitan area between Baltimore and Washington and in natural stands from Cecil to Garrett counties. In 2003-04, a joint taskforce of Maryland Department of Agriculture Forest Pest Management Section (MDA-FPM) and Maryland Department of Natural Resources (DNR) experts addressed the multi-disciplinary needs of the HWA infestation. The taskforce prioritized more than 50 hemlock stands and selected them as the sites for joint suppression efforts (chemical and/or biocontrol). Only

publicly owned or public use sites would be part of this suppression project. Currently, the chemical option involves treating the hemlock trees with the insecticide imidacloprid by one of two methods: trunk injection or soil injection. The biocontrol option involves releasing HWA predators into the hemlock stands in an effort to reduce HWA populations.

A total of 9,287 hemlock trees and 102,274.5" DBH were treated in MD in FY 2017. Of this total, 1174 trees or 14,282.3" DBH were trunk (stem) injected, and 8,113 trees or 87,992.2" DBH were soil (includes CoreTect tablets) injected.

FALL 2016 – SPRING 2017 IMIDACLOPRID TREATMENTS FOR HEMLOCK WOOLLY ADELGID CONTROL IN MARYLAND

Hemlock Stand	County	Trunk Injection		Soil Injection		Total	
		#Trees	Inches DBH*	#Trees	Inches DBH	#Trees	Inches DBH*
Prettyboy Reservoir	Baltimore	41	585	325	2866	366	3451
Frederick Watershed	Frederick	143	2261	154	795	297	3056
Potomac Garrett S F	Garrett	0	0	185	{2797	185	2797
Rocks S P	Harford	0	0	264	2293	264	2293
Gunpowder Falls S P	Baltimore	0	0	365	4487	365	4487
Hagerstown Watershed	Washington	0	0	586	5466	586	5466
Green Ridge S F	Allegany	0	0	73	896	73	896
Big Run S P	Garrett	144	1736	0	0	144	1736
Wolf Swamp SRSF **	Garrett	552	6681	3715	40315	4267	46996
Savage River S F	Garrett	286	2910	1719	18488	2005	21398
Gambrill S P	Frederick	7	91	5	46	12	137
Licking Creek	Washington	0	0	338	3801	338	3801
South Mountain State Park	Washington	1	20	0	0	1	20
Sideling Hill WMA	Allegany	0	0	200	2481	200	2481
TOTAL		1174	14284	7929	84731	9103	99015

*DBH = the diameter of the tree trunk at 4.5 feet above the ground

** Treatments done by Forest Pest Management and Maryland Conservation Corps (Department of Natural Resources)

HWA Predator Releases. Over 47,000 predators have been released in MD since 1999. In 2015-16 releases were conducted in Harford, Frederick, Garrett, and Allegany counties involving a

total of 668 *Laricobius nigrinus*, 2010 *Laricobius osakensis*, and 105 *Scymnus coniferarum*.

MARYLAND HEMLOCK WOOLLY ADELGID PREDATOR RELEASES 2003 - 2017

Hemlock Stand	County	<i>Laricobius nigrinus</i>	<i>Laricobius osakensis</i>	<i>Scymnus coniferarum</i>	<i>Symnus sinuanodulus</i>	<i>Sasajiscymnus tsgae</i>
Rocky Gap State Park	Allegany	3476	0	105	0	5000
Prettyboy Reservoir	Baltimore	2672	0	0	0	0
Cunningham Falls State Park	Frederick	810	0	0	0	0
Frederick City Watershed	Frederick	2381	0	0	945	0
Broad Creek Scout Camp	Harford	2302	0	0	0	15410
Rocks State Park	Harford	1424	0	0	0	0
Hagerstown Watershed	Washington	853	0	0	0	0
Big Run (Savage River State Forest)	Garrett	1685	0	0	0	0
Big Run State Park	Garrett	50	0	0	0	0
Dry Run (Savage River State Forest)	Garrett	150	0	0	0	0
Frostburg Watershed	Garrett	300	0	0	0	0
Laurel Run (Potomac State Forest)	Garrett	1000	0	0	0	0
Lostland Run (Potomac State Forest)	Garrett	1500	500	0	0	0
Poplar Lick (Savage River State Forest)	Garrett	2289	1510	0	0	0
Elk Lick (Savage River State Forest)	Garrett	1491	500	0	0	0
Gunpowder Falls State Park	Baltimore	0	1010	0	0	0
TOTAL		22383	3520	105	945	20,410

HWAS Efficacy Surveys. Treatment efficacy surveys have been conducted annually since 2006. Treated trees averaged a 79 percent reduction in HWA populations when measured one year post treatment and non-treated trees averaged a 24

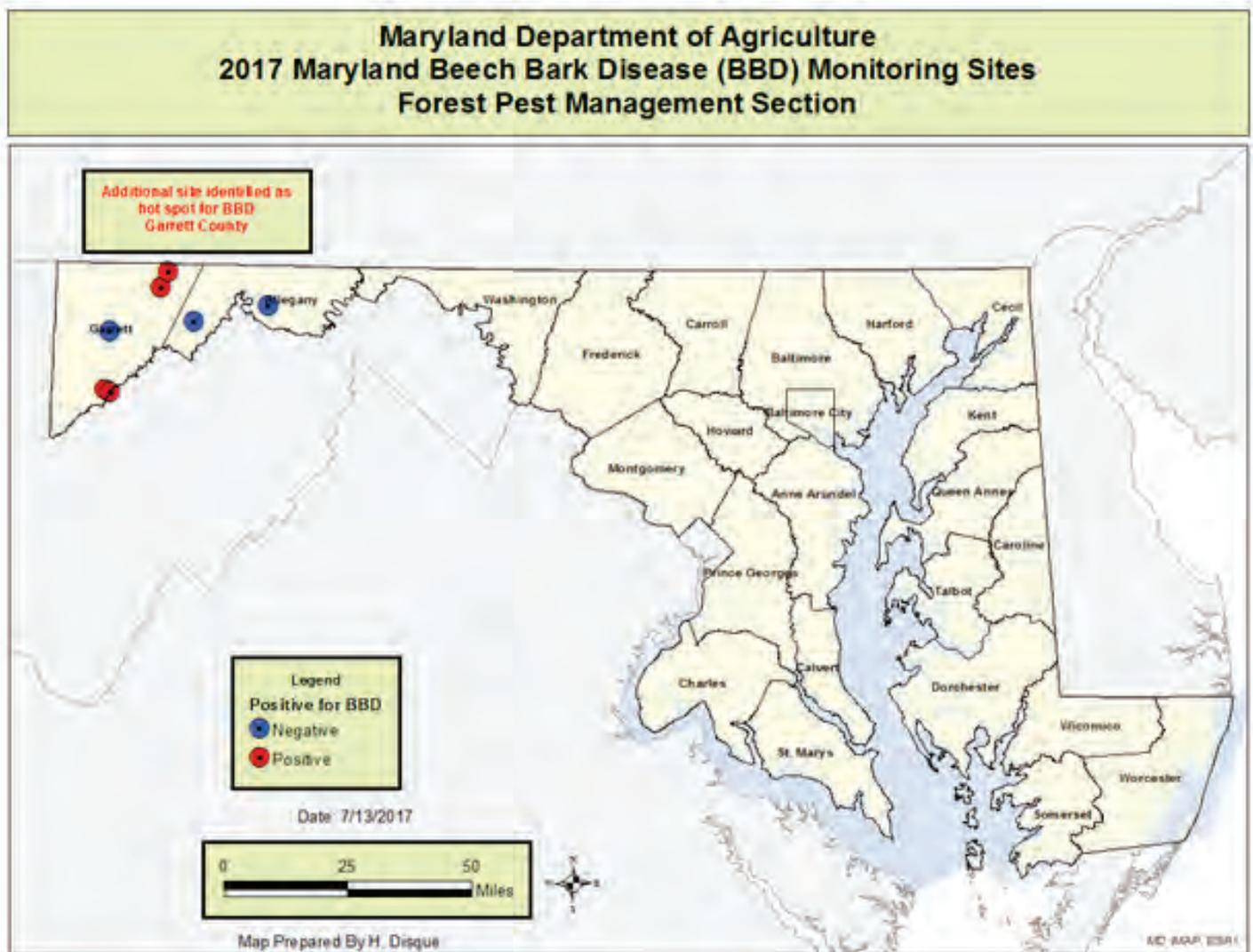
percent increase in HWA populations when measured over the same time period. In FY 2017 efficacy surveys were done at treatment sites in Garrett, Frederick, Washington, Allegany, Carroll, and Baltimore counties.

Bacterial Leaf Scorch. Bacterial Leaf Scorch (BLS) was prevalent all through the state this year. Not only was it observed on ornamental trees but observed throughout the state in forested areas. BLS was more severe this year than last.

Exotic Asian Defoliator Survey. A comprehensive Exotic Asian defoliator survey was proposed and funded through Farm Bill for 2017. This survey increases the likelihood of an early detection of harmful invaders, and increases the ability to establish an appropriate eradication response to protect Maryland's forest industry. One of the high-risk areas targeted is the Chesapeake Bay since it is a major thoroughfare for ships calling on the Port of Baltimore. An increase in the size of ships and ship traffic coming to Baltimore has increased the risk of an accidental introduction of exotic Asian defoliators. Seven moths were chosen to survey based on their biological characteristics, habitat preference, and prior intelligence that suggests an increased risk of introduction and could enable them to become successful invaders.

FPM deployed traps at 12 locations statewide to determine the presence or absence of Asian defoliator moths. At each location, five traps are set up to survey for the seven moth species. Traps are run from June to September and checked every two weeks. Forests composed of oak, willow, sweet gum, poplar, beech, pine, and other host trees and shrubs are being surveyed. To date only three traps have come up positive for Gypsy moths. The European and Asian gypsy moths are difficult to morphologically separate and so the specimens were sent to the USDA's Otis laboratory for genetic testing and species determination.

Beech Bark Disease. Beech Bark Disease (BBD) has been found only in Garrett County. There are 154,473 acres of infested forest in Garrett County. A new hot spot for BBD was identified in March 2017. This area is approximately 20 acres and is in northern Garrett County. The BBD is very evident and trees are in decline. In 2013 four permanent BBD monitoring sites were set up.

