



2020



Maryland Department of Agriculture | 2020 Annual Report



Governor Larry Hogan



Lt. Governor Boyd K. Rutherford



Secretary Joseph Bartenfelder



Deputy Secretary Jullianne A. Oberg

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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GREETINGS,

On behalf of Governor Larry Hogan and Lt. Governor Boyd Rutherford, it is my pleasure to present the Maryland Department of Agriculture's Annual Report for FY 2020.

As we reflect on this past year, it is hard not to focus solely on the unprecedented challenges brought on by the COVID-19 pandemic in the closing months of FY20. Supporting our agricultural community through these trying times continues to be a top priority for our department, but that has not stopped us from working toward our mission to promote, safeguard, and regulate Maryland's top industry.

We continue to see Maryland farmers leading the nation on conservation practices like cover crops and no-till farming. Our marketing programs have worked to open up new markets and opportunities for Maryland farm and seafood products. Our regulatory programs, including Food Quality Assurance, Weights and Measures, State Chemist, and many others continue to ensure the safety of Maryland agricultural products and fairness for the consumer.

During FY20, MDA was tasked with developing a "Strategic Plan for Maryland Agriculture" that would serve as a roadmap for the industry as we look toward the future. This report was based entirely on input gathered directly from industry leaders, key stakeholder groups, and members of the agricultural community. Our department wanted to ensure that the final product accurately reflected the priorities of all those involved in Maryland agriculture. The end result is a document that takes stock of where the industry is today, and identifies a number of priority areas to focus on moving forward. MDA is continuing this effort by convening a workgroup composed of industry leaders to keep track of progress and identify opportunities for collaboration.

I understand that the ongoing COVID-19 pandemic makes it difficult to look toward the future, but I have found a great deal of hope in the resilience and ingenuity of our farmers and producers during this crisis. Our food supply chain has remained stable due largely to the dedication of the men and women who have worked throughout the pandemic to put food on our tables. Farmers are no stranger to the concept of weathering a storm, and our department remains committed to providing the support needed for everyone to get through this together.

Sincerely,

Joe Bartenfelder
Maryland Secretary of Agriculture



2020 Annual Report | Office of the Secretary

MARYLAND AGRICULTURAL LAND PRESERVATION FOUNDATION (MALPF)

The Maryland Agricultural Land Preservation Foundation (MALPF) is one of the oldest and most successful farmland preservation programs in the country. MALPF was created in 1977 by the Maryland General Assembly. MALPF’s primary purpose is to preserve productive agricultural land and woodland to provide for the continuing production of food and fiber for the citizens of Maryland.

MALPF purchases agricultural preservation easements that forever restrict development on prime farmland and woodland and has permanently preserved land in each of Maryland’s 23 counties. In FY20 alone, MALPF settled 65 easements and preserved 8,335 acres of farmland. Since its inception through the end of FY20, MALPF has purchased easements on a cumulative total of 2,413 properties and permanently preserved 326,650 acres of farmland at a public investment of over \$784 million.

MALPF and its other state and local government partners work together to meet a legislative goal of preserving 1,030,000 acres of agricultural land by 2022. As reported by the Maryland Department of Planning (Planning) at the end of FY20, there

were 688,118 acres of total private land under easement by MALPF, GreenPrint, Maryland’s Rural Legacy Program, and other local preservation programs. This represents almost 687% of the original legislative goal.

Over the past year, MALPF has not only been able to continue the steady rate of new easement acquisitions, but was also able to protect more acres in a single year since before the Great Recession. The increase in easement acquisitions settled in FY20 is a direct result of returning to the fully-funded single-year easement application cycle that began in FY19.

Goals and Objectives	2020 Actual
Output: Total Number of Easements, Cumulative	2,413
Outcome: Total Acres Under Easements	326,650

OFFICE OF THE ATTORNEY GENERAL

In FY20, the Office of the Attorney General (OAG) at MDA continued to advise and provide counsel to the Secretary of Agriculture and other department officials in implementing the department’s regulatory and promotional programs that directly impact Maryland’s agriculture industry.

In one of their many roles, the OAG assists the department in developing and revising many of its regulatory programs. In FY20, the OAG assisted MDA’s Office of Plant Industries and

Pest Management (PIPM) in taking the following actions: (1) addressing the use of insecticides containing chlorpyrifos in the state; and (2) establishing the Maryland Hemp Farming Program. The OAG also helped PIPM secure U.S. Department of Agriculture (USDA) approval for the Maryland Hemp Farming Program. Similarly, the OAG assisted MDA’s Manure Transport Program in completely revamping its regulatory program, including the addition of the Fast Track grants process and

the Poultry Manure Rail Export Process. This work is helping MDA in its efforts to phase-in the Phosphorus Management Tool. Lastly, the OAG assisted MDA's Animal Health Program in taking further steps to address the use of medically-important antimicrobial drugs in animals.

The OAG also provides counsel and advice to the many boards housed within the department, including the State Board of Veterinary Medical Examiners (SBVME). The SBVME is charged with governing the practice of veterinary medicine in Maryland. In its role as Board Prosecutor, the OAG prosecuted numerous disciplinary actions against licensed veterinarians and owners of licensed veterinary facilities charged with violating the Veterinary Practice Act. Additionally, the OAG advised the SBVME on a myriad of legal issues, including questions pertaining to the Open Meetings and Public Information Acts. At MDA's request, the OAG drafted legislation authorizing the SBVME to issue cease and desist orders against: (1) persons who practice or who attempt to practice veterinary medicine in Maryland without a license; and (2) licensed veterinarians who take an action that poses a serious risk to the health, safety, and welfare of an animal patient.

For the Maryland Agricultural Land Preservation Foundation (MALPF), the OAG helps the program carry out its statutory

mission to preserve agricultural land and woodland in Maryland. In FY20, the OAG assisted MALPF by: (1) advising MALPF's Board of Trustees on a wide range of issues affecting the program, including actions taken to enforce the terms of a MALPF easement; (2) representing MALPF in a matter before the Court of Special Appeals; (3) helping MALPF resolve threatened litigation; and (4) aiding MALPF staff in responding to Public Information Act requests.

The OAG also provided counsel and advice to the State Soil Conservation Committee (SSCC) and many of the 24 soil conservation districts in the state. This work included: (1) issuing letters of advice to the SSCC's Executive Secretary, including one addressing the use of biblical quotes in government publications; and (2) making a presentation before the SSCC on the Open Meetings Act and one before the Maryland Association of Soil Conservation Districts on whether state soil conservation district supervisors and employees are immune from suit and liability under Maryland law. The OAG additionally supported the SSCC by: (1) assisting a district supervisor who was deposed as a third party witness; and (2) helping the state's soil conservation districts respond to a multitude of Public Information Act requests.

GOVERNMENT RELATIONS

Every year during the legislative session, the government relations team at the Maryland Department of Agriculture (MDA) tracks bills that may impact the department, agriculture, rural communities, and its constituents.

Our goal is to ensure legislators and their staff know the department is a readily available resource for anything related to Maryland agriculture, whether it be constituent issues, drafting legislative proposals, etc.

2020 LEGISLATIVE SESSION

During the 2020 legislative session, MDA's government relations staff conducted several meetings with legislators and attended numerous bill hearings, sub-committee workgroups, and full committee voting sessions. Sec. Bartenfelder and MDA staff also presented agricultural briefings to the House Environment and Transportation Committee on the status of Maryland's agricultural community. The department played an important role in educating legislators on a number of bills that would impact the agriculture industry and the department's operational and fiscal functions.

MDA put forward four departmental bills during the 2020 legislative session that were adopted by the General Assembly and signed by Gov. Hogan:

- **HB 161 – Nutrient Management – Nonagricultural Fertilizer Application – Requirements and Penalties.** This departmental bill codifies the requirement that each place of business that employs a person to apply fertilizer to property, including state property, that is not used for agricultural purposes (1) have a professional fertilizer on staff who has obtained a fertilizer application certification, in accordance with current law requirements, and (2) be licensed annually by MDA. A license applicant must submit an application to MDA and pay an application fee, as specified. The bill also expands the application of existing civil penalty provisions to apply to a person who employs someone that violates related professional fertilizer applicator provisions.
- **SB 9 – Agriculture - Maryland Egg Law - Revisions.** SB 9 modifies the Maryland Egg Law by (1) expanding the definition of "shell eggs" to apply to poultry eggs

in general and not just domesticated chicken eggs; (2) expanding the Secretary of Agriculture's enforcement authority; (3) establishing a definition of adulterated shell eggs; (4) establishing additional registration requirements for packers and distributors of shell eggs; and (5) requiring retailers and food service facilities to retain shell egg invoice delivery tickets for 90 days.

- **SB 92 - Secretary of Agriculture - Weed Control Law.** This departmental bill modifies specified provisions governing an agreement between the Secretary of Agriculture and a county for cooperative efforts to control or eradicate a noxious weed or other plant species within the county. The provisions are modified so that they apply to an agreement between the Secretary and a county or subdivision of the state. In addition, "subdivision of the state" is defined to include a soil conservation district.
- **SB 118 - Land Use - Alcohol Production and Agricultural Alcohol Production.** SB 118 establishes statutory definitions for "alcohol production" and "agricultural alcohol production" in the Land Use Article. Either or both definitions may be, but are not required to be, adopted by a local jurisdiction by local ordinance, resolution, law, or rule.

The department also monitored a number of bills considered by the General Assembly in 2020. For a full list of those bills

and any comments from the department, please visit: mda.maryland.gov/about_mda/Pages/2020-Legislation.aspx.

Gov. Hogan's FY21 budget also provided continued support to the agriculture industry and rural Maryland by:

- Providing funding and 53 new full-time positions to accelerate implementation of agricultural best management practices that reduce nutrient run-off into the Chesapeake Bay. This significant investment of resources will help the agricultural sector meet Phase III Watershed Implementation Plan (WIP) goals.
- Allocating additional funding and positions to support agricultural conservation practices to help Maryland farmers implement the Phosphorus Management Tool (PMT) and meet Phase III WIP goals.
- Maintaining funding for the Rural Maryland Prosperity Investment Fund and the Maryland Agricultural and Resource-Based Industry Development Corporation (MARBIDCO), which includes the Next Generation Farmland Acquisition Program.
- Allocating record funding in the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund for agricultural conservation practices and technical assistance. The investment also includes an increased target for manure transport to help Maryland farmers implement the PMT.

COMMUNICATIONS AND PUBLIC INFORMATION

The Communications and Public Information Office serves as MDA's liaison to the media, government agencies, elected officials, agriculture and environmental stakeholders, department employees, and the general public. Its goal is to disseminate public information in a way that reaches a variety of audiences while promoting engagement with department initiatives.

MEDIA MONITORING

The Communications Office regularly distributes news releases to traditional media outlets about MDA 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 department and its constituencies. During FY20, staff distributed 182 news releases to more than 500 media contacts and interested parties, which generated 188 logged inquiries from the media.

NEWS STORIES

The Communications Office handled a variety of inquiries throughout FY20. Highlights included the following.

- In the closing months of FY20, news coverage was focused heavily on the impact of COVID-19 on the agriculture and seafood industries.
- In May 2020, the discovery of Asian giant hornets, referred to by media as "Murder Hornets," generated a flurry of inquiries from local TV news outlets.
- In December 2019, the Phosphorus Management Tool (PMT) Advisory Committee considered the need for a one-year delay in implementation of the PMT, ultimately recommending to move forward as scheduled. Sec. Baretfelder concurred with that decision. This process drew interest from media ranging from agricultural and environmental press to local television news outlets.

- In the early months of 2020, uncertainty around the federal H-2B visa program and its impact on the state's seafood industry drew national media attention. The Public Information Office worked with the department's seafood marketing program on the roll out of an economic impact study and helped organize a press event on Hoopers Island.
- In January 2020, the department announced plans to adopt regulations that would phase out the regular use of chlorpyrifos insecticide products. These regulations garnered interest from state and national media as well as environmental and agricultural outlets.