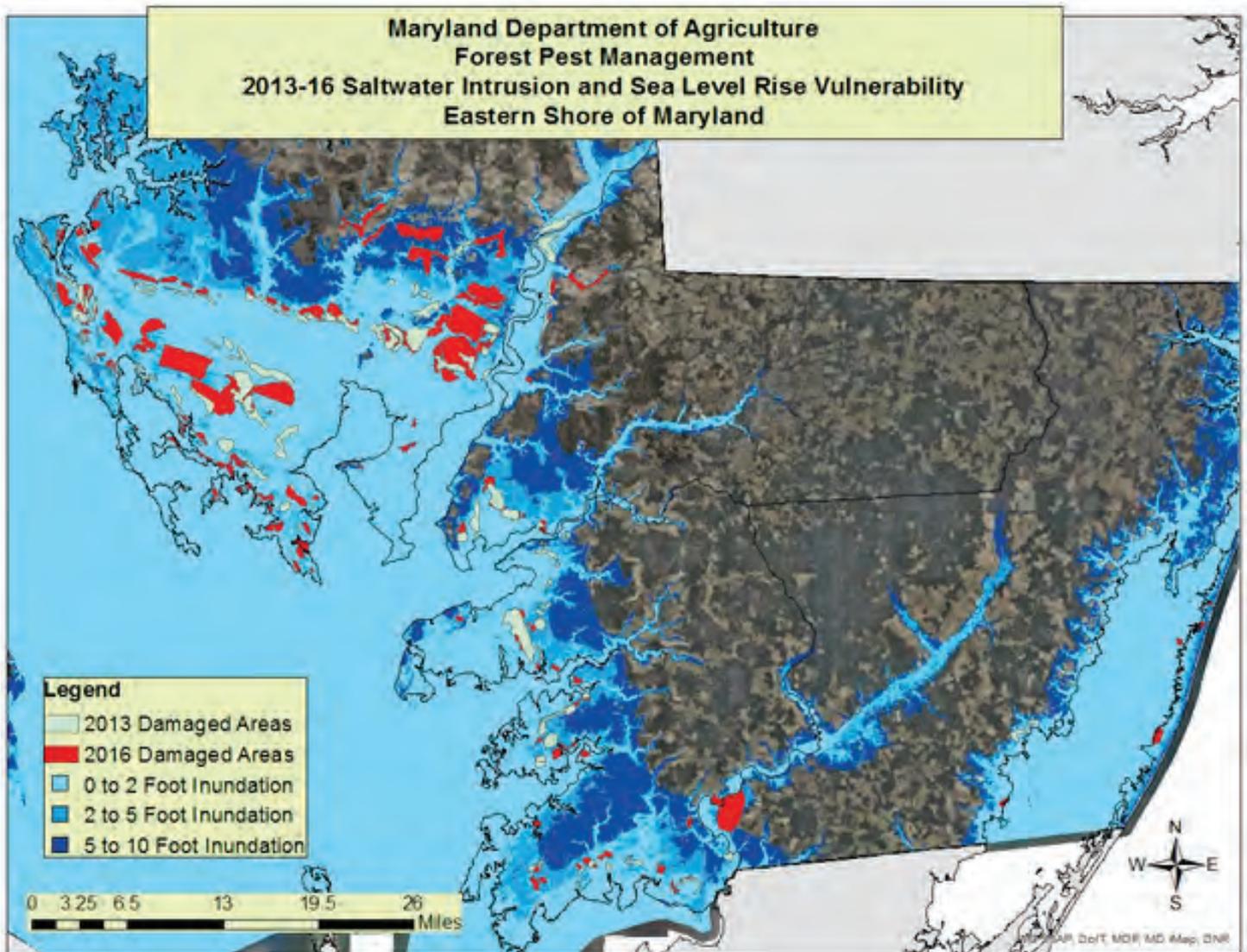


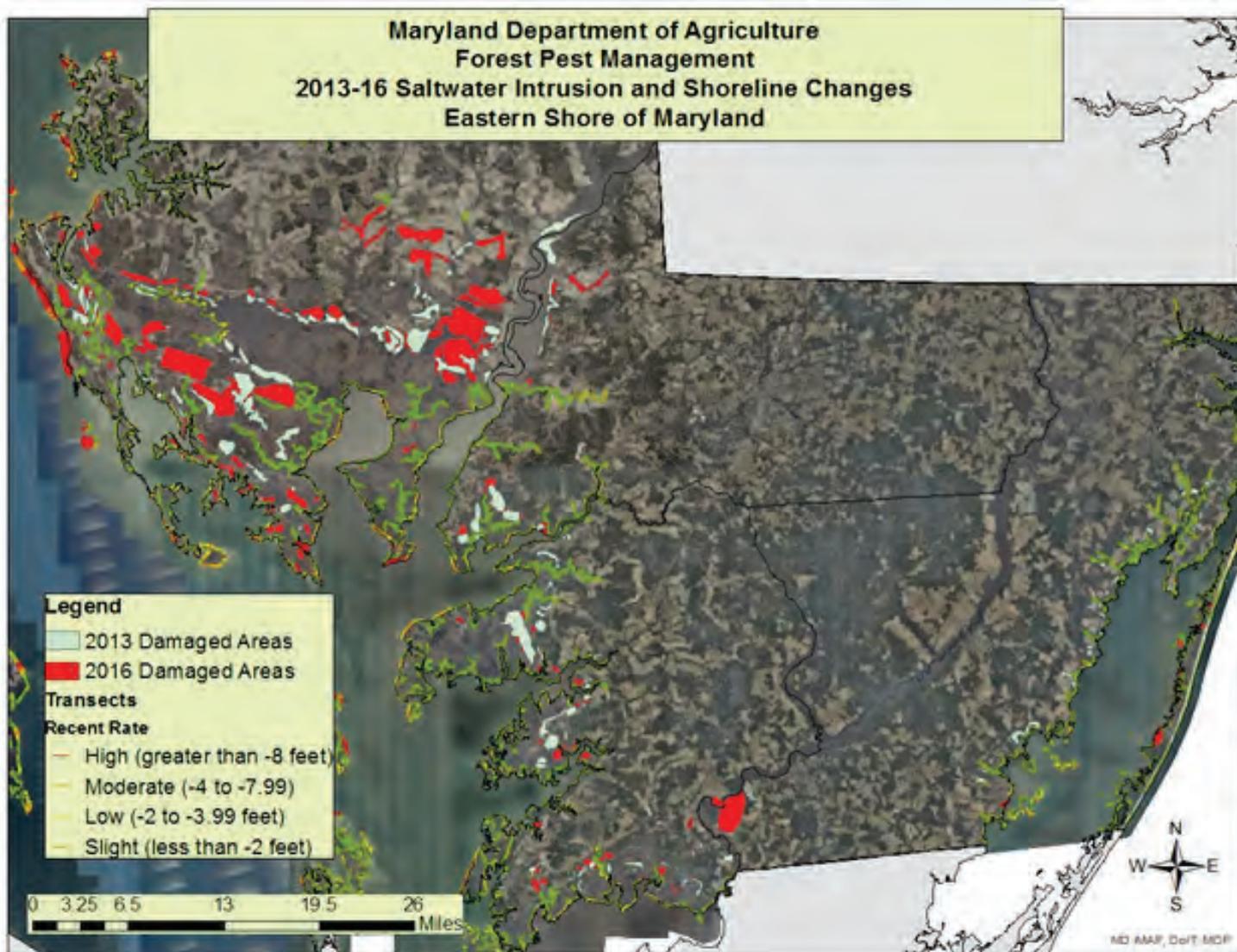
Saltwater Intrusion. In July, a saltwater intrusion delineation flight was flown across the lower Eastern Shore. This flight mirrored the flight taken in 2013 in order to determine the areas affected by saltwater intrusion and to map any changes.

In total, 50,406 acres of forest were found to be affected by saltwater intrusion. The majority of the affected acres (39,503 acres) were in Dorchester County. Somerset, Worcester, and Wicomico Counties were also affected by saltwater intrusion. In contrast, 18,117 acres were found to be affected by saltwater intrusion during the 2013 survey. Two-thirds of the mapped forests were either “severely” or “very severely”

affected by saltwater intrusion. Many of the areas that were delineated are also experiencing increases in Southern Pine Beetle (SPB).

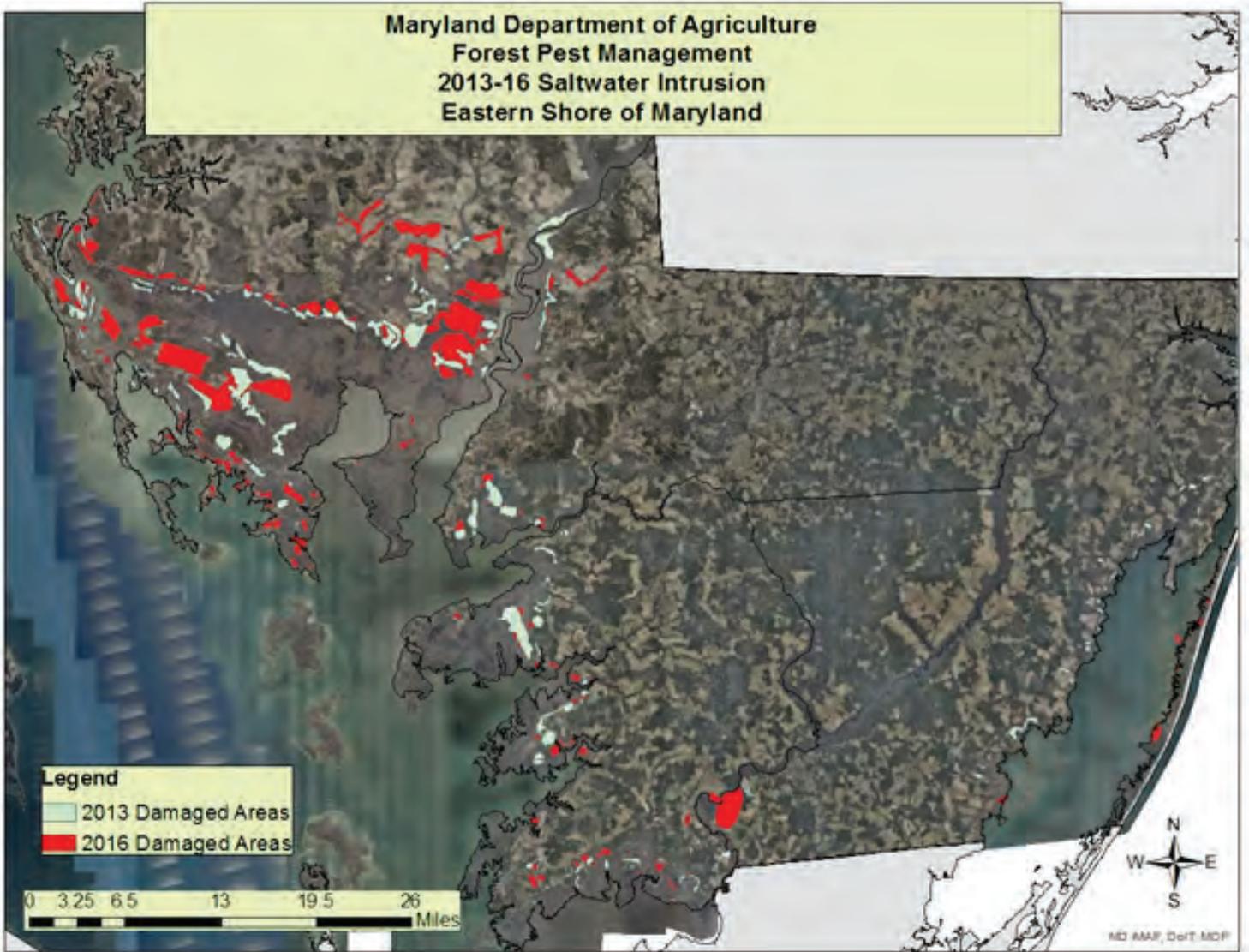
Looking to the future, the lower Eastern Shore—particularly Dorchester County—is at risk for increased problems with saltwater intrusion and SPB. The map below shows the areas at risk of inundation in the event of sea level rise. The second map shows the rate at which the shorelines have changed in the last 150 years in reference to the current saltwater intrusion damaged areas.





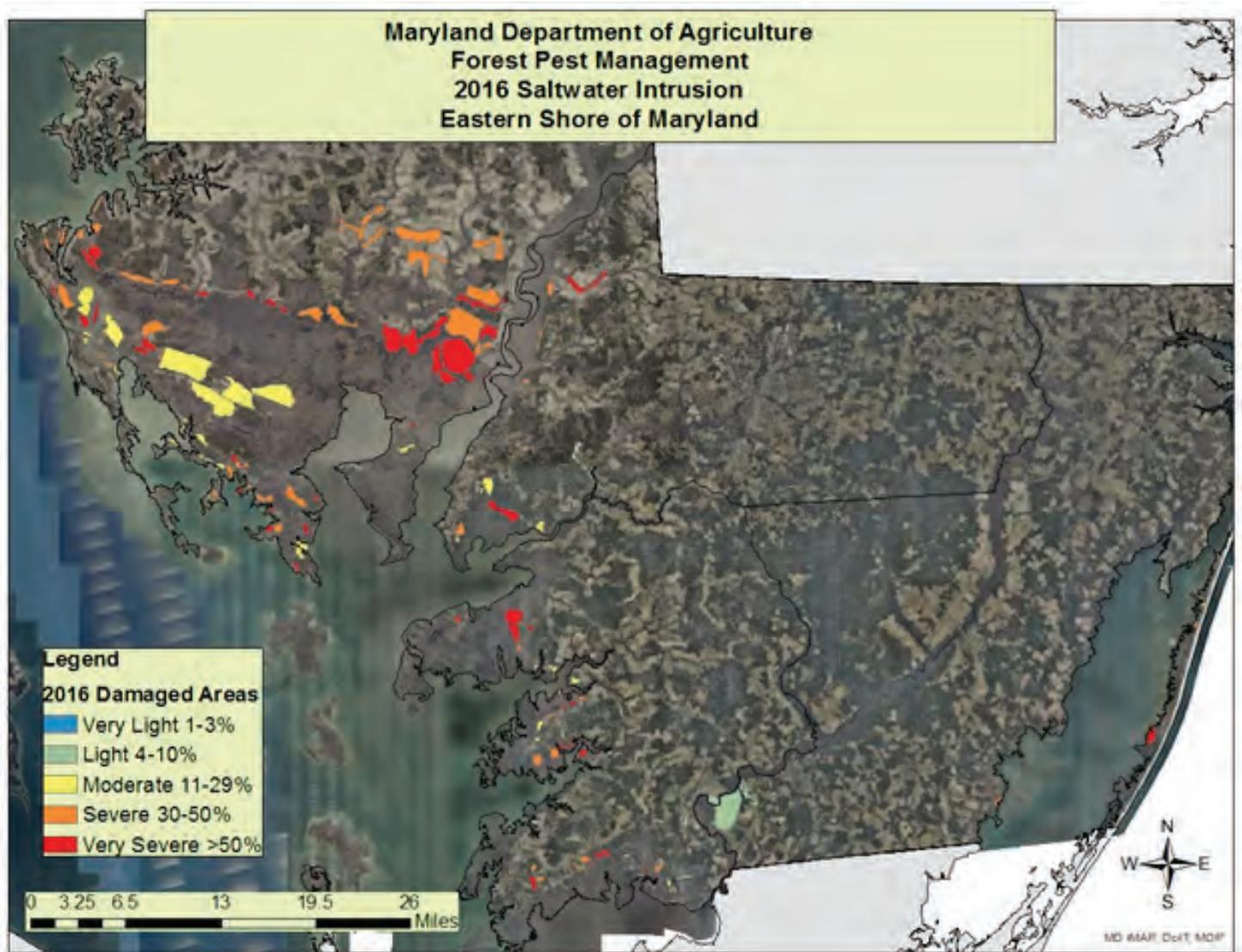
Maryland Department of Agriculture Forest Pest Management Saltwater Intrusion Flight Summary

County	Acres Affected
Dorchester	39,503
Somerset	4,868
Wicomico	2,922
Worcester	3,113
Total	50,406



Maryland Department of Agriculture Forest Pest Management Saltwater Intrusion Flight Summary

Percent of Forest Affected	Acres
Very light (1-3%)	25
Light (4-10%)	3,222
Moderate (11-29%)	13,847
Severe (30-50%)	17,788
Very Severe (>50%)	15,524
Total	50,406



FOREST PEST DAMAGE

Gypsy Moth – 5 acres defoliated
Southern Pine Beetle – Loblolly pine mortality 155 acres
Hickory Drought Damage – 5 acres

Mature Chestnut and Red Oaks are dying in Maryland’s most northern counties and one county on the Eastern

shore. Secondary pests are present, but likely not the cause of mortality. Trees have been tested by U.S. Forest Service pathologists and the results were first found to be inconclusive. After a second test, Carroll County tested positive for Oak Wilt. A database of oak mortality is being developed to determine if environmental factors are contributing to decline.

MOSQUITO CONTROL

Mosquito Control provides an important public health and quality of life service to Maryland residents in 2,150 communities in 16 counties through mosquito abatement work, arbovirus surveillance, public education and enforcement.

The program is staffed by 13 classified employees, eight long-term contractual employees, and 75 seasonal contractual employees. MDA's Annapolis headquarters houses program administration, a mosquito laboratory and the Anne Arundel County program staff. Other regional offices and laboratories are located in College Park, Hollywood and Salisbury.

Mosquito Control works under the authority of the Maryland Mosquito Control Law, (Agricultural Article, Title 5, Subtitle 4). Participation in the mosquito control program is voluntary and requires cooperative agreements with local governments and local communities to pay for services.

MOSQUITO-BORNE DISEASE SURVEILLANCE

West Nile virus (WNV). WNV continues to be the mosquito-borne disease of greatest public health importance in Maryland. In FY 2017, six human cases were reported by the Maryland Department of Health and Mental Hygiene (DHMH). In addition to these human cases, six pools of mosquitoes tested positive for WNV.

Eastern Equine Encephalitis (EEE). EEE, one of the most severe mosquito-borne diseases in the United States, was detected in three mosquito pools in FY 2017. No human cases were reported. It has an average mortality rate of 33 percent, and most survivors experience significant brain damage.

Zika virus. Zika virus was the mosquito-borne disease of most immediate concern in FY 2017. Outbreaks of zika virus in Southern America and the American tropics were first reported in the winter of 2015-2016. The main concern with zika infections is the virus' links to severe birth defects in developing fetuses. The state of Maryland quickly developed a plan for combating this virus in the event that a person came into Maryland infected with the virus after during travel. The mosquito control section responded to 91 travel-related cases of zika virus infection in the summer of FY 2017. No zika infections were transmitted by local mosquitoes in Maryland. Concerns for zika infections are ongoing. Maryland residents that travel to areas where the disease is endemic should remain vigilant against zika and other mosquito-borne infections.

PERMANENT WORK PROJECTS

The Kubota Excavator, which went into service in 2012, is still our primary unit used for ditching and water management projects. The total area managed by source reduction projects in FY 2017 was 200 acres. In cooperation with the Commissioners of Somerset County, several projects are ongoing. Most of the ditching is done in the fall, winter and spring when mosquito control crews are not busy with other duties. Ditch maintenance projects involve the removal of silt, debris, and vegetation from the outlets of these systems to allow floodwater to flow, thus eliminating mosquito breeding habitat.

The program continued its annual inspections of the Crisfield City Dike system. Mapping is ongoing. MDA mapped areas in need of future repairs. In addition to the excavator, MDA also used an all-terrain Argo ATV for personnel and equipment transport to remote areas of this system.

Follow up inspections indicate that the repairs are successful and the tide gates are operating effectively. MDA will continue to monitor this tidal dike system to ensure the repairs are still functional in reducing residential flooding as well as reducing mosquito breeding habitat in the Crisfield community.

BIOLOGICAL CONTROL

In an effort to control mosquitoes, MDA uses several approaches as part of its integrated pest management (IPM) program. One component of this program is the use of the native mosquitofish (*Gambusia affinis holbrooki*) to control mosquito larvae. Incorporating this biological control agent reduces the use of aquatic insecticides and provides control of mosquito populations in an efficient, cost-effective and environmentally responsible manner.

The mosquitofish used by the mosquito control program are reared in a facility at the Salisbury regional office. From there, they are transported and stocked into suitable habitats such as stormwater management facilities, closed ditches and artificial containment sites. These areas are inspected by MDA personnel to determine if the introduction of *Gambusia* would be the preferred control option based on habitat type/site design, water quality factors, the presence of threatened or endangered species, and the relative abundance of mosquito larvae.

During the mosquito season of FY 2017, 5,050 fish were stocked in closed pond and woodland habitats. MDA will continue to monitor and inspect suitable sites to determine where future mosquitofish stocking is necessary.

PUBLIC EDUCATION

Our public education efforts this season were split between media, schools, professional associations and general presentations. There were 13 interviews done this season by mosquito control or public relations office employees, with both print and TV media outlets.

Outreach was done at 15 different school functions in FY 2017. In Prince George’s County, mosquito control employees judged science fairs and acted as judges for the science quiz show, The Science Bowl. Staff also gave presentations to three college-level classes: two at Salisbury University, and one at Somerset Community College. Mosquito control employees spoke at 14 community meetings: six in Prince George’s County, five in St. Mary’s County, and one in each of Frederick, Montgomery and Carroll counties.

Mosquito Control staff spoke at six professional meetings, including a regional vector-borne disease summit, presentations for pesticide recertification trainings, Master Gardener meetings and a pollinator summit. The program also hosted four large workshops on mosquito biology, ecology and control for local health department personnel and the general public in response to concerns over zika virus.

MDA hosted a month-long exhibit in two different Prince George’s County libraries (Greenbelt and Surratts-Clinton) in FY 2017—one in June, another in August. We also hosted exhibits at two Master Gardener events: the annual statewide meeting at University of Maryland, and another meeting in Howard County.

Staff members filmed a yard inspection video, and a video segment for a local community TV station. Staff also met with MNCPPC employees to teach them to find and dip for larvae. The program also trained “block captains” in one community to do yard inspections, and participated in a Creepy Critters event at a local wildlife refuge. Mosquito control also had a presence at the department’s booth during the Maryland State Fair.

One staff entomologists did a site visit to a Homeland Security facility to map mosquito breeding areas in response to zika virus concerns.

County/regional breakdown of public education outreach events is as follows: Anne Arundel – 2; Baltimore – 2;

Charles – 4; Eastern Shore – 11; Frederick – 3; Montgomery – 5; Prince George’s – 34; St. Mary’s – 14; Statewide – 16.

Though many of these public education efforts are difficult to quantify, more than 2,300 people were in attendance at the events with known participant levels.

Public education continues to be an important part of MDA’s mosquito control program, particularly with the continuing problems created by the introduction and spread of the Asian tiger mosquito, recurrent WNV problems, and other imported diseases of concern, such as zika virus.

AERIAL SPRAY

The aerial spray program continues to provide a high level of service to the state. MDA owns and operates a Beechcraft King Air which has been modified specifically for operation in a modern mosquito control program. The pilot of the aircraft is also the administrator for the aerial spray program.

The aerial spray season began in April with applications of biorational larvicide to 4,889 acres of seasonally flooded woodlands on the Eastern Shore. This work is done near population centers to reduce the number of mosquitoes that fly into these areas. The early woodland mosquito species are also involved in the amplification of arbovirus in bird populations. Controlling these species helps to reduce the risk of transmission of arbovirus to horses and humans later in the season.

In FY 2017, 156,480 acres were treated by aircraft, mostly for control of adult mosquitoes.

Precision navigation and flow control equipment are critical for the safe and efficient aerial application of insecticides. The mosquito control section uses Ag-Nav Guia, a state of the art GPS based navigation system, for all aerial applications of insecticide. This system, functioning with insecticide metering equipment, assures target accuracy and disperses insecticides accurately within a tenth of an ounce per acre. With spatial and temporal parameters and calibrated application rates, mosquito mortality rates of 90 percent or more are achieved within a defined target area at a cost that is lower than spraying with truck-mounted spray equipment.

Region	Human Cases WNV
Baltimore Metropolitan Area	3
National Capital Region	2
Western MD	1

MOSQUITO CONTROL ACTIVITY SUMMARY: CY 2014 - 2016

ACTIVITY	CY 2014	CY 2015	CY 2016***
Communities Participating in Mosquito Control Program	2,153	2,204	2150
Number of Light Trap Nights	3,338	2,511	2,223
Percent of Light Trap Nights Below Threshold	78%	63.4%	64.01%
Number of Landing Rate Counts Performed	24,338	29,247	19,430
Percent of Landing Rate Counts Below Action Threshold	30.7%	25.2%	35.05%
Number of Public Service Requests	2,677	4,952	4,679
Number of Inspections by Request	1,853	1,173	681
Number of Adverse Effects Inspections	600	377	301
Number of Mosquitofish Stocked	850	3,650	5,050
Acres Managed by Open Marsh Water Management	1,432	884	200
Acres Treated with Insecticide	1,065,874	1,396,520.96	1,741,794.42
Acres Treated for Mosquito Larvae	5,270	5,991.39	5,322.9
Acres Treated for Adult Mosquitoes	1,060,604	1,390,529.57	1,428,790.72
Acres Treated by Aircraft	120,071	119,206	156,480.00
Acres Treated by Ground Equipment	945,803	1,277,323.96	1585314.42
Number of Mosquitoes Tested for Arboviruses	16,334	19,243	17,470.00
Number of Human Cases of West Nile Virus Statewide	6	46	6
Number of Cases of Arbovirus in Domestic Animals	1	2	0
Number of Mosquito Pools Positive for Arbovirus	*35	**33	6

*Of the 35 mosquito pools that tested positive for Arbovirus in 2014, the breakdown was as follows: Anne Arundel Co: 6, Dorchester Co: 1, Harford Co: 4, Montgomery Co: 5, Prince George's Co: 16, Talbot Co: 1, Worcester Co: 2. The breakdown of virus types is as follows: Eastern Equine Encephalitis, one case; West Nile Virus, thirty-three cases; Cache Valley Virus, two cases.