DIGITAL ENGAGEMENT

The Communications Office continues to prioritize use of social media and other digital platforms to enhance MDA's reach and foster engagement with its messaging and outreach. The office uses a strategic approach across different platforms to reach a variety of audiences while maintaining a comprehensive voice for the department.

The overriding goal of the office's digital engagement strategy is to ensure that the public sees MDA as the authoritative, honest, and credible source for information about the agricultural activities, services, regulations, and issues under the department's purview.

Website. The department's website, mda.maryland.gov, functions as our primary source for all information regarding MDA and its programs. In addition to program information, all press releases and public messaging are posted on the website's newsroom.

There were 375,802 sessions on MDA's website with 717,265 pageviews during FY20. This represents a slight increase over FY19 metrics, marking another year of consistent sustainable audience growth.

Note: The Maryland's Best website was not included in the MDA website metrics reporting. Maryland'sBest.Net is a marketing website, designed to connect consumers with producers rather than to promote department information. It is hosted by a private vendor and populated by the department's Marketing Program.

Social Media. The rise of social media has revolutionized the way information is shared between government agencies, the media, and the public. The department uses social media to expand the reach of its messaging and engage directly with its constituents and stakeholders. These platforms are a cost-effective way to promote department initiatives, respond to

breaking news, and foster a good relationship with those the department serves.

The department's social media activities allow MDA to:

- Maintain a constant and consistent presence in online communities and discussions;
- Provide credible information directly to the public, without relying solely on the media;
- Monitor trends and issues in public discourse, to correct rumors, and provide alternative viewpoints on emerging controversies;
- Improve the image and increase citizen understanding of agriculture;
- Regularly and routinely, both seriously and informally, engage with citizens on a variety of issues; AND
- Promote MDA's website as the authoritative source of information for Maryland agriculture.

The department continued to emphasize its social media presence during FY20 with growing followings on Twitter and Facebook. These social media platforms provide the department direct access to Maryland's agriculture stakeholders and citizens.

- MDA's official Facebook page ended FY20 with 17,849 followers, a 42% increase from the previous fiscal year. MDA's official Twitter feed ended the year with more than 15,000 followers, a 7% increase over FY19.

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

Twitter.

- [@MdAgDept](#) – Main Maryland Department of Agriculture account
- [@MdsBest](#) – The department's marketing office account
- [@MdsBestSeafood](#) – Seafood marketing program's 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.

- [Maryland Department of Agriculture](#)
- [Maryland Horse Industry Board](#)
- [Maryland Farm to School](#)
- [Maryland's Best](#)
- [Maryland's Best Seafood](#)

Instagram.

- [Maryland Department of Agriculture](#)
- [Maryland's Best](#)
- [Maryland Horse Industry Board](#)

YouTube.

- [Maryland Department of Agriculture](#)
- [Maryland's Best](#)
- [Maryland Horse Industry Board](#)

FLICKR.

- [Maryland Department of Agriculture](#)

SPECIAL PROJECTS

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.

During the state's COVID-19 pandemic response, MDA's Public Information Officer Megan Guilfoyle was assigned to MEMA's Joint Information Command to assist with media and social media monitoring and to help manage rumor control.

COVID-19 Pandemic Response. The Communications and Public Information Office has been an integral part of MDA's response to the COVID-19 pandemic. Food production is an essential industry and has remained operational throughout

the state of emergency. MDA has acted as a liaison between the state and industry representatives while working closely with health officials to develop guidance documents for different sectors of the industry. The program has also acted as the department's lead for internal communications with MDA employees.

Strategic Plan for Maryland Agriculture. The department produced the Strategic Plan for Maryland Agriculture, based on direct input from industry leaders and members of the agricultural community. The Communications and Public Information Office led the writing team for this report and was heavily involved throughout the data collection process.

Assisting with Marketing Promotions. The Communications Office works closely with the department's marketing programs on a number of annual projects and events intended to promote Maryland products. In FY20, which began in July 2019, the Communications Office assisted MDA's Marketing Program with the 2019 Governor's Buy Local Cookout, the Homegrown School Lunch Week 2019 kick-off event at Denton Elementary School, and Maryland's Best Ice Cream Trail 2019 events throughout the summer.

Maryland Farm and Harvest. The department continues to serve as a co-producer of the Maryland Public Television (MPT) series Maryland Farm and Harvest, which debuted in November 2013. The Communications Office serves as a liaison to MPT and plays a role in story development. The series enjoyed continued success during its seventh season, which began November 2019. It is MPT's highest-rated, locally-produced show with more than 6 million viewers. The series and its host, Joanne Clendining, have won several Emmy awards for their work.

Outreach Events. The Communications Office 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.

Memberships. MDA's Communications Office is actively involved in the membership of the Communications Officers of State Departments of Agriculture (COSDA), a group of communications professionals from other state departments of agriculture.

ADMINISTRATIVE SERVICES

The Office of Administrative Services manages all technical and support services for the Maryland Department of Agriculture. It is comprised of four sections – Fiscal Services, Human Resources, Emergency Management, and Central Services.

Fiscal Services handles all centralized accounting transactions for the department. This encompasses all phases of the operating and capital budgets, federal grant financial reporting and billing, accounts receivable, accounts payable, travel reimbursement, corporate credit card monitoring and auditing, and employee and contractual payroll.

The Human Resources Office facilitates recruitment and compensation. MDA has 352 permanent employees and a varying number of contractual employees over the course of the year.

Emergency Management for MDA prepares for and responds to

any hazard or emergency affecting the agricultural community in Maryland. The department continues to evaluate and revise threat-specific management plans in cooperation with the Maryland Emergency Management Agency (MEMA). Additionally, the department continues to provide annual training and drills for first responders to ensure staff are adequately prepared to respond to emergency events.

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 250 vehicles in addition to semi-annual inspections on all vehicles. The departmental fleet traveled more than 1.8 million miles last year.

MARYLAND AGRICULTURAL COMMISSION

The Maryland Agricultural Commission is an advisory group to the Maryland Secretary of Agriculture. Its 26 members represent the state's major commodity groups as well as representatives from the University of Maryland, consumer interests, and other agricultural business sectors.

The commission meets every month, besides July and August to discuss issues and topics concerning Maryland's agriculture industry. This year, commission meetings included presentations from the following people:

- **Kay-Megan Washington**, Maryland Agricultural Conflict Resolution Service (ACReS), Program Administrator
- **Matt Helminiak**, Maryland Department of Labor, Commissioner of Labor and Industry
- **Terron Hillsman**, USDA Natural Resources Conservation Service (NRCS), State Conservationist
- **Jim Eichhorst**, USDA Farm Service Agency, Maryland State Executive Director
- **Chip MacLeod**, Clean Chesapeake Coalition, General Counsel

Presentation topics included: an update on the ACReS program, the effect of the Minimum Wage Bill on Agriculture, the impact of the USDA Farm Bill, and a review of Maryland's strategic plan. During every meeting, members also provided commodity reports for each sector.

In addition to monthly meetings, the commission typically conducts two farm tours every year, one in the fall and another in the spring. In fall 2019, the commission visited agricultural operations in Howard and Montgomery counties. Unfortunately, due to the COVID-19 pandemic, the spring farm tour was cancelled.

Commission meetings along with farm tours keep the group proactive and up-to-date with agricultural issues and ensures the fulfillment of the commission's statutory mission.

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 eight members represent young farmers from across the state. The board also includes representatives from the Maryland Farm Bureau, Maryland Department of Natural Resources (DNR) Forestry Program, Maryland Department of Commerce, and MDA.

The advisory board meets quarterly and discusses current agriculture issues relating to Maryland young farmers. This year the board joined the Maryland Agricultural Commission for their fall farm tour of Howard and Montgomery counties.

During the January meeting the board heard from USDA's NRCS State Conservationist Terron Hillsman. Due to the COVID-19 pandemic, the April meeting was cancelled. The board met virtually on July 15 via teleconference and Zoom. During the meeting, board members gave updates about their specific commodity or area of agricultural expertise.

Meeting presentations along with reports from each member and agency representative, keep the board up-to-date with challenges and opportunities facing young farmers and ensures the fulfillment of the board's mission.

GOVERNOR'S INTERGOVERNMENTAL COMMISSION FOR AGRICULTURE (GICA)

The Governor's Intergovernmental Commission for Agriculture (GICA) was established by Executive Order under Governor Bob Ehrlich 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 first meeting of calendar year 2020 took place on June 2. A number of things were discussed at the meeting, including: a presentation by the Maryland Emergency Management Agency (MEMA) on COVID-19 and the coordinated response across state government; a presentation by Planning on the 2020 Census; and a discussion on the Strategic Plan for Maryland Agriculture and the GICA Toolkit for Local Communities.

MEETING HIGHLIGHTS:

- In response to COVID-19 outbreaks at Maryland poultry processing plants, MEMA assembled the Delmarva Poultry Task Force using the Maryland Incident Management Team (IMT) and MEMA State Emergency Operations Center (SEOC) staff. This task force provided incident management support functions along with the Maryland Department of Health (MDH) and other state and federal agencies. Key areas of the response included:
 - Testing poultry workers, both at facilities and throughout community-based locations;
 - Contact tracing;
 - Occupational health and safety walkthroughs and recommendations at poultry plants;
 - Producing communications materials that were translated into multiple languages;
 - Securing and distributing face coverings for workers;
 - Creating and distributing take-home care kits; and
 - Expanding the Maryland Department of Aging's Caregiver Service Corps to include the Eastern Shore.
- Planning talked about the importance of the 2020 Census. Census data is important for apportionment and redistricting; funding for critical, life-saving programs; and for emergency planning, among many other reasons.
- During the 2019 General Assembly, MDA was asked to work with the Harry H. Hughes Center for Agro-Ecology to develop a statewide Strategic Plan for Maryland Agriculture. The plan analyzes the external forces and trends impacting the industry; identifies strengths and challenges facing our farmers; and pin-points initiative areas to secure a bright future for Maryland's agriculture industry. The Harry H. Hughes Center for Agro-Ecology brought together a group of agricultural stakeholders, including MDA, in early January 2020 to discuss work already being done to address the priority areas identified in the plan; learn more about what others are doing; identify areas of potential collaboration; and

discuss short-term and long-term action items. This group will continue to work together to determine next steps.

- The GICA Toolkit for Local Communities was first created in 2011. This toolkit aims to provide local communities and officials with a basic understanding of the current state of Maryland agriculture. It suggests tools, methods, and resources that will help farmers, their neighbors,

and local officials better work together. Commission members were asked to review the toolkit and provide feedback.

The department anticipates another GICA meeting will be held in late fall or early winter 2020. The topic of that meeting will be to continue the conversation on the need to update the GICA toolkit and review recommended changes from commission members and interested stakeholders.

USDA-NATIONAL AGRICULTURAL STATISTICS SERVICE (NASS)

The Maryland field office of the USDA's National Agricultural Statistics Service (NASS), which is located in MDA's headquarters 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, determine the feasibility of new ventures affecting Maryland farmers, and 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 affect every facet of Maryland's agricultural community. NASS publishes a comprehensive national census for agriculture every five years. This census provides the only source of uniform, comprehensive agricultural data for every state and county in the nation. In the previous fiscal year, the 2017 Census of Agriculture was published and provided valuable insights into the

demographics, economics, land-use, agricultural production, and activities of Maryland farms.

NASS found that agriculture generated more than \$2.18 billion in cash receipts for Maryland farmers, not accounting for the additional impact provided by related jobs and services. The Maryland field office of NASS estimated there were approximately 12,400 farms in 2019 with an average size of 161 acres. Total land in farms in Maryland was around two million acres. The main agricultural commodities in Maryland, in ranking order for total sales, were: poultry and eggs; grains, oilseeds, dry beans, and dry peas; nursery, greenhouse, floriculture, and sod; milk from cows; cattle and calves; and vegetables, melons, potatoes, and sweet potatoes. For more Maryland agricultural data, visit the [USDA NASS website](#).

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



2020 Annual Report | Office of Marketing, Animal Industries, and Consumer Services

AGRICULTURE MARKETING AND DEVELOPMENT

The goal of the Maryland Department of Agriculture's (MDA) Marketing Program is to develop markets for Maryland agricultural products and to connect farmers, watermen, and food producers to those markets. Through this economic development and promotion activity, the department helps create a profitable and viable future for Maryland's number one industry, agriculture.