**Of the 33 mosquito pools that tested positive for Arbovirus in 2015, the breakdown was as follows: Anne Arundel Co: 3, Baltimore Co: 3, Montgomery Co: 7, Prince George's Co: 18, Talbot Co: 1, Wicomico Co: 1. The breakdown of virus types is as follows: Eastern Equine Encephalitis, zero cases; West Nile Virus, thirty-three cases.

***2016 Breakdown: West Nile Virus Positive Mosquito Pools, 2 in Prince George's Co., 4 in Department of Defense. Eastern Equine Encephalitis positive mosquito pools, 2 in Wicomico County, 1 in Worcester County. Human cases of WNV: Anne Arundel 1, Baltimore City 1, Harford County 1, PG County 1, Washington 1, Montgomery 1. Eastern Equine Encephalitis Human Cases: 0

PESTICIDE REGULATION

The Pesticide Regulation Section (PRS) is responsible for regulating the use, sale, storage and disposal of pesticides. The primary functions of the section are to enforce state and federal pesticide use laws and regulations and to ensure that pesticides are applied properly by competent individuals so that potential adverse effects to human health and the environment are prevented. The PRS contains five major programs: (1) Pesticide Applicator Certification and Training; (2) Pesticide Use Inspection and Enforcement; (3) Pesticide Technical Information Collection and Dissemination; (4) Integrated Pest Management in Schools and on School Grounds; and (5) Special Programs.

PESTICIDE APPLICATOR CERTIFICATION AND TRAINING

Two types of pesticide applicators are certified by the PRS—private and commercial. Private applicators are farmers and other individuals applying restricted-use pesticides to their own land or rented land for the purpose of producing agricultural commodities. Commercial applicators apply general use and restricted-use pesticides as employees of licensed pest control businesses, not-for-hire businesses or public agencies.

A total of 152 new private applicators were certified in FY 2017 for a three-year period after passing a closed book examination administered by section personnel. 1,530 private applicators renewed the certificates by attending recertification meetings. Currently, there are 1,422 private applicators whose certification will expire on December 31, 2017. Section staff approved and monitored 104 private applicator recertification sessions conducted by the University of Maryland Extension, MDA, or the pesticide industry.

A total of 943 new commercial pest control applicators and consultants were certified in FY 2017 in one or more of the 13 categories of pest control by satisfying minimum experience or education requirements and by passing written certification examination. The Section certified 1,020 public agency applicators in FY 2017.

This brings the total number of commercial, public agency applicators and consultants to 4,574 in FY 2017. A total of 18 exam sessions were held during which, 1,837 exams were administered to 861 applicants. Certified commercial applicators are required to participate in at least one MDA-approved training session each year in order to renew their

certificate. 472 recertification training sessions for commercial pesticide applicators were approved and monitored by this section and were conducted by the pesticide industry, the University of Maryland Extension, or the department. 3,822 applicators were recertified in FY 2017.

During FY 2017, the section licensed 1,847 commercial businesses and 157 not-for-hire businesses to apply pesticides and to perform pest control services. 312 public agency permits were issued to government agencies that apply pesticides. 38 pest control consultant licenses were issued. A total of 7,904 registered employee identification cards were issued in FY 2017. These employees of pesticide businesses and public agencies are registered to apply pesticides under the supervision of certified applicators. A total of 150 dealer permits were issued to businesses that sell restricted-use pesticides.

PESTICIDE USE INSPECTION AND ENFORCEMENT

In addition to enforcing state pesticide laws, MDA enforces federal pesticide laws under a Cooperative Enforcement Agreement with the U.S. Environmental Protection Agency (EPA). Routine inspection activities are conducted throughout the year and include pesticide use observations and inspections of pest control businesses, public agencies, pesticide dealers, market places and producer establishments. Consumer complaints and pesticide misuse investigations are also conducted by PRS inspectors. In FY 2017, 725 routine business inspections were performed. Of the inspections conducted 256 violations were cited. In addition, two Civil Penalties were issued to two pest control businesses.

PESTICIDE TECHNICAL INFORMATION COLLECTION AND DISSEMINATION

A list of pesticide sensitive individuals was first compiled in 1989. During FY 2017, MDA registered 188 individuals. These individuals receive advance notification of pesticide application made to adjacent properties by commercial ornamental plants and turf, pest control businesses and public agencies.

A searchable database of registered pesticide products, licensed pesticide businesses, commercial and private applicators and restricted-use pesticide dealers continue to be posted on MDA's website. This database provides information to applicators and the public about pesticides that may be legally sold, distributed and used in Maryland; as well as,

the names and address of licensed pesticide businesses. Pesticide dealers can check the certification status of pesticide applicators prior to selling them restricted-use pesticides. This database is linked to EPA's registration database so that applicators and consumers can obtain information on each pesticide product queried, including the EPA registration number, intended use, sites of application, formulation, active ingredient and the brand name.

INTEGRATED PEST MANAGEMENT IN SCHOOLS

The section continues to promote and support implementation of the Integrated Pest Management (IPM) Programs in public schools. Regulation that requires schools to develop and implement notification and IPM plans for indoor pest control became effective in 1999, and regulations for notification and IPM plans for school grounds became effective in 2002. Staff provided technical assistance in the development of the plans and distribution of information on potential adverse effects of pesticides applied. The PRS staff continues to work with Maryland public school districts on implementation of IPM on school property.

TRAINING EVENTS

During FY 2017, the PRS Program Manager, Enforcement Coordinator and inspectors attended the EPA Region 3 Pesticide Inspector's Workshop which was held in Morgantown, W.Va. The agenda for this meeting included health and safety information regarding pesticide and respirator fit tests.

The section still maintains a "Pesticide Sensitive Crop Locator Map." This application shows locations of crops that are sensitive to pesticide damage so that pesticide applicators can avoid these areas while spraying pesticides on nearby properties. The map was developed to help strengthen agricultural diversity. Information contained in the statewide map is voluntarily provided by the grower of the sensitive crop.

STATE CHEMIST

The State Chemist Section regulates the sale and distribution of pesticides, feeds, pet foods, fertilizers, compost, soil conditioners and agricultural liming materials in order to enhance and promote agricultural production, protect consumers and the environment from unsafe products, ensure the sale of effective products and provide the regulated industry with a competitive marketplace. Regulation is accomplished by product registration, laboratory analysis, inspection, and voluntary compliance and enforcement actions such as stop sale orders. The section is funded through special funds.

REGISTRATION OF PRODUCTS

Pesticide products, commercial feeds, fertilizers, fertilizer/pesticides, liming materials, and soil conditioners are registered for sale or distribution only after careful review of the label to determine the material's nature, proposed uses and potential adverse impacts on agriculture, the environment, the general public, and the regulated industry. During FY 2017, the section registered 13,310 pesticide products; 4,918 fertilizers; 795 soil conditioners; 777 fertilizer/pesticide combinations; 171 liming facilities with 175 products; and 16,013 commercial feeds. Department inspectors also brought 126 previously unregistered products into compliance. Please see Table 1.

INSPECTION

Field inspectors routinely sample randomly selected products at retail outlets, distribution centers, warehouses, and formulating facilities. These inspections enable the department to maintain efficient regulatory control that ensures the sale, distribution and use of effective products that are safe for the consumer and environment, when used in accordance with approved label instructions. The inspectors sample a representative cross section of products for chemical analysis and obtain reliable data on the distribution, formulation and sale of these commodities. This enables the section to stop the sale or distribution of ineffective products or those that are harmful to humans, animals or the environment because of unacceptable levels of pesticides, presence of pathogens, plant nutrients, trace elements and/or toxic materials. In FY 2017, the State Chemist Section inspectors performed 1,026 on-site inspections. Please see Table 2.

ENFORCEMENT

Any regulated product determined to be ineffective, misbranded or deleterious to the public, agriculture, or the environment is removed from the market place. Determination for product removal is based on inspection, laboratory analysis of official samples, information received from federal or state regulatory agencies, products offered for sale but not registered for use or distribution in Maryland, and review of labels or other materials submitted by companies to support product registration. Please see Table 3.

LABORATORY ANALYSES/INVESTIGATIONS

The department's state-of-the-science laboratory is staffed with chemists and technicians who have expertise and experience in the use of highly sophisticated, computer-controlled instruments which are used to analyze agricultural chemicals and toxic contaminants in commercial products, crops and environmental samples (water, soil, fish, etc.) The laboratory staff provides reliable scientific data that are used to assist farmers and to initiate or support regulatory actions against products, which are violative, or violators of state and federal agricultural and environmental laws. The laboratory also provides support to the Maryland Department of the Environment, the Maryland Department of Natural Resources, the U. S. Department of Agriculture, the University of Maryland at College Park and the U. S. Environmental Protection Agency. Please see Table 4.

RAW MILK PET FOOD

Raw milk for pet food is an up and coming market in the state of Maryland. The program has seen an increase in the number of registrations for this commodity. The program will start an inspectional program for the commodity where samples will be taken, labels checked for proper formatting and information, and laboratory analysis will be conducted on the samples taken. The laboratory analysis will include, but not be limited to, microbial contamination, determination of pasteurization, antibiotics, pesticides, etc. These analyses will help to ensure a healthy and safe pet milk supply for the state. Currently, the program has 16 registrants, and six more in the process of registering their products.

HOMELAND SECURITY

Ammonium Nitrate - Potential Explosive for Terrorist

Activities. The department inspects fertilizer manufacturers and warehouses twice a year to determine how much ammonium nitrate is being stored and to monitor sales and distribution records to ensure they are maintained in accordance with federal/state law.

Food Emergency Response Network for Chemistry.

The State Chemist Section's laboratory is the primary Food Emergency Response Network chemistry laboratory for Maryland. It is an essential part of a national federal-state-local jurisdictional network of laboratories that are expected to be in a state of readiness for immediate response to a chemical event, whether terrorist or accidental, on human and animal food supplies. In the event of an incident, the laboratory staff provides rapid and accurate analysis of food, feed, crops and water samples to determine if these items that provide points of entry into the food chain should be embargoed or released as safe. The laboratory is an active participant in the proficiency program for the analysis of highly toxic materials in food and water. Since 2005 the laboratory has participated in 9 check sample rounds involving highly toxic materials, four of which are among the most deadly toxins known. The laboratory successfully identified the toxic materials in the check samples. The toxins and chemicals include heavy metals, ricin, alpha amanatin, melamine, mycotoxins, heavy metals, tetramine, cyanide, sodium fluoroacetate, alkaloid toxins and pesticides.

The laboratory has been called upon to analyze samples for the U.S. Food and Drug Administration Baltimore-District Office as an overflow capacity laboratory. The department currently maintains preparedness by participating proficiency testing, validating the network methods in the laboratory and extending the methods to animal feeds and pet foods.

HUMAN AND ANIMAL HEALTH ACTIVITIES

Pathogen Screening Laboratory. Both the U.S. Food and Drug Administration (FDA) and the Maryland Department of Agriculture are concerned about the presence of various pathogenic organisms in dog and cat food. The FDA has indicated that between June and August 2016, fifteen pet food manufacturers were required to remove products from the market place due to the presence of Salmonella and Listeria pathogens. These pathogens most likely were associated with raw meat, eggs, and poultry that may have become contaminated during the manufacturing of the commercial product.

Pathogens may be transmitted to households via contamination by handling and preparation of pet food in the home kitchen area used both for human and pet food preparation. Contamination may also result from opening a bag of pet food whereby small particles of pet food become airborne and adhere to kitchen counter top surfaces and improper cleaning of the same kitchen utensils to prepare both human and pet food. The pathogen contaminated pet food may be in bowls, plates, etc. placed in a pet feeding area easily accessible to young children.

In FY 2017, department technicians routinely screened 3 pet food products collected by the inspection staff from warehouses, distributors and retail outlets. Products found to contain pathogens will be subject to removal from the marketplace via Stop Sale Orders and recalls. The three principle pathogens of concern at this time are Salmonella sp., Listeria sp., and E. coli. Screening procedures will be those used by federal regulatory agencies based on DNA identification, bioluminescence, as well as other established techniques.

Mycotoxins and Environmental Toxins Contamination in Grains and Animal Feed Ingredients. The department routinely monitors Maryland produced and imported grain products (i.e., livestock and human use), animal feed ingredients, and finished animal feeds for certain mold secondary metabolites (mycotoxins) known as aflatoxins, fumonisins, and vomitoxin. Samples of winter wheat from different areas of Maryland were analyzed for vomitoxin and aflatoxin as requested by Maryland Extension. There were no samples found that had levels of concern for any mycotoxin analyzed.

The laboratory routinely analyzes finished feeds and feed ingredients as part of normal surveillance of the marketplace. Samples that were analyzed ranged from ingredient, i.e., grains and grain by-products, to finished feeds. Results from analysis indicated that the overall mycotoxin contamination was low, as seen by no violations being detected. The department also analyzed animal feed ingredients under a FDA contract for the following mycotoxins: aflatoxins, vomitoxin and fumonisins. None of the samples were found to be violative.

Soybean samples were analyzed for aflatoxins for the department's Food Quality Assurance Program. These were sampled and analyzed to determine if the lots were suitable for export to the Asian marketplace as a product of Maryland. None of the samples analyzed were found to be violative.

Metals and Mycotoxins in Livestock Feeds. An analysis program was initiated for finished feeds as part of the Section's FDA contract. Twenty animal feeds were analyzed for the following mycotoxins: aflatoxins, fumonisins, ochratoxin, zearalanone, and vomitoxin. There were no violative samples found during the contract year. This implies that the feed supply chain is relatively uncontaminated.

Metals analysis in finished animal feeds was conducted for the first time under the FDA Prohibited Material Contract. The finished feeds were analyzed for aluminum, arsenic, beryllium, cadmium, chromium, copper, mercury, nickel, lead, antimony, selenium, thallium, tellurium, uranium, vanadium, and zinc. There were 4 violations of 21 CFR 273.920, which sets the level of selenium in finished animal feeds. These feeds were above the 0.30 ppm level for finished animal feeds intended for chickens, swine, turkeys, sheep, cattle, and ducks. Stop sales were issued and the manufacturers were required to modify their labels when necessary.

Bovine Spongiform Encephalopathy - BSE or Mad Cow Disease. The department continued an inspection program in conjunction with FDA that began in 1999 to determine if feed mills, retail and wholesale distributors, haulers and grain storage facilities within Maryland comply with federal regulations pertaining to the prevention of Mad Cow Disease. Feed mills and/or feed distributors are issued stop sale orders for products determined to be in non-compliance with state and federal regulations. In FY 2017, the section inspected and collected samples from feed mills, various retail and wholesale distributors, grain haulers/storage facilities and pet food manufacturers. All inspected facilities complied with federal regulations.

The section uses multiplex PCR instead of traditional PCR analysis done in the past. The multiplex method allows for the simultaneous determination of DNA from swine, sheep/goats and cattle. This saves the section time in doing the analysis. All samples analyzed were negative for ruminant DNA indicating there was no prohibited material in the animal feed or feed ingredient.

U.S. Department of Agriculture Pesticide Data Program. Since 1997, the USDA has contracted with the department to sample various food items from principal distribution centers in the state. These samples consist of such diverse items as pineapples, potatoes, processed food, processed fruit juices,

produce, milk, and peanut butter which are analyzed by federal and state laboratories for several hundred different pesticides. In concert with the U.S. Environmental Protection Agency Food Safety Program, the data will be used to establish new pesticide food tolerances with added emphasis on the diet of infants and children.

ENVIRONMENT

Protection of the Chesapeake Bay - Fertilizer Restrictions.

The State Chemist's registration staff carefully reviews and approves the labels of all fertilizers intended for use on lawns/turf and golf courses. The purpose is to ensure that the directions for use comply with the 2011 Fertilizer Use Act which specifies phosphorous monitoring, nitrogen application limits, and removing applied fertilizer from paved surfaces. Nearly all lawn fertilizers containing phosphorus require soil testing prior to application. With regards to nitrogen, application limits are set at 0.7 pounds per 1,000 square feet for rapidly available nitrogen, or 0.9 pound of nitrogen per 1,000 square feet of which at least 20 percent must be slow release. State Chemist inspectors perform surveillance of retail outlets to ensure that lawn/turf products are in compliance and will issue stop sale orders for those that are not. Lawn fertilizer labels without the restriction language may lead to over-application which may increase nutrient runoff due to erosion, driveway run-off, etc. Additionally, the law requires the registrants and manufacturers of the products to submit annually the amount of these products sold and distributed specifically as fertilizer for lawns, turf, golf courses, nurseries, etc. The purpose of such is to monitor the increase or reduction of these fertilizer products and the corresponding nutrients from year to year.

Compost Facility Operator Certification. The Maryland Commercial Compost Regulation requires a department-certified facility operator to be onsite to oversee the compost manufacturing process. Before becoming certified, an individual must pass an examination. Seven people passed the exam during FY 2017. Since 2010, 65 people have taken the exam and have become certified. Additionally, individuals passing the exam must maintain their certification by attending training courses approved by the Maryland State Chemist as well as participating in facility inspections conducted by State Chemist inspectors. Five individuals were recertified during FY 2017. Since 2010, 17 people have met the qualifications for recertification.

TABLE 1—FY 2017: REGISTRATION AND ENFORCEMENT

Registration	
Pesticides	13,310
Fertilizers	4,918
Soil Conditioners	795
Fertilizer/Pesticide Mixtures	777
Liming Materials	171
Feeds	16,013
Total	35,984
Companies with Registered Products	3,047
Registrants	2,391
Enforcement - Non Registered Notices Brought Into Compliance	
Pesticides	0
Fertilizers	1
Soil Conditioners	0
Fertilizer/Pesticide Mixtures	0
Liming Materials	0
Feeds	57
Total	99
Enforcement - Non Registered Stop Sales	
Pesticides	0
Fertilizers	2
Soil Conditioners	0
Fertilizer/Pesticide Mixtures	1
Liming Materials	0
Feeds	39
Total	42

TABLE 2—FY 2017: INSPECTIONS

Product Manufacturing Sites Visited [Plants, Warehouses, Retailers]	1,026
FDA Regulation Ruminant Tissue [BSE] Feed Inspections	20
USDA/MDA Pesticide Data Program Sites Visited	266
USDA/MDA Pesticide Data Program Samples Collected	510

TABLE 3—FY 2017: REGULATORY ACTIONS

Regulatory Action Stop Sales	
Active Ingredient Deficiencies	
Pesticides	3
Fertilizers	80
Feeds	16
Active Ingredient Over Formulations	
Pesticides	0
Fertilizers	26
Feeds	0
Mycotoxins in Feeds	0
Label Violations	0
Phosphorus Levels in Turf/Lawn Fertilizers	0
Regulatory Action Warnings	
Active Ingredient Deficiencies	
Pesticides	3
Fertilizers	0
Feeds	0
Active Ingredient Over Formulations	
Pesticides	0
Fertilizers	0
Feeds	0
Mycotoxins in Feeds	0

TABLE 4—FY 2017: LABORATORY ANALYSES PERFORMED

	Samples Collected	Number of Analyses
Pesticides	224	285
Fertilizers	235	725
Liming Materials	55	117
Feeds and Pet Foods	622	3871
Broiler Feeds for Phytase	42	42
Livestock Feeds – Drugs, Additives, Mineral Supplements, Ingredients	24	930
Ruminant Tissue Analysis – State	1	1
Pet Food Microbiological Analysis	3	9
Bee Pollen Project, University of Maryland at College Park	84	14,952
Toxic Metal Screen	45	557
Quality Assurance – National and International Products	61	232
EPA (Pesticide – Washington D.C.)	3	3
EPA (Pesticide Regulation - Maryland)	17	4,885
BSE – FDA	60	60
Food Emergency Response Network of Federal & State Laboratories	3	3

TABLE 5—FY 2017: PRODUCT SALES IN TONS

Fertilizers	382,630
Fertilizer/Pesticide Mixtures	9,274
Soil Conditioners	204,368
Liming Materials	178,563
Total	774,835

TURF AND SEED

Seed is the single most important input to any agricultural system. To be successful, a grower must begin with quality seed. MDA's Turf and Seed Section conducts regulatory and service programs, including seed and field inspections, testing, certification and quality control services which are designed to ensure the continued availability of high quality seed to Maryland's seed consumers. Today's seed industry exists in an environment of rapid change. The continued development of biotechnology and the expansion of genetically modified organisms has had an enormous effect on the production, distribution and marketing of seed and upon state seed programs. Seed regulatory, testing, and certification programs throughout the country are being challenged to meet the demands brought about by these changes in seed technology.

SEED LABORATORY

MDA's seed testing laboratory supports regulatory, certification, supervised seed mixing and turfgrass activities. It also provides service testing for seed producers, dealers, farmers and other seed consumers. Turfgrass professionals depend upon the laboratory to test the purity, germination and noxious weed seed of lots destined for use on golf courses, sod production fields, public grounds and other areas demanding high quality turf. Commercial vegetable growers use the laboratory for specialized vigor and germination testing, particularly for peas, garden beans and lima beans. The State Highway Administration relies upon the laboratory to test all grass, wildflower, shrub and other seed planted along Maryland's highways. Maryland farmers participating in the Maryland Agricultural Water Quality Cost-Share (MACS) Cover Crop Program use the laboratory to ensure that the seed they plant meets the quality standards required for that program. The laboratory also identifies seed submitted by farmers, veterinarians, health officials, other government agencies and the general public. The laboratory conducts Round-up® Ready testing of seeds for authorized seed producers to assist with their quality control programs. The laboratory also tests seeds used on wetland mitigation, restoration and conservation projects. Key to a successful laboratory operation is a well-trained staff. The Association of Official Seed Analysts (AOSA) maintains an accreditation program for seed analysts in official laboratories throughout the United States. Analysts who pass rigorous tests, which include both written and practical examinations, are certified as official purity and germination analysts. Currently, six

MDA seed analysts are certified by AOSA in both purity and germination testing. The laboratory staff also routinely participates in various seed referee tests. These referees develop new testing methodology and ensure uniform and accurate seed testing throughout the country, while also serving as continuing education requirements necessary for certified analysts to maintain their credentials

SEED REGULATORY ACTIVITIES

The Maryland Seed Law requires all seed offered for sale in the state be labeled accurately. This includes agricultural, vegetable, flower, lawn and turf seed, as well as seed of trees, shrubs, native species, wildflowers and seed used in reclamation and wetlands mitigation and conservation projects. Quantities of seed offered for sale to Maryland's consumers range from small packets of vegetable and flower seed to bulk sales of thousands of pounds of crop seed. All seed distributed in Maryland is subject to inspection by MDA. For much of its seed needs, Maryland relies on other areas of the country, and the world, where climates are better suited for seed production. Thus, it is important that Maryland maintain a strong and effective regulatory program in order to prevent low quality seed from entering the state. MDA inspects both retail and wholesale seed dealers throughout the state. Inspectors review label claims, ensure that germination test dates are current and look for seed lots that have been found to be mislabeled or otherwise illegal for sale based on samples taken at other locations. Seed lots are sampled and submitted to the laboratory for testing. Lots found in violation of the Maryland Seed Law are placed under a stop sale order until they are brought into compliance. Corrective action may include re-labeling, reconditioning, destruction of the seed lot or its removal from the State. Seed dealers who fail to comply with a stop sale order are subject to civil penalties.