MARYLAND'S BEST AGRICULTURE

Maryland's Best is the agricultural marketing program at MDA. From in-store promotions of Maryland-grown apples and watermelons, to advertising, to media events, and press releases, the department's marketing projects continued to build demand and connect farmers with markets during FY20. An analysis of Maryland's Best, showed the program's efforts increased farm sales by \$7.6 million over five years, and for every \$1 the program spent in advertising and promotions \$15 was returned to the Maryland farmer and state economy. Primarily funded by the U.S. Department of Agriculture (USDA) Specialty Crop Block Grant Program (SCBGP), Maryland's Best encourages consumers to buy Maryland-grown fruits, vegetables, flowers, nursery products, wine, and Christmas trees. Due to restrictions on federal funds, state funds were used to promote dairy, meat, poultry, and agritourism.

Maryland's Best has been focused on reaching the entire supply chain. Beginning with Maryland farmers, the program works to provide market intelligence on growing products that are in demand. From grocery store produce buyers to regional chefs, Maryland's Best's business-to-business marketing goals are achieved through connecting producers and buyers with farm tours, strategic events, and advertising in key industry publications.

The Maryland's Best Food and Beverage Expo, formerly known as the Buyer-Grower Expo, was held in January 2019.

This tradeshow is the premiere event in the state to connect Maryland farmers and processors with wholesale buyers. The 2019 expo had over 65 exhibitors and nearly 300 buyers from grocery stores, restaurants, distributors, schools, and other venues. In addition, Maryland's Best partnered with growers to host the second annual cut flower expo, Growing the Movement, which aims to connect Maryland cut flower growers with regional florists.

In FY20, more than 3 million consumers received promotional messages from the department through radio, print, and online advertising. Press releases promoting Maryland agricultural products were distributed to more than 400 media outlets. For consumers, the Maryland's Best website continues to serve as the primary source of information about what's in season and where to find local farm stands, farmers markets, and Maryland farms. The website includes farm contact information, directions, and video interviews with about 1,000 farmers, wineries, and small food processors.

At the very beginning of FY19, Gov. Hogan supported Maryland's Best buy local promotion by kicking off the 2019 Maryland Buy Local Week at the 12th annual Governor's Buy Local Cookout held at Government House on July 18, 2019. During the event, the Governor encouraged Marylanders to incorporate one thing Maryland-grown, harvested, or produced into their meals each day during Maryland Buy Local Week, July 20-28, as part of the Maryland Buy Local Challenge. The event was well attended by farmers, watermen, legislators, chefs, culinary students, food and beverage buyers, and the media.

Additionally, the 2019 Maryland's Best Ice Cream Trail promoted the state dairy sector and encouraged buyers to visit nine dairy farms around Maryland that sell fresh, from-the-farm ice cream directly to consumers. Over 70 participants completed the ice cream trail in FY19 and submitted their

passports for a chance to be named the 2019 Maryland's Best Ice Cream Trailblazer.

MARYLAND'S BEST SEAFOOD

The department's Maryland's Best Seafood Program works to increase market share and consumer demand for Maryland seafood products. Efforts to achieve these goals utilize a marketing mix of advertising and consumer and industry promotions.

In FY20, Maryland's Best Seafood executed an aggressive advertising and promotional plan that aimed to increase sales for Maryland crabs, crab meat, oysters, rockfish, blue catfish, and lesser species. Promotional event marketing efforts focused on the entire seafood supply chain, from wholesale buyers to end consumers and featured in-season Maryland seafood recipes and food samplings by Maryland's Best Chef Ambassador. The program also sponsored and promoted Maryland seafood at consumer and industry events including the Maryland Best Food and Beverage Expo, Maryland Seafood Festival, WTMD's First Thursday Concert Series, Mermaid's Kiss, Tides and Tunes, and many more. In total, the seafood marketing program reached over 100,000 consumers and industry buyers with samplings and product information at over 50 promotional events in 2019.

The seafood advertising campaign for 2019 targeted Maryland consumers and wholesale buyers and featured a mix of radio, television, billboards, newspaper, social media and online outlets. Advertising artwork utilized Maryland's Best branding and highlighted in-season seafood products and where to buy them. In total, Maryland's Best Seafood messages reached over 10 million consumers through advertising in 2019.

True Blue Program. A key part of the state's seafood marketing efforts is the True Blue program. This program aims to promote the state's iconic blue crab industry by certifying restaurants and establishments that source at least 75% of its crabmeat from Maryland. During 2019, MDA seafood marketing staff worked on confirming compliance with regulations to be part of the True Blue program. These efforts helped to increase the number of participants in the program, totalling over 70 certified True Blue restaurants and retailers at the end of the year. The department also distributed materials, including window clings, aprons, and hats, with True Blue branding.

Blue Catfish. Maryland's Best Seafood ran a high priority campaign to increase the consumption of and demand for the invasive Chesapeake Bay blue catfish. The blue catfish is a non-native species proliferated throughout the Chesapeake

Bay and has had a negative impact on its ecosystem, outcompeting native species and feeding on blue crabs, rockfish, and more. The campaign included press releases, advertising, and sampling events in Baltimore, Annapolis, and Washington D.C.

One way to lessen the impact of the blue catfish is to increase market share and sales of the fish, which ultimately helps to control its population. In 2019, MDA, the Maryland Department of General Services (DGS), and the Maryland Department of Natural Resources (DNR) continued their partnership together on the Blue Catfish Purchasing Initiative. This initiative creates sales of Maryland-harvested blue catfish to state institutions providing food services. State institutions, including correctional facilities, higher education institutions, hospitals, public schools, etc., can purchase cases of blue catfish for their food service needs directly from Maryland Correctional Enterprises — a program within the Maryland Department of Public Safety and Correctional Services. Through this initiative, state prisons now include blue catfish regularly on their menus. The Maryland Department of Corrections also reports that Hagerstown and Cumberland prisons are currently using 1,120 pounds of blue catfish a month. Facilities in Jessup are using 1,157 pounds per month and Eastern Correctional Institute in Westover uses 778 pounds a month.

MARYLAND FARM TO SCHOOL PROGRAM

The Healthy, Hunger-Free Kids Act of 2010. This act formally established a Farm to School Program within the USDA to improve access to local foods in schools. In 2013, the USDA conducted the first nationwide Farm to School Census, in order to establish realistic goals with regard to increasing the availability of local foods in schools. In 2015, the USDA conducted a second Farm to School Census to measure progress towards reaching this goal.

The Homegrown School Lunch Week, an element of the Jane Lawton Farm to School Program, was signed into law in 2008. According to the latest USDA Farm to School Census, Maryland spends \$18 million dollars annually on local products in school meals. Maryland ranks ninth in the nation with the average school district spending 23% of their food budget on local products.

Maryland Homegrown School Lunch Week 2019. Gov. Hogan designated Sept. 30–Oct. 4, 2019, as Maryland Homegrown School Lunch Week. In its twelfth year, this annual event is a time when Maryland schools promote and serve Maryland-grown, harvested, and produced ingredients to

students in school lunches. This event is an effort to teach kids about where their food comes from and all the local products Maryland producers have to offer. Below are highlights from two participating county public school systems:

- Baltimore City Public Schools' Farm to School Summit at Great Kids Farm on Oct. 4, 2019, brought together over 120 middle school students from 12 Baltimore City Public Schools for an exciting day of hands-on learning with activities related to agriculture education.
- St. Mary's County Public Schools held a Farm to School Day at Benjamin Banneker Elementary School on Oct. 4, 2019, in cooperation with the University of Maryland Extension. Students rotated through three stations, which included lessons on animal agriculture, oyster aquaculture, nutrition, and planting/farming throughout the day. These stations provided hands-on activities for an interactive learning experience.

Maryland Homegrown School Lunch Week 2019 Kick-Off Event. The Maryland Homegrown School Lunch Week kick-off event was held on Sept. 26, 2019, at Denton Elementary School in Caroline County. At the start of the event, Denton Elementary School students attended an assembly and heard from agriculture and education officials about the connection between farms, food, and nutrition. Speakers included: Denton Elementary School Principal Susan McCandless, Caroline County Public Schools Assistant Superintendent of Administrative Services Mr. Milton Nagel, Maryland State Department of Education State Superintendent Dr. Karen Salmon, and Maryland Agriculture Secretary Joe Bartenfelder.

Following the speaking program, officials joined students for lunch featuring local agricultural products. During lunch, students also had the opportunity to sample locally-grown and produced items during a "Taste Test." Other activities at the "Taste Test" included a display from the Maryland Food Bank, tower gardens from Farming 4 Hunger, and a pumpkin seed activity from the University of Maryland Extension's Food Supplement Nutrition Education (FSNE) program.

After lunch, agriculture and education leaders read ag-related children's books to students. In addition to all of the day's activities, the Maryland Agricultural Education Foundation's (MAEF's) "Food, Fiber, and You" mobile science lab was on-site all week, teaching students where their food and fiber comes from.

School Collateral Materials. Maryland Farm to School launched a Harvest of the Month campaign in fall 2019 to serve as a model for schools to feature and promote one or more in-season, Maryland-grown or produced item(s) each

month. Maryland-grown apples were featured at the kick-off event in September 2019 and students were able to taste apples grown right in their own county. Funding for the project was made possible through the USDA Farm to School and USDA Specialty Crop Block grants. Posters and clings are available for download [online](#).

PROJECT GREEN CLASSROOMS

The department is on the Leadership Team and Steering Committee for Gov. Hogan's Project Green Classrooms. Project Green Classrooms is an environmental education initiative committed to providing every Maryland child the opportunity to learn about their local environment, develop a connection with nature, and have a better sense of place in their natural surroundings. The initiative promotes outdoor experiential activities and environmental education through Maryland's schools, communities, and public lands. The initiative serves as an advisory body, working collectively across multiple disciplines and the public and private sector to identify gaps and barriers and to make recommendations to decision-makers regarding solutions that will bring about change in the areas of environmental literacy, nearby nature, and career pathways for youth.

LINKING ENVIRONMENTAL AND ACADEMIC PROGRAMS

MDA signed a Memorandum of Understanding (MOU) between the U.S. Environmental Protection Agency (EPA), the University of Maryland Eastern Shore (UMES), the Maryland Coastal Bays Program (MCBP), the Maryland Department of the Environment (MDE), and DNR. The MOU is focused on increasing cooperation to advance and promote environmental and agriculture program activities, promote equal opportunity in higher education, contribute to the capacity of UMES to provide high-quality education, and encourage the participation of UMES in the nation's environmental programs.

USDA SPECIALTY CROP BLOCK GRANT PROGRAM (SCBGP)

The department's Marketing Program administers the USDA SCBGP funds. During FY20, MDA awarded over \$504,000 to eight projects that enhanced the competitiveness of specialty crops in Maryland. The projects were selected after a competitive review process with MDA and an external review committee composed of representatives from the specialty crop industry, lending institutions, economic development, and producers. A full list of the 2019 recipients and project details is available on the department's [website](#).

GOVERNOR'S ADVISORY COMMISSION ON MARYLAND WINE AND GRAPE GROWING

The Governor's Advisory Commission on Maryland Wine and Grape Growing was authorized in 2005. The commission advises the Maryland Wine and Grape Promotion Council on the allocation of funds from the Maryland Wine and Grape Promotion Fund.

MARYLAND WINE AND GRAPE PROMOTION FUND

The Maryland Wine and Grape Promotion Fund, also authorized in 2005, provides grants to non-governmental organizations to encourage the production and consumption of Maryland wine and to promote the production of wine grapes in the state. MDA administers grants from the Maryland Wine and Grape Promotion Fund.