SEED CERTIFICATION

The seed certification program is adapting to changes in the seed business. As large investments in biotech research by private companies increases, demand for traditional certification services decrease, as does the involvement of public institutions, which have been the source for most certified seed varieties. With the increased number of crop varieties being released by private companies, the demand for quality assurance inspections by third parties is strong, particularly from small to medium-sized seed companies that

cannot afford their own quality control programs. Companies growing seed in Maryland look to MDA for expertise in field inspections, sampling, and laboratory analysis for quality control. MDA anticipates that quality control inspection acreage will increase as certified acreage decreases. Staff members help seed growers and conditioners produce a product that meets some of the highest quality standards in the United States. Maryland seedsmen have become a net exporter of wheat, barley, and soybean seed, adding much revenue to the Maryland agriculture economy. MDA cooperates with the Maryland Crop Improvement Association, the Maryland Agricultural Experiment Stations, and the University of Maryland in the production and distribution of Maryland foundation seed. Much effort is spent to maintain the genetic purity of foundation seed of public varieties important to Maryland agriculture. This foundation seed is distributed to participating Maryland seedsmen for the production of Maryland certified seed.

SUPERVISED SEED MIXING

The supervised seed mixing system enables certification to be continued when certified lots of different kinds and varieties of seed are mixed together. Demand from the industry and consumers for this service is strong MDA's oversight of this process ensures that consumers receive quality seed. All seed used on State Highway Administration projects and for the production of Maryland certified turfgrass sod is mixed under this program. Many county and local governments, school systems, golf courses, recreation departments and professional seeding contractors require that the seed they purchase be mixed under this program. Prior to mixing, component seed lots must be officially sampled and tested by the Maryland State Seed Laboratory. Seed lots that meet applicable standards are then mixed under the direct supervision of an MDA inspector who ensures that the mixer

is free of contaminants and that only approved seed lots are used in the mixture. Special tags sewn onto each bag verify that the seed was mixed under MDA supervision.

TURF REGULATION

Maryland's Turfgrass Law requires that all turfgrass sod, plugs and sprigs be accurately labeled. Due to the overall high quality of sod produced by Maryland sod growers, staff efforts are usually limited to responding to complaints which are promptly investigated and resolved. In most cases, the problems are due to site preparation and other growing conditions rather than the quality or condition of the sod. The Maryland public continues to be able to purchase some of the highest quality sod available anywhere.

TURF CERTIFICATION

Maryland's turf certification program is a national model for certification. Growers must plant varieties recommended by the University of Maryland based on performance trials conducted in this region. All seed used in this program is tested by the Maryland State Seed Laboratory and mixed under the supervision of MDA inspectors. All certified turfgrass fields are inspected several times during the growing season for quality. Many sod specifications require Maryland certified turfgrass as a means of assuring the use of high quality varieties that are well adapted to this area.

CUSTOMER SERVICE

Providing good customer service is a priority of the Turf and Seed section. Because the marketing and planting of seed is time-sensitive, and because weather has an impact, customers rely on MDA staff to provide inspections, schedule supervised mixes, and send out seed test results rapidly to enable their businesses to remain successful in the seed market.

GOAL AND OBJECTIVES

GOAL 1. ENSURE THAT SEED OFFERED FOR SALE IS ACCURATELY LABELED AND IN COMPLIANCE WITH MARYLAND SEED LAW IN ORDER THAT THE CITIZENS OF MARYLAND MAY RELY ON THE ACCURACY OF THE LABELING AND THUS BE ASSURED THEY ARE PURCHASING THE QUALITY OF SEED THEY DESIRE.

OBJECTIVE: ENSURE THAT 90 PERCENT OF SEED LOTS OFFERED FOR SALE IN MARYLAND ARE LABELED CORRECTLY.

Performance Measures	Actual 2017
Outcome: Percent of Seed Lots Found to be Correctly Labeled	94.0

TURF AND SEED ACTIVITIES: 2015- 2017

	2015	2016	2017
Field Inspections			
Acres of Turf Inspected	6,641	6,863	5,585
Acres of Crop Seed Inspected	10,088	9,734	8,372
Supervised Mixing			
Pounds of Seed Mixed (thousand)	1,651	1,707,425	2,104,450
Retail and Wholesale Seed Inspections			
Number of Lots Sampled	997	897	775
Number of Regulatory Seed Tests Conducted	2,767	2,382	2,047
Seed Testing			
Samples Tested	2,777	3,072	2,592
Service Seed Tests Conducted	4,551	4,782	4,218



2017 Annual Report | Office of Resource Conservation

The Office of Resource Conservation works closely with Maryland farmers to plan and implement conservation practices and programs that balance crop and livestock production with the need to protect natural resources. The office provides educational and financial assistance, technical assistance, and regulatory programs to improve resource management and help Maryland achieve Chesapeake Bay restoration goals. Conservation staffers work with local, state and federal agencies to implement policies and programs established by the State Soil Conservation Committee. The Office of Resource Conservation is comprised of five key areas: Program Planning and Development, Conservation Grants, District Operations, Watershed Implementation, and the Nutrient Management Program.

STATE SOIL CONSERVATION COMMITTEE

Established in 1938, the State Soil Conservation Committee consists of 11 members representing local soil conservation districts and state and federal agricultural and natural resource agencies. The committee coordinates the activities of Maryland's 24 soil conservation districts and appoints district supervisors. The committee also develops, reviews and refines policies on soil conservation and water quality issues, while advising the Agriculture Secretary on these matters. Importantly, the committee serves as a forum for all agencies involved in protecting natural resources.

In FY 2017, the committee approved or took actions on the following:

- Reviewed soil conservation district supervisor recruitment and mentorship of new supervisors or associate supervisors
- Developed a process to streamline the Manure Transport Program for poultry litter use/transport

In FY 2017, the committee received the following briefings and tracked these initiatives:

- The Maryland Healthy Soil Initiative and the work of the consortium to provide education and information about healthy soils
- Local ordinances to address siting of solar arrays and protection of agricultural land
- The collection of soils information by the Nutrient Management Program and establishment of scheduling tiers to implement the Phosphorus Management Tool
- A report to the Maryland legislature analyzing staffing for soil conservation districts
- The process that Maryland will use to develop its third Watershed Implementation Plan (WIP). The WIP III represents the third phase on the road map to achieving the Chesapeake Bay Total Maximum Daily Load (TMDL)
- Revisions to the Chesapeake Bay Model

PROGRAM PLANNING AND DEVELOPMENT

Program Planning and Development is responsible for planning, developing and coordinating policy, programs, and public information about resource conservation issues and nonpoint source pollution. Programs and activities are coordinated among local soil conservation districts, federal and state agencies, and public and private agricultural and natural resource organizations. The section also provides staffing support to the State Soil Conservation Committee and the Conservation Reserve Enhancement Program Advisory Committee.

Animal Waste Technology Fund. Established in 2013, the Animal Waste Technology Fund provides grants to companies that demonstrate new technologies on farms and provide alternative strategies for managing animal manure. These technologies may generate energy from animal manure, reduce on-farm waste streams, and repurpose manure by creating marketable fertilizer and other products and by-products. During the fiscal year, the program issued approximately \$1.7 million in grants for two animal waste management technology projects in Somerset and Anne

Arundel counties. The grants are part of the state's ongoing commitment to manage animal manure, protect natural resources, and pursue renewable energy sources.

- **CleanBay Renewables.** \$1.4 million to construct and operate a manure-to-energy plant in Somerset County that will generate electricity by processing 80 tons per day of poultry litter as feedstock. The grant supplements \$15 million in investments already secured by CleanBay Renewables.
- **Veteran Compost and O2 Compost.** \$350,300 to develop a compost demonstration project and public education and training facility in Anne Arundel County for horse operations and other livestock farmers located throughout the state.

In February, Governor Larry Hogan and Agriculture Secretary Joe Bartenfelder toured the Murphy family's Double Trouble Farm – the first Maryland poultry operation to install cutting-edge technology that converts poultry litter to energy. The program awarded a \$970,000 animal waste technology grant to Biomass Heating Solutions, Inc. (BHSL) for the manure-to-energy project and an additional \$139,000 to monitor its operation for one year. To date, Maryland's Animal Waste Technology Fund has approved \$3.7 million in grants for six projects.

Geographic Information Systems (GIS). GIS is a powerful software technology used to visualize, question, analyze, and interpret data to understand relationships, patterns, and trends in decision making for resource management and development planning. The technology allows a large amount of information to be linked to a geographic location for decision making and emergency preparedness. Data from many sources, including digitized and scanned maps, aerial photography, soil surveys, and global positioning systems are integrated and analyzed to create and share "smart maps." In FY 2017, staff continued to provide technical assistance and spatial data to program areas within the department. Training sessions were conducted on new ArcGIS 10.5 functionalities and ArcGIS Online, a cloud-based platform that allows anyone to make, share, and host maps and applications. The department's web map applications were updated with the most current data and enhanced with additional tools. During the year, technical assistance was provided to the Animal Health Program in preparation for the Highly Pathogenic Avian Influenza (HPAI) Response Plan. The plan provides strategic guidance on responding to an outbreak. Throughout the fiscal year, GIS staff attended conferences, training sessions and workshops on transitioning to ArcGIS Pro, and continued to participate in an interagency

technical committee that implements policies related to the transparency, availability, and quality of spatial data in Maryland.

Information and Education. This program provides creative, editorial, web content and graphics and production services to program areas within the Office of Resource Conservation. Displays, brochures, fact sheets, and conservation education materials are provided to soil conservation districts and University of Extension offices to assist with educational outreach. In FY 2017, annual reports for soil conservation districts, the Maryland Agricultural Water Quality Cost-Share (MACS) Program and the Nutrient Management Program were produced along with the spring and winter editions of the Maryland Nutrient Management Newsletter. Farmer and citizen outreach programs and materials were developed to promote the Animal Waste Technology Fund, Cover Crop Program, Manure Transport Program, Backyard Actions for a Cleaner Chesapeake Bay, Manure Happens Education Program, Nutrient Management Program and Maryland's Lawn Fertilizer Law. During the fiscal year, educational exhibits were provided for approximately 25 events, including the Maryland State Fair, Horse World Expo, Maryland Home and Garden Show, and county fairs and agricultural events taking place throughout Maryland. Additional requests for conservation brochures and classroom demonstrations were filled for teachers, master gardeners, and other educators.

CONSERVATION GRANTS

The Maryland Agricultural Water Quality Cost-Share Program provides farmers with grants to install water quality improvement projects on their farms, adopt sustainable agricultural practices and comply with federal, state and local environmental requirements. In FY 2017, the program provided Maryland farmers with \$33.9 million in grants to install 2,491 conservation practices on their farms that control soil erosion, reduce nutrient runoff and protect water quality in streams, rivers and the Chesapeake Bay. The figure represents the largest annual funding allocation in the program's history and the sixth consecutive year of growth. These grants were used by Maryland farmers to meet the majority of the Chesapeake Bay's 2017 interim restoration goals. Farmers receiving these grants invested about \$1.5 million of their own money into projects that will prevent an estimated 3.5 million pounds of nitrogen and 142,438 pounds of phosphorus from entering Maryland waterways. Cover crops were responsible for the bulk of the nitrogen and phosphorus savings. In addition, the projects will prevent an estimated 10,854 tons of soil from impacting local streams.

Projects Financed with Special Funds. The cost-share program receives funding from the Chesapeake Bay Restoration Fund and the Chesapeake Bay 2010 Trust Fund to finance certain highly valued best management practices included in Maryland's Bay milestone commitments. These include the Cover Crop Program and contract signing incentive payment for the Conservation Reserve Enhancement Program. Portions of the Manure Transport Program, certain best management practices, and Manure Incorporation and Injection Grants are financed using these sources.

- **Cover Crop Program.** Cover crops are one of the most cost-effective and environmentally sustainable ways for farmers to meet nutrient and sediment reduction targets outlined in Maryland's Watershed Implementation Plan to protect and restore the Chesapeake Bay by 2025. The program provides grants to help farmers offset seed, labor and equipment costs associated with planting small grains and legume mixes on their fields following the fall harvest. During the 2016-2017 planting season, farmers received \$25.6 million in grants to plant 561,344 acres of cover crops statewide, the largest planting in the program's history.
- **Manure Transport Program.** This program helps poultry, dairy, beef and other livestock producers transport excess manure away from farms with high soil phosphorus levels and is critical in helping farmers comply with Maryland's phosphorus management regulations. In FY 2017, the transport program provided Maryland farmers with \$1.2 million in grants to transport 241,941 tons of manure to approved farms and businesses. Delmarva poultry companies provided \$453,038 in matching funds to transport poultry litter. During the year, Fast Track grants to move poultry litter quickly were introduced.
- **Conservation Reserve Enhancement Program.** Maryland's Conservation Reserve Enhancement Program is a federal-state partnership program that pays landowners to take environmentally sensitive cropland out of production for 10 to 15 years and install conservation practices that protect water quality and provide wildlife habitat. The cost-share program provides these landowners with grants to establish conservation practices on environmentally sensitive land that they have agreed to no longer till or graze. Special funds are used to award a \$100/acre signing bonus for initial program enrollment or re-enrollment. In FY 2017, the cost-share program provided landowners with \$301,795 in grants to install 56 stream protection

projects and \$516,161 in signing bonuses.

- **Manure Injection and Incorporation Program.** Maryland's nutrient management regulations require farmers to inject or incorporate manure and other organic nutrient sources into the soil within 48 hours of application if they are not using no-till farming practices. This grant program helps farmers comply with environmental requirements while making the most of manure resources. In FY 2017, the program provided 73 farmers with \$517,385 in grants to inject or incorporate manure and other organic products into the soil within 48 hours of application.

DISTRICT OPERATIONS

This program provides operating funds and staffing support to the state's 24 soil conservation districts for promotion and delivery of local soil conservation and water quality programs to the agricultural community.

Technical Assistance. FY 2017, the department funded 75 technical positions in local soil conservation district offices statewide. An additional 41 agricultural technicians and conservation planners were funded through grants provided by 2010 Chesapeake and Atlantic Coastal Bays Trust Fund. During the year, field staff worked with farmers to develop Soil Conservation and Water Quality Plans to manage and protect natural resources on farms. These plans are a key feature in Maryland's strategy to protect and restore the Chesapeake Bay by 2025. This cleanup strategy addresses actions to meet the Chesapeake Bay Total Maximum Daily Load, or TMDL and requires a wide range of pollution reduction measures to be installed by 2025, with practices in place to achieve at least 60 percent of the necessary reductions by 2017. By the end of FY 2017, Maryland farmers, with the help of soil conservation districts were managing 923,896 acres of agricultural land using Soil Conservation and Water Quality Plans—roughly 90 percent of the annual goal. Soil Conservation and Water Quality Plans often call for a menu of best management practices to protect natural resources and meet the Chesapeake Bay's reduction goals for nitrogen, phosphorus, and sediment. Field staff work with farmers to design, install, and maintain practices such as livestock stream crossings and animal waste storage structures. In FY 2017, field staff helped farmers install 1,021 highly valued best management practices on their farms that were supported by state and federal financial assistance programs.

Enforcement. Cases of water pollution caused by agriculture are handled using a progressive approach that is based on the severity of the situation. Conditions likely to cause

pollution or that result in inadvertent farm pollution require timely corrective action, whereas chronic or willful mismanagement of farm resources is handled through a formal enforcement action. During the year, the Maryland Departments of Agriculture and Environment worked jointly with soil conservation districts to address farm management complaints and take action against polluters when necessary. In FY 2017, the department received 48 complaints concerning odor, livestock, manure, sediment, nutrient management, wetlands and stream disturbance issues. Thirty-six of these complaints were corrected or closed, eleven complaints are pending and one enforcement actions was initiated.

Agricultural Water Management. Drainage ditches are commonplace on the Eastern Shore. A network of approximately 820 miles of ditches is maintained by 101 public drainage associations (PDAs) and four public watershed associations in Caroline, Queen Anne’s, Somerset, Wicomico, and Worcester counties. The network drains approximately 183,000 acres of agricultural and developed land. The department regulates local public drainage associations to ensure that operation and maintenance plans are in good working order and that best management practices are protecting water quality.

CAFO Permitting and Compliance Assistance. The department works closely with the Maryland Department of the Environment to help Concentrated Animal Feeding Operations comply with their permit requirements. The department assesses Eastern Shore poultry operations to help farmers determine if they are subject to permit requirements, works with the department of environment to resolve permit and compliance issues, and helps concentrated animal feeding operations with record keeping, site selection, annual

reporting, and facilities maintenance requirements. During the year, the department’s regional office in Salisbury along with soil conservation districts on the Eastern Shore helped 107 farmers obtain Comprehensive Nutrient Management Plans (CNMPs) required by their permits.

Maryland Envirothon. The State Soil Conservation Committee and soil conservation districts are primary sponsors of the Maryland Envirothon, an outdoor natural resources competition for high school students interested in learning about natural resources and gaining a better understanding of today’s complex environmental issues. In 2017, Maryland hosted the National Envirothon competition. Sponsored by the National Conservation Foundation, the week-long competition was held at St. Mary’s University in Emmitsburg and featured teams of students from 45 states and provinces in Canada and China. Teens competed for top honors and \$30,000 in cash prizes. The Maryland team was among the top ten finishers.

WATERSHED IMPLEMENTATION PROGRAM

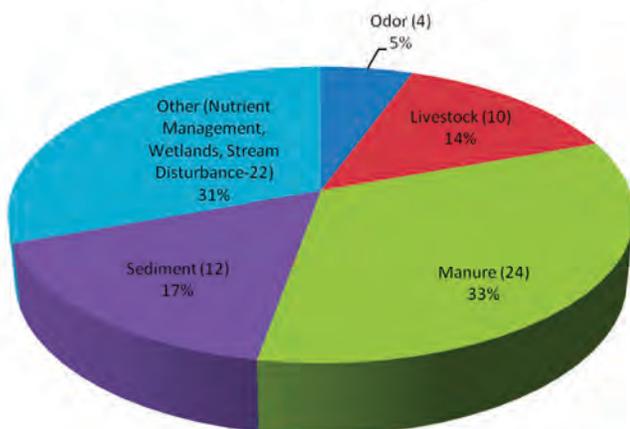
This program provides direction and leadership in developing and evaluating strategies to carry out agricultural commitments included in Maryland’s Watershed Implementation Plan (WIP) to protect and restore the Bay by 2025, as required by the Chesapeake Bay Agreement.

Chesapeake Bay Restoration Partner. As part of the Clean Water Act, the U.S. Environmental Protection Agency (EPA) has limited the amount of nutrients and sediments that can enter the Chesapeake Bay. Maryland and the other Bay jurisdictions have developed Watershed Implementation Plans (WIPs) outlining strategies to achieve these pollution limits by 2025. The goal of this watershed-wide effort is to restore clean water in the Chesapeake Bay and the region’s creeks, streams and rivers. By the end of FY 2017, Maryland agriculture nearly met its midpoint assessment goal for nitrogen, and exceeded its goals for phosphorus and sediment.

Agricultural Representation. Department representatives sit on 16 Chesapeake Bay Partnership workgroups to provide technical information and input concerning restoration goals, policies, programs, and research needed to reduce agricultural pollutants entering the Bay and its tributaries.

Nutrient Trading. The Maryland Departments of Agriculture and the Environment are working to establish a voluntary, market-based program that promotes the use of nutrient and sediment trading as a viable option for achieving the state’s water quality goals. In October 2015, the secretaries

2016 Types of Agricultural Complaints



of both departments released a Water Quality Nutrient Trading Policy Statement expanding access to the water quality marketplace for all point and nonpoint sources and providing the flexibility to meet and/or maintain nutrient and sediment loads through the acquisition of credits or offsets generated elsewhere. As part of this effort, a Water Quality Trading Advisory Committee—which includes many of members of the previous Agricultural Nonpoint Trading Advisory Committee—was convened to offer direction and oversee further development of the trading program. In FY 2017, the Committee completed a review and refinement of a comprehensive trading manual and has turned its attention to the development of trading regulations to implement the policies and guidance contained in the manual.

Agricultural Certainty Program. Maryland’s Agricultural Certainty Program rewards farmers who have gone the extra mile to protect natural resources on their farms. Under the program, Maryland farmers receive a 10-year exemption from new environmental laws and regulations in return for installing voluntary best management practices on their farms to meet the Chesapeake Bay’s 2025 water quality goals ahead of schedule. Maryland is one of seventeen states that either have a certainty program or are developing one. During FY 2017, the department offered several training sessions on the use of the Maryland’s online assessment tool, the Maryland Nutrient Tracking Tool or MNTT to maintain and expand the number of individuals classified as Certified Verifiers under the program. In addition, outreach efforts to introduce the program to producers continued through participation in major agricultural events throughout the state.

Research and Special Projects. This program manages multiple ongoing research and technical assistance grants totaling \$1.5 million. The projects demonstrate new and innovative ways to improve manure management, reduce nutrient runoff, control soil erosion, and safeguard water quality. An on-going demonstration focuses on effective strategies to reduce phosphorus concentrations in dairy manure. Preliminary results indicate that this innovative approach could be used to help Maryland dairy operations comply with Phosphorus Management Tool (PMT) regulations.

Conservation Tracker. This integrated database management system tracks agricultural conservation practices implemented in Maryland. The system tracks both publicly and privately funded best management practices outlined in Maryland’s Watershed Implementation Plan. In FY 2017, information obtained through Conservation Tracker was reported to the U.S. Environmental Protection Agency’s Chesapeake Bay Program for use in assessing restoration

progress. As part of the Chesapeake Bay TMDL Mid-Point Assessment, the Department is required to strengthen accountability and transparency of reported BMP practices. As a result, the Program developed a six-member verification task force that provides an objective, third-party review of all best management practices installed since 1985. Since September of 2016, the verification task force has reviewed approximately 3,800 practices. Seventy-two percent of the practices verified continue to meet quality standards. Approximately 24 percent were no longer present and 4 percent required maintenance.

MARYLAND NUTRIENT MANAGEMENT PROGRAM

This program protects water quality in the Chesapeake Bay and its tributaries by ensuring that farmers and turfgrass professionals apply fertilizers, animal manure and other nutrient sources in an environmentally sound manner. The Agricultural Nutrient Management Program implements regulatory requirements, a certification and licensing program for nutrient management consultants and farmers, and continuing education classes. The Turfgrass Nutrient Management Program includes a certification and licensing program for turfgrass professionals, enforcement activities, continuing education classes for certified professionals and a homeowner outreach program.

Agricultural Nutrient Management Program. Maryland law requires any farming operation that generates \$2,500 gross income or has 8,000 pounds or more of live animal weight to follow nutrient management plans when fertilizing crops and managing animal manure. These science-based 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. Nutrient management plans are required for all agricultural land used to produce plants, food, feed, fiber, animals or other agricultural products.

Revised Nutrient Management Regulations. Proposed changes to Maryland’s Nutrient Management Regulations were fully adopted in January of 2017. The revised regulations provided an emergency winter spreading provision for liquid, nonstackable manure, a provision prohibiting farmers from applying manure if the ground is frozen or snow covered, an emergency exemption for farmers that have demonstrated intent to build additional manure storage facilities, and an extension of the spreading date to December 15. In addition, the revised regulations removed the incorporation requirement for farmers who are using no-till farming practices.