In FY20, this competitive grant program received 10 applications totaling \$395,690 in requested funding. After review by the Governor's Advisory Commission on Maryland Wine and Grape Growing, seven projects totaling \$168,190 were recommended to be approved by the Maryland Secretary of Agriculture. These projects are designed to:

- Develop a tourism smartphone app that will drive visitors directly to wineries and print a new edition of a wine tourism brochure;
- Support wine grape cultivar research, host annual tastings to understand the grapes' characteristics, develop publications, and update a website to host resources for vineyard managers and winery owners;
- Support a pathologist fellowship and the fellow's associated research;
- Improve the functionality of the Maryland Grape Growers website;
- Support the ongoing operations of the Maryland Wineries Association as it struggles to generate revenue during the COVID-19 pandemic;
- Create and implement the Vineyard Production Survey, which will update the production results of Maryland's commercial and backyard vineyards; AND
- Investigate the influence of topsoil thickness on wine quality in Maryland vineyards.

MARYLAND'S FARMERS MARKET PROGRAM

The goal of Maryland's Farmers Market Program, housed within MDA's Marketing Program, is to help farmers and

farmers market managers connect to the general public and consumers who want to purchase Maryland products. Through economic development and promotion activity, the department helps develop a sustainable future for Maryland's diversified agricultural products.

FARMERS' MARKET NUTRITION PROGRAM (FMNP)

The Farmers' Market Nutrition Program (FMNP) is a USDA-funded nutrition grant program that is administered by MDA in conjunction with the Maryland Department of Health (MDH) and the Maryland Department of Aging (MDoA). The USDA gives grants to state agencies to provide checks to low-income participants that are a part of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) or the Senior Farmers' Market Nutrition Program (SFMNP). Checks can be used to buy fresh fruits, vegetables, cut herbs, and honey (for seniors only) at Maryland farmers markets.

Participants in WIC and SFMNP also receive nutrition information and a participant brochure, which includes details on the program and a seasonality chart to help them shop for local, in-season produce.

MDA's FMNP runs every year from June 1 through November 30. In Maryland, 195 farmers participate in the FMNP annually. All of the 110 recognized markets in Maryland have authorized farmers present who participate in the FMNP. In 2019, 11,855 WIC recipients used their FMNP benefit with Maryland farmers, purchasing \$355,660 of fresh produce. Seniors used \$182,755 of this benefit with Maryland farmers.

MDA's FMNP also partnered with the University of Maryland Extension's FSNE program to promote local produce to WIC families. Through this initiative, 522 tastings were conducted at farmers markets and more than 60,000 Maryland consumers received educational material on healthy eating.

FARMERS MARKET DIRECTORY

More than 60,000 printed Maryland Farmers Market Directories were distributed to the public through tourism offices, libraries, farmers markets, senior centers, WIC clinics, welcome centers, and other facilities. This directory includes all the farmers markets in the state recognized by the department. Maryland has farmers markets in all 23 counties and Baltimore City. The online version of the directory is also available on MDA's [website](#) and Maryland's Best [website](#).

FARMS AND FAMILIES PROGRAM

MDA awarded the Maryland Farmers Market Association a

\$200,000 grant to implement the Maryland Farms and Families Act, a program that aims to double the purchasing power of residents using federal nutrition benefits at farmers markets throughout the state. These funds were used to provide matching dollars in 2019 to federal food program benefits spent by low-income Marylanders at farmers markets. In Maryland, about 250 farmers accept federal nutrition benefits. Matching benefits were applied to funds issued to FMNP participants, WIC recipients, and SNAP recipients.

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). MDA 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 FY20 included food trade shows in the United Arab Emirates and South Korea as well as three inbound trade missions from Canada.

Southern United States Trade Association (SUSTA)

Activities. MDA connected 17 agricultural and seafood companies with international markets through trade shows and inbound/outbound trade missions. Sales from those activities were worth over \$75.5 million and included four companies that had never made international sales before.

AGRICULTURE MEDIATION

The Maryland Agricultural Conflict Resolution Service (ACRES) is funded by the USDA. It 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 has grown 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, dust, etc.

SPAY AND NEUTER GRANTS PROGRAM

Created in 2014 by the Maryland 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. The program carries out its mission by financing competitive grants to local governments and qualifying animal welfare organizations for programs that will effectively facilitate and promote spay and neuter services for cats and dogs. Funding for this program comes solely from fees paid for by the pet food industry. As mandated by the Maryland 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 per product. In 2014, the fee increased to \$75 per product and in 2015 the fee capped at \$100 per product. As of June 30, 2020, the program has funded 154 projects, which have provided 65,216 spay and neuter procedures across the state. Since the program's inception the amount of reported stray intakes of animals has decreased by 17% and the number of dogs and cats euthanized in Maryland animal shelters decreased by 46%.

ANIMAL HEALTH AND DIAGNOSTIC LABS

ANIMAL HEALTH PROGRAM

MDA's Animal Health Program prevents and controls infectious and contagious diseases in Maryland livestock and poultry with particular emphasis on those diseases that threaten public health, endanger food supplies, or threaten the economic security of the animal industries. Staff members work closely with partners in the animal industries, including 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, Administration, Field Operations, and the Diagnostic Laboratory System. Administration has a staff of seven full-time employees and one part-time employee in MDA's Annapolis headquarters. Field Operations currently has five full-time staff and one part-time staff member. The Diagnostic Laboratory System in Frederick and Salisbury employs 15 full-time staff, one part-time staff, and two contractual relief veterinary pathologists. In FY20, due to COVID-19 absences, the USDA provided some relief veterinary pathologist services at both laboratories. They also provided field support for auction and

exhibition inspections as well as Animal Disease Traceability Program enforcement. This additional assistance from the USDA was critical to maintaining Maryland's animal health operations.

Impacts from the COVID-19 pandemic increased the workload for the Animal Health Program due to temporary closings and decreased services from surrounding states laboratories. MDA's entire Animal Health Program staff was deemed essential and staff dutifully conducted business as usual despite COVID-19 challenges. The field staff continued the mandate of protecting Maryland's food supply by conducting livestock auctions, premise inspections, and more. The caseload at both the Salisbury and Frederick Animal Health Diagnostic Laboratories increased due to surrounding laboratories decreased services. Program staff at MDA headquarters were able to transition to teleworking and continued their work from home.

In addition to routine or scheduled work, the Animal Health Program also responded to all animal emergencies under the State Emergency Operations Plan, Emergency Support Functions 6 and 16. Animal emergencies are categorized as animal health emergencies, such as a disease outbreak in livestock or poultry, or 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.

The department 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 consultations, training, investigative support, and diagnostic evaluations of affected animals. The Animal Health Program also has a Memorandum of Understanding with DNR to provide diagnostic testing and necropsies for wildlife, and works collaboratively on wildlife disease surveillance, prevention, and outbreak concerns.

REGULATORY AND FIELD 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 livestock and poultry moving in or out of Maryland must: be examined for signs of

contagious or infectious disease; have the required vaccines and disease testing; and be accompanied by a Certificate of Veterinary Inspection. In FY20, Animal Health Program staff processed certificates of movement for 59,457 livestock animals, including 12,950 horses and 442 million poultry. The numbers are slightly lower for livestock and significantly lower for poultry due to changes brought on by the COVID-19 pandemic.

Animal Exhibitions and Backyard Flocks. In FY20, Animal Health Program staff performed 30 inspections of exhibitions at shows. The COVID-19 pandemic caused the cancellation of fairs. There were a number of shows for youth that were held in lieu of the fairs. With the help of federal partners, exhibition officials, and trained volunteers, MDA's field inspection staff 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 virtually.

During FY20, Animal Health Program staff also continued outreach, inspection, and training in the backyard flock sector. This sector continues to increase in size and has a potential disease risk. The COVID-19 pandemic has caused a significant increased popularity of backyard flocks. The Animal Health Program began identifying, inspecting, and regulating small flocks selling poultry and hatching eggs to improve sanitation and disease traceability. In addition, the program worked to bring flocks into compliance with existing state regulations and interstate movement requirements.

MDA's Animal Health Program is the National Poultry Improvement Plan's (NPIP) Official State Agency (OSA). Our active participation provides biosecurity and hatchery sanitation standards as well as on-site monitoring and testing to meet programmatic disease certification programs, interstate movement, or export requirements for commercial and backyard poultry. These disease surveillance programs, including avian influenza, Salmonella species, and Mycoplasma species, safeguard the poultry industry from significant flock losses and protect food safety and public health.

The Animal Health Program certifies individuals in poultry sampling techniques for Salmonella Pullorum and avian influenza as part of the Poultry Testing Agent Program. This program allows our poultry testing agents to provide low-cost services to owners and producers who wish to exhibit or sell birds in Maryland or other states. Due to the COVID-19

pandemic, the Animal Health Program was not able to hold trainings and in-field certifications for independent or commercial Maryland Authorized Poultry Testing Agents in FY20. As the state recovers from the pandemic, trainings and in-field certifications will resume.

Maryland regulations require, regardless of residency, all sellers of poultry or hatching eggs in the state to obtain a Maryland Permit to Sell. Maryland implemented a process to ensure out-of-state sellers comply with Maryland agriculture laws. Although the NPIP Avian Influenza H5/H7 Clean Program remained voluntary for in-state sellers, most Maryland backyard NPIP participants elected to include the 180-day testing to maintain this status.

Due to the Pullorum Typhoid (PT) antigen shortage, the Animal Health Program has issued a Conditional Permit to Sell. Maryland residents are required to show proof of avian influenza testing and are waived from the PT requirement. Out-of-state sellers are required to show avian influenza negative test results and must show proof of flock of origin, by 9-3 or a micro-titer PT testing of the flock.

Livestock and Poultry Auctions and Dealers. During FY20, Animal Health Program staff inspected 136 livestock auctions held at four USDA/MDA Approved Livestock Tagging Stations in Maryland. During the inspections, animals are observed for signs of infectious or contagious disease, including foreign animal diseases, and for compliance with welfare, animal identification, and other market regulations. Disease surveillance is conducted for diseases of concern such as avian influenza or swine influenza. In FY20, there was one incident of avian influenza type A that was detected in one of the poultry at an auction market. This incident was quickly controlled and eradicated. In FY20 some inspections were conducted for the 25 livestock dealers due to COVID-19. An additional 63 farm stores that sell chicks and ducklings in the spring were inspected. The premises were inspected for diseased animals, record-keeping compliance, and education regarding animal disease traceability. Inspections were completed prior to the commencement and during the first month of the pandemic.

Biologics. In FY20, the Animal Health Program evaluated 60 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 biological agents in Maryland. In addition, in FY20, the Animal Health Program worked with legislators, veterinarians, farmers, and constituents to revise laws and regulations for antibiotic use

in food animals. New federal mandates requiring “Judicious Use of Antibiotics” became effective this fiscal year, restricting use of antibiotics in food animals to veterinary prescriptions, and the use of “Veterinary Feed Directives” for addition of antibiotics to feed. State laws were passed in April 2019 which supplement the federal restrictions. The new state law requires Maryland veterinarians submit documentation of Veterinary Feed Directives and other prescriptions for antibiotic use in food animals on an annual basis beginning January 2020 and restricts the use of antibiotics in cattle for mastitis beginning 2021. Work on regulations and procedures to implement the new law have been completed.

Contagious Equine Metritis (CEM) Import Quarantine Station. The department operates one USDA CEM Quarantine Import Station 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 U.S. In FY20, the department issued 189 import permits through the CEM program, accruing \$171,200 in revenue.

Animal Disease Traceability (ADT) Program. Four livestock markets throughout the state continued to function as approved Livestock Tagging Stations. They are under combined USDA and MDA authority. This allows them to provide tagging and recordkeeping services to livestock producers at the market, facilitate interstate movement, and offer official identification of Maryland animals. In Maryland, official identification is a USDA-authorized ear tag. Ear tag distributors, livestock dealers, and the livestock auction markets are required to maintain records of tag issuance. In FY20, to increase compliance with ADT requirements, there was outreach to producers, markets, veterinarians, and University of Maryland Extension officials. The Animal Health Program continued its ADT policy by requiring the use of radio-frequency identification tags (RFID) in animals entering exhibitions. This upgrade will enable better and more efficient tracking of animals moving in, out, and throughout Maryland. To implement this requirement, the Animal Health Program set up an ADT Advisory Board that developed outreach and educational information informing producers, exhibition sponsors, extension officials, and veterinarians throughout the state about the new identification upgrade. 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 to 48 hours. In FY20, USDA traceback tests for cattle, swine, and poultry indicated that Maryland could meet the 24 to 48 hour proposed federal standard for tracing

individual animals back to the farm of origin. MDA uses the Federal Surveillance Collaboration Services' Core One system database to maintain identification data. This enables tracing of 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.