CHESAPEAKE BAY CLEAN UP

*Progress through June, 2017**

Milestone	Annual Goal (Due June 30, 2017)	Status as of June 30, 2017	% of Annual Goal Achieved
Cover Crops	Plant 417,014 acres of cover crops each year	560,000 acres planted during 2016-2017 planting season	135%
Manure Transport	Annually transport 51,000 tons of excess poultry litter or livestock manure to farms or alternative use facilities that can use the manure safely and in accordance with nutrient management plans	241,942 tons of manure transported in 2017	475%
Soil Conservation and Water Quality Plans	Develop plans for 1,026,413 acres	923,896 acres planned	90%
Milestone	2017 Midpoint Assessment Goal (Due June 30, 2017 and covers period between 2009-2017)	Status as of June 30, 2017	% of 2017 Midpoint Assessment Goal Achieved
Off-Stream Watering Without Fencing	Construct 4,809 acres of off-stream watering sources for livestock by 2017	20,085 acres protected	418%
Retirement of Highly Erodible Land	Retire 2,554 acres of highly erodible land by 2017	9,606 acres retired and planted with protective vegetation	376%
Streamside Forest Buffers	Plant 927 acres of forest buffers next to streams by 2017	1,697 acres planted	183%
Streamside Grass Buffers	Plant 2,273 acres of grassed buffers next to streams by 2017	5,139 acres planted	226%
Waste Storage Structures/ Livestock	Construct 144 livestock waste storage structures by 2017	402 structures installed	279%
Waste Storage Structures/ Poultry	Construct 31 poultry waste storage structures by 2017	149 structures installed	481%

**Progress includes practices installed with funds from both or either MACS and USDA's Natural Resources Conservation Service.*

Phosphorus Management Tool Regulations. Maryland’s Phosphorus Management Tool (PMT) regulations provide a multi-year process for farmers to transition from the Phosphorus Site Index to the PMT, an updated tool that uses the latest scientific findings to identify the potential risk of phosphorus loss from farm fields and prevent the additional buildup of phosphorus in soils that are already saturated. By the end of the fiscal year, soil data had been collected for approximately 1.1 million acres or 85 percent of regulated acreage. Approximately 80 percent of Maryland farmland is not subject to the PMT. Moreover, 1.5 percent of the farm acreage statewide—primarily farms located on the Lower Eastern Shore—has high soil phosphorus levels and may be restricted in applying additional phosphorus. The program is committed to collecting all soil data statewide so that a complete inventory of soil phosphorus levels is available for future planning and resource allocation.

- **On-Farm Economic Analysis Project.** This project was completed in FY 2016. Participants included four dairy farms and four farms that use poultry litter to fertilize crops. Early indicators show that commercial fertilizer increased the cost of production. A final analysis of this project is currently underway.

Enforcement. Ensuring compliance with nutrient management regulations is at the core of the Nutrient Management Program’s mission. Maryland farmers are required to operate their farms using a nutrient management plan that specifies the amount, timing 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 solely for their own operations, and must be revised and updated before they expire. Since 1999, farmers have been required to submit copies of their initial nutrient management plans to the department. Following this initial plan submission, farmers are required to submit Annual Implementation Reports to the department summarizing their nutrient applications for the previous calendar year. The submission of the initial nutrient management plan is the first step in achieving compliance. Maintaining compliance requires ongoing plan implementation and updates, record keeping, and timely filing of the Annual Implementation Report. The Department’s nutrient management specialists conduct site visits and verify that an operator is following the plan as written by a certified consultant. Following are enforcement figures for FY 2017:

Nutrient Management Plan Submissions. By the end of the fiscal year, 98 percent of the state’s 5,322 regulated farm

operations had submitted their initial nutrient management plans to the department. The department actively works to locate “new farming operations” and pursues enforcement actions against operators who have met this requirement.

Annual Implementation Reports. Farmers are required to 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, approximately 97.5 percent of regulated farmers managing about 1.3 million acres of land had submitted their implementation reports to the department. The department issued \$33,000 in fines against 132 farmers for late or missing implementation reports.

On-Farm Audits and Inspections. During FY 2017, the program’s nine enforcement specialists conducted 1,016 on-farm audits and issued 397 warnings to correct major violations and documented additional minor violations to be corrected. Sixty-one percent of the state’s 5,322 regulated farms were found to be fully in compliance. The department is actively pursuing full compliance for all audited operations. In FY 2017, the department issued \$34,450 in fines against 57 farmers who failed to take corrective actions by prescribed deadlines.

Certification, Licensing and Education Programs.

Nutrient Management Exam Training—During the year, the Nutrient Management Program continued to expand its base of certified consultants. 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 certified consultants to 1,384.

- **University of Maryland Consultant Program.** Funded 20 University of Maryland advisors in FY 2017 who provide farmers with nutrient management plans free of charge.
- **Farmer Training and Certification.** Trained and certified 59 farmers to write their own nutrient management plans in FY 2017. To date, 650 farmers have been trained and certified.
- **Nutrient Applicator Voucher Training.** Partnered with Extension to conduct 32 voucher training sessions attended by 667 farmers who wanted to obtain or renew their vouchers. Additionally, farmers attended other training events to obtain their voucher credits, bringing the total number of farmers attending voucher training to 1,544.

- **Continuing Education.** Certified consultants are required to take 12 hours of continuing education credits every three years. In FY 2017, the program and Extension offered 26 education classes on nutrient management topics and approved an additional 63 courses and field events sponsored by other recognized organizations. These sessions were attended by 2,225 individuals.

Turfgrass Nutrient Management Program.

- **The Fertilizer Use Act of 2011—Maryland’s Lawn Fertilizer Law.** This authorized the department to regulate more than 1,500 individuals and companies that apply lawn fertilizer to properties that they manage, including golf courses, parks, recreation areas, athletic fields, business properties, school campuses, cemeteries, highway right-of-ways and home lawns. The Law requires homeowners and lawn care professionals to obey fertilizer application restrictions, use best management practices when applying fertilizer to lawns, observe designated fertilizer blackout dates, and follow University of Maryland fertilizer recommendations. The Turfgrass Nutrient Management Program, with technical guidance from the University of Maryland, has established a training, certification and licensing program for lawn care professionals and a public education program for homeowners.
- **Certification and Licensing.** In FY 2017, 22 pre-certification training sessions and 23 certification exams were offered across the state for lawn care professionals.

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.

- **Training, Certification and Licensing.** Professional Fertilizer Applicators are required to complete two hours of continuing education each year in order to renew their annual certificates. During the fiscal year, the program offered 25 recertification courses and approved numerous training courses offered by private industry and trade groups.
- **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 FY 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. Resources for the remainder of the fiscal year focused on training and certifying professional fertilizer applicators.
- **Homeowner Outreach.** During the year, 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.

MARYLAND DEPARTMENT OF AGRICULTURE BUDGET ALLOCATION FOR FY 2017

	GENERAL	SPECIAL	FEDERAL	BONDS	TOTAL
Operating	\$29,263,728	\$58,310,279	\$3,625,572		\$91,199,579
Capital		\$22,227,744		\$2,000,000	\$24,227,744
TOTAL	\$29,263,728	\$80,538,023	\$3,625,572	\$2,000,000	\$115,427,323
Bonds					
	MACS	\$2,000,000			
Total		\$2,000,000			

LONG SERVICE AWARDS

MARYLAND DEPARTMENT OF AGRICULTURE HONORS EMPLOYEES WITH LONG SERVICE AWARDS

On October 5, 2017 the Maryland Department of Agriculture honored 52 employees for their years of dedicated service to the department and to the state. Of the 52 employees honored – 14 had 30 or more years of service with the state. All together, these 52 employees represent 865 years of public service and more than 1.8 million hours worked and more than 22,000 paychecks.

The following is a listing of department employees by county who were recognized with long-service awards.

Allegany

- Mona Lee, Resource Conservation, 5 years, Cumberland

Anne Arundel

- Carol Reynolds, Food Quality Assurance, 40 years, Arnold
- Bonita Sims, Resource Conservation, 35 years, Pasadena
- Dianne Dorsey, Animal Health, 25 years, Annapolis
- Elvira Aisquith, Fiscal Services, 20 years, Millersville
- Jason Keppler, Resource Conservation, 20 years, Glen Burnie
- Luzviminda Ramallosa, State Chemist, 20 years, Annapolis

- Craig Nielsen, Attorney General, 40 years, Annapolis
- Susanne Wagner, Turf and Seed, 20 years, Annapolis
- Louise Woodruff, Nutrient Management, 10 years, Annapolis

Baltimore City

- Ricky Boldissar, Turf and Seed, 10 years, Baltimore

Baltimore County

- Alec Loranca, Food Quality Assurance, 5 years, Upperco
- Jared Wagner, Resource Conservation, 10 years, Sparks

Calvert

- Barbara Miller, Weights and Measures, 35 years, Lusby
- Judy McGowan, Nutrient Management, 15 years, Dunkirk
- Patricia Gitlin, Resource Conservation, 5 years, Owings

Caroline

- Charles Cawley, Fiscal Services, 5 years, Denton
- Kathleen Hall, Weights and Measures, 10 years, Federalsburg
- Alison Taylor, Resource Conservation 10 years, Federalsburg
- William Lyons, Food Quality Assurance, 5 years, Greensboro

Carroll

- Melissa Foster, Animal Health, 10 years, Hampstead
- Mitchell LeMuiex, Resource Conservation, 5 years, Westminster

Cecil

- Steven Connelly, Marketing, Animal Industries and Consumer Services, 5 years, Rising Sun

Charles

- Stephen Lehrter, Resource Conservation, 5 years, Waldorf

Dorchester

- Nancy Chapman, Animal Health, 10 years, Cambridge
- Catherine Scott, Resource Conservation, 5 years, Rhodesdale

Frederick

- Terry Coblenz, Resource Conservation, 30 years, Taneytown
- Susanna Whitfield, Animal Health, 5 years, Myersville

Howard

- Dennis Howard, Pesticide Regulation, 40 years, Elkridge
- Donald Mason, Weights and Measures, 35 years, Columbia
- Tom Phillips, State Chemist 15 years, Columbia
- Virginia Pierce-Allnutt, Animal Health, 15 years, Glenwood

Montgomery

- Paul Meyer, Resource Conservation, 30 years, Clarksburg
- Kevin Lee, State Chemist, 5 years, North Potomac

Prince George's

- Robert Trumbule, Plant Protection and Weed Management, 30 years, Greenbelt

Queen Anne's

- Susan Shepard, Animal Health, 35 years, Centreville
- Kimberly Hoxter, Maryland Agricultural Land Preservation Foundation, 10 years, Centreville

Somerset

- Kevin Keenan, Resource Conservation, 30 years, Westover

St. Mary's

- Jerel Spence, Resource Conservation, 10 years, Bushwood
- Molly Gillingham, Food Quality Assurance, 5 years, Lexington Park

Talbot

- Stephen Spielman, Resource Conservation, 30 years, Easton
- Howard Callahan, Sr., Nutrient Management, 25 years, Cordova

Washington

- John Hartman, Weights and Measures, 5 years, Clear Spring

Wicomico

- Karen Hoy, Resource Conservation, 5 years, Quantico

Other

- Cheryl Cook, Food Quality Assurance, 15 years, Smyrna, Delaware
- Lynn Alexander-Kuhn, Forest Pest Management, 30 years, Airville, Pennsylvania
- Ben Cooper, Resource Conservation, 30 years, Wellersburg, Pennsylvania
- Bryan Harris, Nutrient Management, 15 years, Glenville, Pennsylvania
- Luke Mudd, Resource Conservation, 5 years, Oak Grove, Virginia
- Byron Petrauskas, Resource Conservation, 5 years, Woodbridge, Virginia



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