Livestock and poultry producers must register their premises. Premises registration is needed to improve the ability to trace animals. Livestock premises registration is required for animals to move interstate. To date, property owners and operators with livestock have registered 62 new premises in Maryland for a total of 820 registered premises. 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. To date, 7,337 poultry premises are registered under the state program, including 472 that were added in FY20.

EMERGENCY RESPONSE READINESS

The Animal Health Program continually prepares and trains for an emergency response. During FY20, Animal Health Program 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. Program staff led or participated in two emergency response virtual exercises or trainings in FY20, primarily focused on HPAI response. Through continued training, department personnel are assigned and trained to respond to agricultural emergencies by utilizing the Incident Command System, the state WebEOC system, and the federal Emergency Management Response System (EMRS). In addition, Animal Health Program personnel collaborated with MDH, the State Board of Veterinary Medical Examiners, MEMA, and the Maryland veterinary community to assemble the State Voluntary Veterinary Corps, a group of about 185 veterinarians and technicians willing to support emergency operations when activated.

This fiscal year marked the seventh and last year of partial federal funding for the department's 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. This voluntary initiative provides significant contributions by and for the industry and participating states in practicing "whole farm" biosecurity. The coalition includes 12 eastern states, with the following states as full members: Delaware, Georgia, North Carolina, New Jersey, New York, Maryland, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia.

Better cooperation among states to promote biosecurity procedures on dairy farms enhances 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. As of FY19, Maryland has certified three premises, two private farms and one processing plant, as "qualified" under the SMS Program.

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 funds much of the enhanced surveillance. Enhanced surveillance is an increased frequency or number of tests for a disease of particular significance or risk. Specific enhanced 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 and throughout the Delmarva region. In FY20, with the continual threat of HPAI entering the United States, the department continued: enhanced surveillance at auction markets; required avian influenza testing of resident poultry entering exhibitions within 21 days of entry; and required testing of out-of-state poultry within 21 days of entry. MDA performed 6,209 avian influenza tests in FY20. The live virus was not detected in this testing.

Foreign Animal Disease. No foreign animal diseases were detected in Maryland during FY20. Three foreign animal disease investigations were conducted this fiscal year. The department has three qualified foreign animal disease diagnosticians (FADD) on staff.

Tuberculosis and Brucellosis. Maryland remains free of bovine tuberculosis and bovine swine brucellosis. In FY20,

Animal Health Program staff participated in a USDA refresher virtual training for tuberculosis and brucellosis diseases regulatory actions.

Equine Herpes Virus (EHV). The neurologic strain of EHV is a contagious and potentially fatal disease for horses that can result in quarantines and disruption of the horse industry overall. Therefore, the program has developed the ability to rapidly test for EHV of high concern to prevent the spread of disease. In FY20, 96 horses were tested for EHV-1 at the department’s animal health labs. Five horses tested positive for the fatal neuropathogenic strain of EHV. Quarantines were placed on the premises and were lifted once the animals

tested negative from two consecutive testing results.

Quarantines. As a result of disease surveillance and response efforts in FY20, 39 quarantines (hold orders) were placed. After being cleared, 30 quarantines were released on these farms. Additionally, there were 7,620 30-day quarantines for swine entering the state that were placed through the swine permit process. There were an additional 189 quarantine actions for 139 mares and 50 stallions associated with horses moving through the CEM Quarantine Import Stations in Maryland.

Selected parameters of Animal Health activities are reflected on the chart below.

ANIMAL HEALTH PROGRAM FY 2020 – SELECTED PARAMETERS

Parameter	Total Number
Animals Certified to Move In, Out or Within Maryland	59,457
Avian/Poultry Export	5,583,650
Avian/Poultry Import	4,921,156
Biological Authorizations	71
CEM Permits (Quarantines)	189
Equine Health Certificate – Export	7,617
Equine Health Certificate – Import	5,333
Exhibition Inspections	64
Export Certificates (Non Equine)	13,261
Foreign Animal Disease Investigations	4
Import Certificates (Non Equine)	26,451
Inspections and Investigations – Total Combined	326
Intrastate Certificates Total (Show)	8,739
Livestock Dealer Licenses	26
Market Inspections	179
Quarantines Issued for Disease Investigations	38
Swine Permits Issued (Quarantines)	527

LABORATORY SYSTEM MISSIONS AND STAFF

The Animal Health Laboratory System supports the animal and public health regulatory and emergency response missions of the department, other state agencies, and local and federal governments. It assists veterinarians and livestock and poultry producers 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:

- National disease control programs of the USDA, e.g. avian influenza in poultry, tuberculosis in cattle, and brucellosis in swine;
- The U.S. Food and Drug Administration’s (FDA) Center for Veterinary Medicine initiative to promote animal

and human health by investigating potential biologic contaminants in animal feeds, animal products, or produce;

- MDH in diagnosing animal rabies and other animal diseases of public health significance; AND
- DNR in 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 daily 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 department’s 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. In FY20, both labs passed the accreditation review with no deficiencies. Both labs are fully accredited for two years.

Both labs are members of the National 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 and Frederick labs are also National Poultry Improvement Plan (NPIP) laboratories, 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 MDH.

ANIMAL HEALTH PROGRAM LABORATORY STATISTICS: FY19 VS. FY20

Diagnostic Activity	FY19 Data	FY20 Data
Total Accessions	13,209	11,926
Total Tests	48,899	41,277
Mammalian Necropsy	234	259
Poultry Necropsies (flocks)	526	558
Avian Influenza	6,746	6,209
Brucellosis	1,123	462
Contagious Equine Metritis	2,015	2,161
Equine Herpes Virus (EHV-1)	6	96
Equine Infectious Anemia	8,786	7,364
Johne’s Disease in Cattle	2,445	1,847
Rabies	114	63
Salmonella Pullorum	1,382	1,758

Note: A summary of testing carried out in FY 2020 and FY 2019 at the department’s Animal Health Diagnostic Laboratories for regulatory or otherwise select significant diseases.

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

Both labs are staffed with a veterinary pathologist, four laboratory scientists, one laboratory technician, and two administrative team members 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 postmortem 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 Animal Health Diagnostic 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 lab primarily serves constituents on the Western Shore of the state. The laboratory testing capability includes rabies, brucellosis, CEM, EHV, equine infectious anemia, Lyme disease, Johnes disease, avian influenza, and exotic Newcastle disease. EHV 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 and the significant general equine industry. Swine influenza testing was added in FY19 to enable rapid detection and response to this disease in both laboratories, as it has twice affected Maryland fairs and shows and can be contagious to humans. Avian influenza testing of poultry was added to the Frederick lab's mission in FY11 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. A pilot study was conducted in FY20 to determine the viability of an equine tapeworm detection test. The test was validated by the laboratory scientist. The tapeworm test is now added to the testing services offered by the lab.

The primary mission of the Salisbury Animal Health Diagnostic Laboratory focuses on infectious diseases of poultry within Maryland. The Salisbury lab 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 mycoplasma 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.

OTHER ANIMAL HEALTH PROGRAM ACTIVITIES

In FY20, the Animal Health Program conducted four classes and provided accreditation to 82 veterinarian participants.

STATE BOARD OF VETERINARY MEDICAL EXAMINERS

The State Board of Veterinary Medical Examiners mission is to protect animal and public health and welfare by enforcing the Veterinary Practice Act and related Code of Maryland regulations. To that end, the board licenses and/or registers veterinarians, veterinary technicians, veterinary hospitals, and

animal control facilities. The board's activities also include: inspecting veterinary hospitals and animal control shelters; investigating consumer complaints as well as initiating its own investigations; and determining whether disciplinary action will be taken against any licensees.

The board is comprised of seven members appointed by the Governor to serve five-year terms. Five members are veterinarians, at least two must be primarily large animal practitioners. The remaining two members are consumer advocates. 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 also an active voting member of the American Association of Veterinary State Boards (AAVSB), a national 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. The board reports disciplinary action information to the AAVSB as well as to other state veterinary boards and the general public through its website: mda.maryland.gov/vetboard.

LICENSES

In FY20, the board issued the following:

- Number of New Veterinarian Licenses: 221
- Number of Veterinarians License Renewals: 2,798
- Number of New Registered Veterinary Technicians (RVTs) Licenses: 64*
- Number of Registered Veterinary Technicians (RVTs) License Renewals: 135*
- Number of New Veterinary Hospitals Licenses: 44**
- Number of Veterinary Hospitals License Renewals: 536
- Animal Control Facilities Licensed: 28

**Note: RVT licenses are good for three years.*

***Note: Many new hospital licenses represent ownership changes rather than brand new facilities being built.*

INSPECTIONS

The board shares two inspectors with the MHIB. Together, they inspect about 600 veterinary hospitals and 750 licensed horse stables at least once every two years. Inspections during FY20 were suspended during the stay-at-home directive that lasted from March to May 2020.

Inspections during FY20 were as follows:

- Number of Hospitals Inspected: 277
- Number of Hospitals Requiring Follow-up Before Passing: 23
- Number of Total Inspections Conducted: 300

COMPLAINTS

The board continues to have a backlog of complaint investigations. During FY20, the board closed 82 complaints, which includes infractions found by board inspectors during hospital inspections that were serious enough to warrant board attention. A total of 55 complaints were referred to the Attorney General's Office for action. At year end, the board had 92 open complaint investigations. Of those, 65 were under investigation, 16 were pending with the Attorney General's Office, and 11 were pending final board action. The board has one full-time investigator and hired a part-time contractual investigator in April 2020.

LEGISLATION

House Bill 549, State Board of Veterinary Medical Examiners - Sunset Extension and Program Evaluation, passed the Maryland General Assembly during the 2020 Legislative Session. The bill not only extends the board's authority another ten years, it also enacted a new requirement. The board must now report annually to the Governor and General Assembly on the disciplinary actions it has taken over the previous fiscal year. The first report is due in December 2020. A copy will be posted on the board's website once it is finalized.

Senate Bill 189, Practicing Veterinary Medicine Without a License – Cease and Desist Order and Civil Penalty, also passed the Maryland General Assembly during the 2020 Legislative Session. The bill, which took effect Oct. 1, 2020, allows the board to investigate allegations of the unlicensed practice of veterinary medicine and to issue cease and desist orders or impose civil penalties on a person found to be engaged in such activity.

MARYLAND HORSE INDUSTRY BOARD

The Maryland Horse Industry Board (MHIB) consists of the Maryland Secretary of Agriculture, or his designee, and 11 members from a cross-section of the state's horse industry that are appointed by the governor to four-year terms. During FY20, Dr. Michael Odian, who represented licensed veterinarians, resigned to take the position as State Veterinarian for MDA's Animal Health Program. Names were submitted to the Governor's Appointments Office to fill his vacancy.

In the beginning of FY20, prior to the COVID-19 pandemic, the board participated in several high-profile events including the Maryland Horse Forum at Goucher College in August and Horseland at the 2019 Maryland State Fair. In October 2019, the board hosted a group of international horsemen from Ireland and Canada. Later that month, the board embarked on a trade mission to China organized by the Secretary of State's office. On Jan. 22, 2020, the board participated in Maryland Horse Industry Day in Annapolis.

Along with most industries, Maryland's horse sector felt the impacts of the COVID-19 pandemic and its restrictions. Horse breeding farms, veterinary services, self-care boarding, and farrier services were regarded as essential during the pandemic. Recreational riding barns, racetracks, and horse shows were deemed nonessential at the start of the pandemic.

The board was asked to join the Governor's Recovery Task Force as a member of the Tourism/Sports Reopening Committee. The MHIB made recommendations that urged recreational lessons be allowed as it is a low-risk, socially-distanced outdoor activity. In early May, recreational lessons were able to resume and trail riding barns to reopen, both with strict safety and health protocols in place. Thoroughbred racetracks reopened in late May and horse shows resumed in early June, all with no spectators and while following strict safety precautions.

Throughout the pandemic, the MHIB continued to hold its monthly board meetings by teleconference and asked folks affected by the pandemic from across the state to speak at these meetings. A total of 11 board meetings, eight in person and three virtual, were held during FY20.

The board successfully secured a USDA Rural Business Development Grant that provided funding for the board's field marketing specialist position. In FY20, the MHIB's field marketing specialist co-chaired the Maryland Horse Forum, oversaw the Horse Discovery Center network and its

communications activities, and coordinated the new online stable licensing system. With this extra assistance, the MHIB was able to expand its marketing efforts and improve its online licensing services.

The board accomplished the following in FY20:

- Spearheaded the Maryland Horse Forum, which drew over 250 participants for a one-day conference addressing industry issues;
- Held another successful 11-day Horseland exhibit at the 2019 Maryland State Fair, which drew 60,000 visitors according to fair officials;
- Sponsored major equine exhibits at the World of Pets Expo and Southern Maryland Equine Summit;
- Improved customer service with the new online stable licensing system;
- Dispensed \$29,832 in grants to industry organizations and individuals;
- Led the industry effort to host a successful Maryland Horse Industry Day in Annapolis for state lawmakers; AND
- Helped ease and clarify horsemen's concerns during the early stages of the pandemic and played a role in the Governor's Roadmap to Recovery program.

Maryland law defines six statutory duties of the MHIB. 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 MHIB 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 highlights for the MHIB in FY20 are listed below.

- **Licensing and Feed Fund.** The MHIB licensed 728 stables in FY20. This figure represents the fifth highest number of stables licensed by the board. During the rollout of the new online program, the MHIB discovered that online and mail-in registration will be required. Some areas of the state lack rural broadband and some stable operators do not have enough technical expertise to navigate the online system. The board collected a record \$225,663 from its Feed Fund.
- **Continued Involvement in the Development of Fair Hill International.** MHIB's Board Member Jay Griswold is the horse board representative and chair of the 14-member Fair Hill Foundation Board, the private entity raising funds for infrastructure improvements at the state-owned facility. Through January 2020, under Griswold's leadership, the foundation raised nearly \$4 million. These funds were used to pay the state and various other entities for infrastructure costs like the new 5 star cross country course. The COVID-19 pandemic interrupted fundraising efforts and postponed the Fair Hill Races set for Spring 2020. The Fair Hill Foundation Board kept in touch with donors throughout the pandemic and practiced socially-distant, individual tours to fundraising prospects. Griswold also serves on the Fair Hill Host Organizing Committee, which has oversight of the new Maryland 5 Star at Fair Hill. MHIB Executive Director Ross Peddicord serves as an ex-officio (non-voting) member on the Fair Hill Foundation Board and the Fair Hill Host Organizing Committee. The initial 5 star event was scheduled to take place in October 2020, but due to COVID-19 restrictions and concerns, the event has been postponed until October 2021. The MHIB also helped organize and promote a 5 star holiday celebration on Dec. 8, 2019 at Principio Mansion in Cecil County which raised nearly \$20,000 for Fair Hill International.
- **2019 Maryland Horse Forum.** The fourth Maryland Horse Forum was held in August 2019 at Goucher College and convened over 250 equestrian leaders and stakeholders to discuss current issues facing the industry and ways to ensure its future prosperity. This event, held every five years starting in 2004, is a one-day statewide open forum that brings together representatives from all sectors of the industry. A 10-person planning committee is responsible for organizing the Maryland

Horse Forum. MHIB's Anne Litz and the University of Maryland's Jen Reynolds co-chaired the committee. MHIB Board Member Dr. Amy Burk authored a pre-forum survey, which garnered over 800 responses and identified three pressing issues facing the industry: participation, promotion, and education; horse-keeping and welfare; and land use, legislation, and liability. In response to the survey, the forum held 12 breakout sessions addressing these three issues. The event also served as a kick-off announcement for the new Maryland 5 Star at Fair Hill. Maryland Commerce Secretary Kelly Schulz served as a keynote speaker and Baltimore County Executive Johnny Olszewski Jr. gave opening remarks. Following the forum, Dr. Burk wrote a 43-page report that summarizes the activities and themes of the event as well as action items. The MHIB raised nearly \$30,000 from 29 industry sponsors to help produce the forum.

STRATEGIC MARKETING PLAN

The MHIB continued to implement its strategic marketing plan, which includes the following key components.

The Horseland Tent at the Maryland State Fair. The MHIB and partners hosted 11 days of free equine educational and entertainment events during the 2019 Maryland State Fair. In its fifth year at the state fair, the Horseland tent continued to grow and drew over 60,000 visitors who were able to interact with horses, be introduced to the industry, and learn how to get involved. Over the course of the fair, Horseland housed 35 different horses and ponies. More than half of Maryland's Horse Discovery Centers were present, helping fair-goers connect with Maryland's equine industry. More than 200 volunteers helped operate the 30 rotating exhibit booths within the Horseland tent. Sponsors for the tent included: the MHIB, the Maryland State Fair, the Maryland Horse Breeders Association, the Jim McKay Maryland Million Day, the Maryland Saddlery, the Maryland Thoroughbred Horsemen's Association, and the Maryland Jockey Club. The Maryland Jockey Club's booth taught visitors how to read a program and how to bet on a race. The Maryland Saddlery Club booth included free mechanical horse rides. Nearly 40 people toured the racetrack facility, and over 2,500 people of all ages made "stick horses."

The Military Horse Show at the Maryland State Fair. In its fourth year, the Military Horse Show returned for veterans and mounted police officers. The show and obstacle course had over 30 mounted police officers participate in the Friday night show. The famed Caisson Platoon from Fort Myer, Virginia returned as an exhibitor.

Maryland's Horse Discovery Centers and Affiliated Horse School Curriculum, "Horses for Courses." In FY20, there were 38 certified Horse Discovery Centers in 18 different counties. They reported collectively producing over 600 events including open barns, trail rides, horsemanship lessons, yoga on horseback, introductory lessons, pony rides, pony parties, field trips, scouts, and more. These efforts introduced over 65,000 adults and children to horses. In addition, the Horse Discovery Centers were able to reach 70,250 more people at the following fairs and festivals: the Maryland State Fair, Anne Arundel County Fair, the Purple Barn Unicorn Festival, and the World of Pets Expo. The MHIB also participated in the one-day Junior Achievement Inspire Career Cay program for 8,000 middle schoolers at the Timonium Fairgrounds. Other festivals and fair activities scheduled for spring 2020 were cancelled due to the COVID-19 pandemic. Lastly, the MHIB held four regional meetings for the Horse Discovery Center network at various locations throughout the state.

MHIB's Touch of Class Awards. During 2020, the MHIB honored Maryland horses and riders who won national and international recognition with the monthly Touch of Class Award in these disciplines: sport horse breeding, jousting, Thoroughbred racing, champion show mules, Thoroughbred Makeover, equine academia, and equine exhibits and horse expos. The Touch of Class Award was temporarily postponed between March and June 2020 due to the COVID-19 pandemic.

Engagement on Social Media. At the end of FY20, the MHIB had 5,417 Facebook followers and 526 Instagram followers. The board's Twitter has not seen significant growth, but maintains a following of over 1,000.

Producing and Distributing Promotional Materials. Promotional materials are available at welcome centers around the state, Clark's Elioak Farm in Ellicott City, Horse Discovery Centers, and major Maryland tourism centers. All publications can be downloaded on the MHIB website. The MHIB participated in a two-page horse industry spread in Destination Maryland, the state's official tourism magazine, and advertised trail riding opportunities and equine spectator events in the Baltimore County Tourism Guide and Recreation News.

National and International Outreach. In 2019, the MHIB hosted David Burns from the Irish Horse Racing Board. The MHIB had visited David in Ireland the previous year. David attended the Maryland Million along with the Irish Ambassador to the U.S. Daniel Mulhall. The board also hosted Jon Garner, former chef d'equipe of the Canadian Olympic

team, at the Fair Hill 4 Star. While at the event, Jon also participated as a guest commentator for show jumping.

From Oct. 21-29, 2019, MHIB's International Representative Bob Zhang arranged an equestrian trade mission to Maryland's sister state Anhui, China. The delegation was headed by Maryland's Secretary of State John Wobensmith and MDA's Deputy Secretary Julie Oberg. Other tour members included the Maryland State Board of Veterinary Medical Examiners' President Dr. Elizabeth Callahan, MHIB's Vice Chair Karen Fulton, and MHIB's Executive Director Ross Peddicord. The group attended an FEI 3 Star Endurance Race and served on a panel discussion at the event. During their time in Anhui, the group participated in several meetings with top equestrian officials and toured breeding farms and riding centers. Months later after returning home, the Anhui horsemen donated 40,000 masks to the state of Maryland during the early stages of the COVID-19 pandemic.

MHIB Promotion and Participation at Maryland Equine Events. In FY20, the MHIB participated in 96 Maryland equine-related industry events. At 36 of these events, the MHIB had exhibit booths and/or made presentations.

MHIB Sponsorships of Maryland Equine Events and Activities. During FY20, the MHIB provided sponsorships for the following eight equine activities and events: the Kids Korral at the Maryland Million race, Horseland at the Maryland State Fair, Maryland Horse Industry Day, Celebration of the Horse at Tuckahoe Equestrian Center, the EQUUS Film Festival in Kentucky to support a Maryland-made film, the Hays-Heighe House Women in Racing Exhibit at Harford Community College, the Maryland Horse Council, and the Southern Maryland Equine Summit.

MHIB Grant Funding. In 2020, the MHIB awarded \$29,832 in grants to 38 Maryland horse organizations, equestrian operations, and individuals that represent a variety of equine groups and disciplines across the state. The committee selected projects from a pool of 66 applicants. This amount of grant funding is one of the highest in the board's 22-year history.

Cross-Disciplinary Cooperation. The MHIB continued coordinating meetings with the Maryland Horse Industry Marketing/Leadership Circle. The Maryland Industry Marketing/Leadership Circle is a group of 30 people from 14 partner industry organizations that represent a cross-section of racing and non-racing organizations. Members are largely CEOs, executive directors, and marketing staff. The group meets regularly to discuss prospective initiatives and to

provide industry updates. For the sixth year, the group hosted Maryland Horse Industry Day in Annapolis. This event was held in January 2020 and included legislative training sessions, visits to legislative offices, and lunch with public officials. Approximately 175 industry folks attended and spoke with nearly 70 legislators and their aides. The group also funds the Horseland Tent at the Maryland State Fair. Leadership meetings were curtailed from March-June 2020 while the industry grappled with COVID-19 pandemic reopening plans.

RESPONSE TO THE COVID-19 PANDEMIC

From the racing sector to veterinary equine health to riding barns and stables, the COVID-19 pandemic affected every part of Maryland’s horse industry. Throughout 2020, the MHIB

continued to serve as a sounding board for horse owners and stable operators during the pandemic. The board provided guidance from the state to the horse industry on changes brought on by the COVID-19 pandemic and fielded a high volume of inquiries from concerned constituents. The MHIB also worked with the Tourism/Sports Task Force to help safely and gradually reopen lessons and boarding barns in early May, racetracks in late May, and horse shows in June. The MHIB participated in a podcast with The Chronicle of the Horse, where they discussed the response of MDA and the Maryland horse industry to the COVID-19 pandemic. The board was also interviewed in various publications such as the Washington Post, Baltimore Sun, and Annapolis Gazette.

MHIB SELECTED STATISTICS: 2020

Category	
Number of Stable Licenses Issued	728
Number of Inspections Performed Annually	386
Percentage of Facilities Inspected and Brought into Compliance	100%
Revenue Collected from Licensing Horse Stables in Maryland	\$90,913
Revenue Collected from Assessment Based on Tons of Horse Feed Sold in Maryland	\$225,663
Outcomes	
Total Amount of Money Distributed as Grants for Promotional, Educational or Research Projects for Maryland Horse Industry	\$29,832
Percentage of Total Revenue Distributed as Grants for Maryland Horse Industry	13.2%
Staffed Booths or Presented Talks at Trade Shows, Conferences, Fairs and Exhibitions Promoting Maryland Equine	36

FOOD QUALITY ASSURANCE

The Food Quality Assurance Program offers producers and processors a voluntary certification program for agricultural commodities, including: meat, poultry, eggs, fruit, vegetables, and grain. The department's graders sample commodities and compare them with standards developed by the USDA and/or MDA for microbial, chemical, and physical contamination as well as for 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. Services provided are considered essential support of critical infrastructure and the program has been able to cover all requests for service throughout the pandemic. A cost-effective and service-oriented grading program is crucial for Maryland producers in meeting buyer requirements competing in export markets.

This year, the primary commodities graded by the program were:

- 172 million pounds of poultry;
- 14.4 million dozen of shell eggs;
- 15.5 million pounds of meat;
- 11 million pounds of vegetables; AND
- 135,500 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, the department anticipates increased demand for compliance audits and is training additional staff members to meet that demand.

The program has adapted to continual changes in the agricultural commodity industry by offering the services necessary for the industry to market its products. The department's 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 GAP increased to 42 growers inspected and certified in FY20. 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.

MDA's Food Quality Assurance Program has been funded to date through the USDA Specialty Crop Block Grant Program and has provided food safety training to over 1,600 fruit and vegetable producers. An additional 28 fruit and vegetable producers were audited by program compliance auditors and received USDA GAP certification. MDA's GAP program requirements continue to be revised as the requirements of the FDA Food Safety Modernization Act (FSMA) Produce Safety Rule change.

FSMA PRODUCE SAFETY RULE

MDA completed the fourth 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 FSMA Produce Safety Rule. MDA, the University of Maryland (UMD) Plant Sciences Department, University of Maryland Extension (UME), and the University of Maryland Agricultural Law Education Initiative (ALEI) 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 mail, informational meetings, and attendance at various grower meetings.

Technical assistance was provided to growers through conducting 15 On-Farm Readiness Reviews. An On-Farm Readiness Review consists of a voluntary on-site, non-regulatory visit to a produce grower by a team comprised of one MDA regulator, one UMD specialist, and one local UME representative. The team evaluates a growers' compliance with the FSMA Produce Safety Rule and provides growers with notes on what complies and areas that need improvement. The produce grower is given resources to assist in correcting any potential problem areas. The program was unable to conduct in-person On-Farm Readiness Reviews as planned in the spring of 2020 due to COVID-19 restrictions and a stop

work order issued by the FDA. Assistance was provided to farmers virtually in lieu of in-person reviews.

The FDA-approved Produce Safety Alliance Produce Safety Rule Course was held regionally to assist produce growers in meeting the FDA-mandated training requirements. To date, MDA has provided the FDA-mandated training to 373 produce growers.

MDA is conducting inspections and enforcement under state authority in lieu of the FDA enforcing the FSMA Produce Safety Rule. The FDA continues to fund the program, but will not inspect or enforce the Produce Safety Rule unless a Maryland grower is implicated in an interstate food-borne illness outbreak. MDA conducted four inspections of produce growers with more than \$500,000 in fruit and vegetable sales before the COVID-19 restrictions and FDA stop work order were issued. All inspected farms had an On-Farm Readiness Review prior to inspection and there were very few observations of deficiencies that needed correction.

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 program 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 dozens of eggs sold in Maryland.

The percentage of sampled eggs in compliance with the Maryland Egg Law was 90% with no change from last year. The number of lots inspected decreased as inspections at retail and food service locations were on a complaint basis only since the COVID-19 restrictions went into place in March 2020.

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

ORGANIC CERTIFICATION

The USDA-accredited Maryland Organic Certification Program certified 115 farms and handlers of organic products during FY20. The program also registered an additional six 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 Organic Certification Cost Share Program funded by the USDA. This program allowed MDA to reimburse 50% of the fee growers paid for certification.

GRAIN LAWS

The department regulates all persons in the business of buying, receiving, exchanging, or storing grain from a grain producer. 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. In FY20, MDA licensed 46 businesses with 86 locations.

POULTRY AND RABBIT SLAUGHTER

The Poultry and Rabbit Slaughter Program assists small poultry and rabbit producers in Maryland in meeting the MDH-approved source requirements and allows them to market their products to restaurants, at farmers markets, and at other locations in the state. The program consists of food safety training, basic food safety requirements during slaughter, and inspections to verify that good food safety practices are followed. MDA certifies producers who follow the requirements. The required in-person training scheduled for April 2020 was cancelled as a result of COVID-19 restrictions. Requests for the training and certification increased significantly as local producers were attempting to fill gaps in the food supply. The program developed a virtual training that was offered in May 2020, which allowed additional small poultry and rabbit producers to become certified to market their products. The virtual training is now available anytime online.

WEIGHTS AND MEASURES

The regulation of Weights and Measures is one of the oldest continual functions of government. MDA's 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 meat. 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. It provides a professional forum for the discussion and development of uniform policy and protocols that guide the regulation of weights and measures.

Maryland's Metrology Laboratory is recognized by the National Institute of Standards and Technology (NIST) Office of Weights and Measures Metrology (OWMM). The program has one full-time metrologist who is recognized as a signatory with NIST OWMM. The program's goal is to increase its laboratory calibrating scope as additional laboratories are upgraded.

The 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 NCWM. 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.

There are a total of 60,727 weighing and measuring devices in commercial use in Maryland at 7,788 separate businesses locations. The department has 18 inspectors who are specially trained and certified to test and inspect these devices according to established protocols ensuring 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.

MODERNIZATION

The program has built a database that tracks registration of approximately 6,604 businesses across the state and is now using electronic inspection software instead of paper reports. With these new tools, staff is able to quickly locate information and target critical areas, while field inspectors are able to plan inspections more strategically, reducing travel time, and providing more uniform inspection coverage statewide.

By modernizing its operations, the program has become more efficient and cost-effective in its mission to better protect Maryland consumers while maintaining a level playing field for industries that operate in the state.

The program is currently in the process of replacing aging lab and field equipment necessary to carry out the program's responsibilities and improve the efficiency of the program. The field and laboratory programs rely on special funds for these upgrades.

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 it was in the past, and continues to provide a vital service to consumers and businesses alike.

FY20 ACTIVITY

In FY20, the program's field staff conducted 16,876 device inspections. Inspectors also tested 1,163 individual lots of prepackaged commodities. Price verification inspections were conducted at 35 stores across the state.

In FY20, field staff investigated 257 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.

WEIGHTS AND MEASURES ACTIVITY TABLE: FIELD INSPECTION AND TEST EFFORT

Activity	2018		2019		2020	
	% Violations	Total Tests	% Violations	Total Tests	% Violations	Total Tests
Weighing Systems						
Large Scales	15.7	700	16.3	650	14.4	654
Medium Scales	21.4	608	14.7	455	15	373
Small Scales	18.5	6,811	13.7	7,201	11.3	3,102
Liquid Measuring Systems						
Retail Gasoline Meters	21.5	14,896	19.2	17,505	19.9	11,355
L P Gas Meters	25.5	157	16.7	245	9.1	88
Vehicle Tank Meters and Other Large Meters	18.7	375	12.6	800	14	972
Grain Moisture Meters	2.8	105	3.4	89	0	0
Programmed Tare Inspections	11.6	856	12.4	1,975	14.8	1,657
Price Scanning and Method of Sale	2.2	2,386	14.3	1,729	7.3	1,060
Delivery Ticket Inspections	6.8	1,289	0.3	2,109	0	2,107
Package Lots	15.7	5,474	16.4	5,114	18.8	1,163

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

Note: Due to the COVID-19 pandemic, all program operations were halted from March 16 - July 5, 2020. All program operations resumed on July 6, 2020.

WEIGHTS AND MEASURES ACTIVITY TABLE: LABORATORY EFFORT

Inspection and Test	2018		2019		2020	
	% Rejected	# Tested	% Rejected	# Tested	% Rejected	# Tested
Weights	9	1,384	16	952	10	890
Volumetric Measures, (Non-Glass)	57	47	97	69	65	20
Length Devices	0	0	0	0	0	0
Temperature Devices	0	0	0	0	0	0
Timing Devices	0	0	0	0	0	0
Volumetric (Glass)	0	0	0	0	0	0
Scales/Meters	0	0	0	0	0	0
Standard Grain Samples	N/A	146	N/A	146	N/A	132

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

**WEIGHTS AND MEASURES ACTIVITY TABLE:
ADMINISTRATIVE CONTROLS AND MISCELLANEOUS**

Activity	2018	2019	2020
Weighing and Measuring Devices Registration Certificates Issued	6,718	6,686	6,604
Type Evaluation of Devices Conducted (NTEP)	17	13	8
Citizen Complaints Received and Investigated	455	325	257
Disciplinary Hearings, Criminal Arrests, Summonses Obtained and/or Civil Penalties	13	2	1

Note: 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.

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, MD. When MDA was established in the 1970s, the office was moved to Annapolis and renamed the Maryland Agricultural Fair Board.

The board consists of eight members appointed by the Governor. Term of office is five years and a member may serve a maximum of two terms. A member 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 quarterly and communicates throughout the year by phone and email. Most meetings are held at MDA's headquarters.

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

Grants to fairs and shows may be used for ribbons, awards, and premiums only. Currently, the board funds approximately 165 events around the state. These events include: the Maryland State Fair, county fairs, local community shows, youth activities in 4-H and FFA, and more.

Every year, the board publishes the Maryland Agricultural Fairs & Shows Brochure — an annual guide listing fairs and shows that the board funds. These brochures are distributed at welcome centers on state highways, extension offices, fairs and shows, chambers of commerce, libraries, county farm bureaus, and the Maryland Farm Bureau. The brochure is also posted on the department's website.

Racing revenue continues to be in flux and this affects the grants given out by the board. The board holds regional budget meetings throughout the state where they meet with each group to review requests, financial reports, and fair activities.

FY20 FINAL BUDGET FIGURES

0100 – PERSONNEL COSTS	\$43,086
0300 – COMMUNICATION COSTS	\$503.06
0400 – TRAVEL	\$6,259.34
0700 – MOTOR VEHICLE OPERATIONS	\$0
0800 – CONTRACTUAL SERVICES	\$0
0900 – SUPPLIES & MATERIALS	\$23.22
1036 – REPLACEMENT EQUIPMENT	\$0
1207 – GRANTS TO NON-GOVERNMENT ENTITIES	\$718,639
1299 – GRANTS, SUBSIDIES & CONTRIBUTIONS	\$595,745
1300 – FIXED CHARGES	\$57
TOTAL APPROPRIATION – \$1,321,227	



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PLANT PROTECTION AND WEED MANAGEMENT

APIARY INSPECTION

The Maryland Department of Agriculture's (MDA's) Apiary Inspection Program works with beekeepers to control honey bee diseases, parasitic mites, and other pests in order 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 parasitic mites have nearly eliminated feral honey bee colonies.

American Foulbrood. American foulbrood is the most serious brood disease of honey bees and can destroy a colony in one year. In 2019, American foulbrood was not detected in any of the inspected bee colonies in Maryland.



Mack and Tukka at the 2019 Maryland State Fair with Gov. Hogan and MDA Chief Apiary Inspector Cybil Preston, Photo Credit: Executive Office of the Governor

Canine Training and Certification.

In 2015, the apiary program trained and certified a dog and handler to detect American foulbrood disease in Maryland's honey bee colonies. In December 2018, a second dog was certified to inspect bee hives for the presence of American foulbrood. Early detection of the disease saves Maryland beekeepers substantial monetary loss due to eradication of diseased colonies and destruction of infected equipment. A trained canine can inspect 100 honey bee colonies in 10 minutes,

while an average human inspector can inspect 50 colonies in one day.

The department's two disease detector dogs inspect beehives during the fall and winter months when temperatures are below 52 degrees and bees are dormant. In 2019, MDA's two trained canines inspected 1,831 bee colonies and certified them free of American foulbrood.

Varroa Mite (Varroa Destructor). Varroa mite populations were very high in Maryland in 2019, and brood problems and hive death are attributed to this pest. A serious problem caused by varroa mite is the transmission of viruses that can be fatal to the hive. Ten prevalent honey bee viruses have been discovered and the majority have an association with varroa mites. Therefore, controlling varroa mite populations in a hive will often control both the associated viruses and symptoms of the viral diseases.

Africanized Honey Bees (AHB). The department is working with two groups, the Mid-Atlantic Apiculture Research and Extension Consortium (MAAREC) and the Apiary Inspectors of America (AIA), to provide information to the general public about emergency incidents and for information on the control of AHB movement other than through natural spread. MDA continues to work with the Port of Baltimore with onsite eradication of all swarms.

Small Hive Beetle (Aethina Tumida). The small hive beetle was originally detected in packaged bees and either reported or detected in all 23 counties in 2019. 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 both a major pest of stored equipment and in honey houses, rendering stored honey in the hive unmarketable. With higher than normal rainfall totals in the

spring, summer, and fall of 2019, there was an increase in the small hive beetle population found in Maryland beekeepers' hives.

Apiary Inspection Permits. In 2019, entry permits were issued for 3,350 honey bee colonies to move into Maryland for overwintering and beekeeper purchase. Exit permits were issued for 3,035 colonies to move out of Maryland, primarily for pollination services. For the eleventh year, Maryland beekeepers have sent colonies to California for almond pollination. About 2,000 colonies were transported to California in winter 2019 for the 2020 almond pollination season.

Surveys. In FY19, the Apiary Inspection Program assisted with the National Honey Bee Survey. The program also participated in the Giant Asian Hornet/Invasive Survey. Survey information can be found 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 agriculture. The U.S. Department of Agriculture (USDA) 2017 Census of Agriculture found that Maryland's nursery, greenhouse, floriculture, and sod sector had the third highest sales of commodities in the state's agriculture industry, generating more than \$230 million in sales in 2017.

A primary goal of the state's plant protection and quarantine efforts is to facilitate the production, sale, and distribution of healthy and pest-free Maryland nursery stock. This is accomplished in large part by inspection and certification activities conducted on-site by MDA's Plant Protection and Weed Management nursery inspection 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 they produce is free of detrimental plant pests. Additionally, plant dealers are inspected regularly to ensure plant materials are received from suppliers in a healthy and pest-free condition, and maintained in that condition for wholesale and retail sale.

Inspections and Certifications. In 2019, the Maryland nursery inspection staff licensed 300 nurseries and 1,435 plant dealers and plant brokers. The staff also certified 9,887 acres of nursery stock and 11,523,092 square feet of greenhouse production. Plant Protection and Weed Management staff performed

routine inspections at 658 Maryland locations.

Shipping Inspections and Certifications. In general, the health of Maryland-produced nursery stock was found to be excellent. Additional certification activities for 2019 involved shipment specific inspections. These included 556 state phytosanitary certificates issued to 24 states and U.S. territories. Phytosanitary inspection and certification is performed to ensure Maryland's agriculture and green industry is compliant with established U.S and state domestic quarantines and phytosanitary requirements for Maryland-produced plant material and grain commodities. In 2019, 36 shipment specific inspections were performed and federal phytosanitary certificates were issued to export Maryland-grown and produced plant material and grain to four foreign countries. These inspections and certificates ensure that Maryland-produced agricultural commodities meet international quarantine regulations.

Online Nursery Sales. The fast-paced nature of online nursery product sales has been an ongoing challenge for the program. Throughout 2019, program staff worked diligently to educate businesses interested in nursery ecommerce about the rules, regulations, and restrictions of other states. This effort has led to the development of several specifically-tailored compliance agreements, allowing for the quicker movement of nursery stock without inspections per shipment when permitted by the receiving state.

Boxwood Blight (*Cylindrocladium Buxicola*). Continued efforts to prevent further introduction and to slow the spread of boxwood blight in the Maryland nursery and landscape industry occupied hundreds of hours of staff time throughout 2019. Nursery Inspection Program staff were again involved not only in the process of inspecting for evidence of the



Boxwood plants surveyed during group inspection at a Maryland nursery.

disease at the majority of establishments visited, but were also engaged in issuing Condemnation/Seizure and Pest Control Orders when infected plant material was found. Program staff were also tasked with overseeing the destruction of boxwoods infected with this highly destructive, infective, and easily transmitted disease. In the fall of 2019, inspection staff conducted an industry-wide meeting to review the enforcement process for boxwood blight as well as other pests of concern.

Phytophthora Ramorum. The plant pathogen *Phytophthora ramorum*, the causal agent of sudden oak death, was detected by survey in 2016. The department and the USDA Animal and Plant Health Inspection Service (APHIS) Plant Protection and Quarantine (PPQ) program staff conducted a follow-up inspection. The agencies worked together to develop a compliance agreement for the affected commercial establishment. Survey work continued in 2019 and another positive result was confirmed by USDA. MDA and USDA APHIS PPQ staff met to discuss additional parameters and changes in the establishment's agreement to help mitigate the problem. Those changes have since been incorporated into another agreement for 2020, when survey work will continue.

Evaluating USDA Permits. Maryland Nursery Inspection Program staff continued their role evaluating federal USDA permits to move plant germplasm and plant and insect pests into the state for purposes of scientific study, breeding (plant germplasm), controlled release (insect and weed biological control organisms), and evaluation. MDA regularly reviews permit applications to ensure that importers meet security and containment requirements for importation of otherwise prohibited or restricted taxa. In addition to initial permit review, there are also site visits and follow-up inspections performed by MDA.

Restructuring USDA APHIS PPQ Post Entry Quarantine (PEQ) Program. The department's Plant Protection and Weed Management Program is one of a small group of stakeholders nationwide participating in a working group to evaluate the restructuring of the USDA APHIS PPQ Post Entry Quarantine (PEQ) program. USDA APHIS PPQ is considering a significant restructuring of the PEQ program after it was reviewed by the Agricultural Quarantine Inspection Board. This working group currently participates in telephone conferences with representatives from the USDA and other states. The group is working towards modifying and streamlining import processes that will increase efficiency and reduce risk. As in the past, until policies and protocols are changed, department program staff will continue to conduct post entry quarantine

and facility inspections per status quo within the state of Maryland.

Export Certification Training. In further collaboration with the program's federal partners at USDA APHIS PPQ, staff participated in the Export Certification Training refresher course in November 2019 to help ensure that those responsible for certifying plant material are following the most current rules and regulations for foreign shipments. This training also prompted inspection staff to begin the process of changing our current state phytosanitary certification process to an online system, which will likely occur in 2020.

Educating the Green Industry. Distribution of information to the green industry regarding enforcement of invasive plant regulations that took effect in 2016 has proven to be an additional challenge for program staff. Educating, providing outreach, inspections, and enforcement of these regulations has become very time consuming and more demanding.

Preventing the Spread of Insect Pests and Plant Diseases. Program staff continued to participate on the Maryland Invasive Species Council and attend Invasive Plant Advisory Committee meetings. Program staff also continued to be vigilant and participate in inspections and surveys aimed at early detection and slowing the spread of serious pests and diseases. Insect pest threats, such as the Asian longhorned beetle and spotted lanternfly, and plant diseases, like sudden oak death and thousand cankers disease of walnuts, are considered high-risk in Maryland.

Compliance. Additionally, field and clerical staff worked year-round to ensure that licensing and compliance regulatory statutes were met by the industry.

Continuing Education Opportunities for Program Staff. In 2019, all program staff members attend training workshops, conferences, professional meetings, and field exercises, both in-state and regionally. On-going training and events have enabled staff to remain informed on developing new issues so they can better serve the program, the department, industry stakeholders, and the citizens of Maryland. The CLEAR training through the National Plant Board and USDA served to be especially crucial. This was a four-day long training program held in San Antonio, Texas in February 2019. The training was very useful and informative for program staff, as it covered many aspects of the program's regulated industries. Staff have since been able to incorporate some of the information presented at the training into the enforcement process at MDA.

PEST SURVEY

The Cooperative Agricultural Pest Survey (CAPS) and Plant Protection Act surveys are joint projects between MDA and the USDA APHIS PPQ program. 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 ready for export to many countries. These surveys also allow for continued outreach and education.

CAPS and Plant Protection Act surveys document the presence or absence of exotic pests in Maryland and support USDA APHIS PPQ exotic pest survey activities. Early detection of exotic pests before they become established helps protect Maryland agriculture, nursery stock, and the environment from potential devastating losses. Federally-funded CAPS surveys include corn commodity, exotic wood borers, and imported fire ants. Plant Protection Act surveys include stone fruit commodity, solanaceous commodity, and spotted lanternfly.

In 2019, MDA deployed and monitored 422 insect traps and collected 3,101 samples from them. There were nine extensive surveys targeting 54 exotic pests that impact apiaries, fields, forests, orchards, and nursery stock.

CAPS SURVEYS

Corn Commodity. Corn is one of the most valuable crops grown in Maryland. Ensuring that our state is free of exotic pests is critical to the success of this commodity. This survey was conducted from June through November in five counties known to have high production rates of corn, based on harvested acreage in previous years. Four exotic moth pests were targeted in this survey. Throughout the sampling period, none of the targeted pests were found to be present.

Exotic Wood Boring Beetles. USDA regulations require all imported wood packing material to be treated so that any insect living in the wood will be killed. However, some packing materials are not properly treated, which can cause exotic wood borers to be shipped to the U.S. and thus be introduced into our environment. Bark beetles can be extremely destructive and in some parts of the world they have destroyed large acreages of forests. In 2019, 10 sites that receive goods packed with wood dunnage were surveyed for exotic wood boring bark beetles. Traps were placed around these sites, targeting eight exotic wood boring pests. In addition, a visual survey for spotted lanternfly was also

completed. This survey ran from late March until November. All trap samples were negative for the species being targeted.

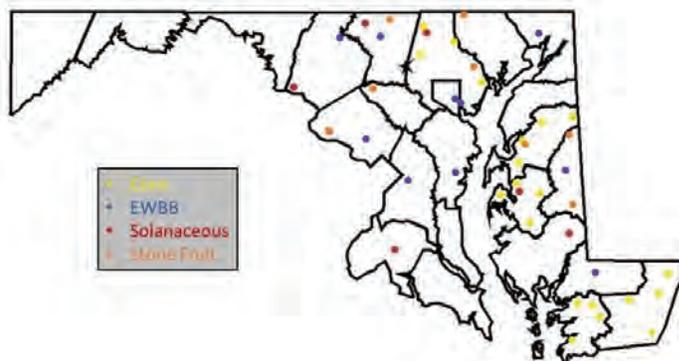
Red Imported Fire Ant. The red imported fire ant, a stinging insect native to South America, can be found in the southern United States. Despite its quarantine, which requires a wide variety of commodities to be treated or certified free of fire ants before being transported, some infested nursery stock does make its way into Maryland. The yearly fire ant survey focuses on tropical plants arriving from the southern U.S. In 2019, 121 sites were surveyed and two were found positive for imported fire ants. Sites were issued eradication treatment orders by MDA. Both sites completed treatments, were resurveyed, and found free of imported fire ants.

PLANT PROTECTION ACT SURVEYS

Stone Fruit Commodity Survey. The stone fruit crop, including peaches, plums, cherries, and apricots, is a commodity growing in popularity in Maryland, particularly with growers that participate in U-pick activities. The 2019 survey was conducted from June through November, in eight orchards across seven Maryland counties with an emphasis on orchards that had many different types of stone fruit crops. Survey targets were five insect pests and four plant pathogens known to infest these fruit crops. None of the targeted pests or pathogens were discovered during the sampling period.

Solanaceous Commodity Survey. Solanaceous crops, including eggplants, peppers, potatoes, and tomatoes, are an important specialty crop in Maryland. The 2019 survey was conducted from July through November, in seven fields across seven Maryland counties. Survey emphasis was on fields with the greatest variety of solanaceous crops. Survey target pests were four insects, four nematodes, and three plant pathogens known to infest these crops. No targeted pests or pathogens were discovered in any of the survey samples collected.

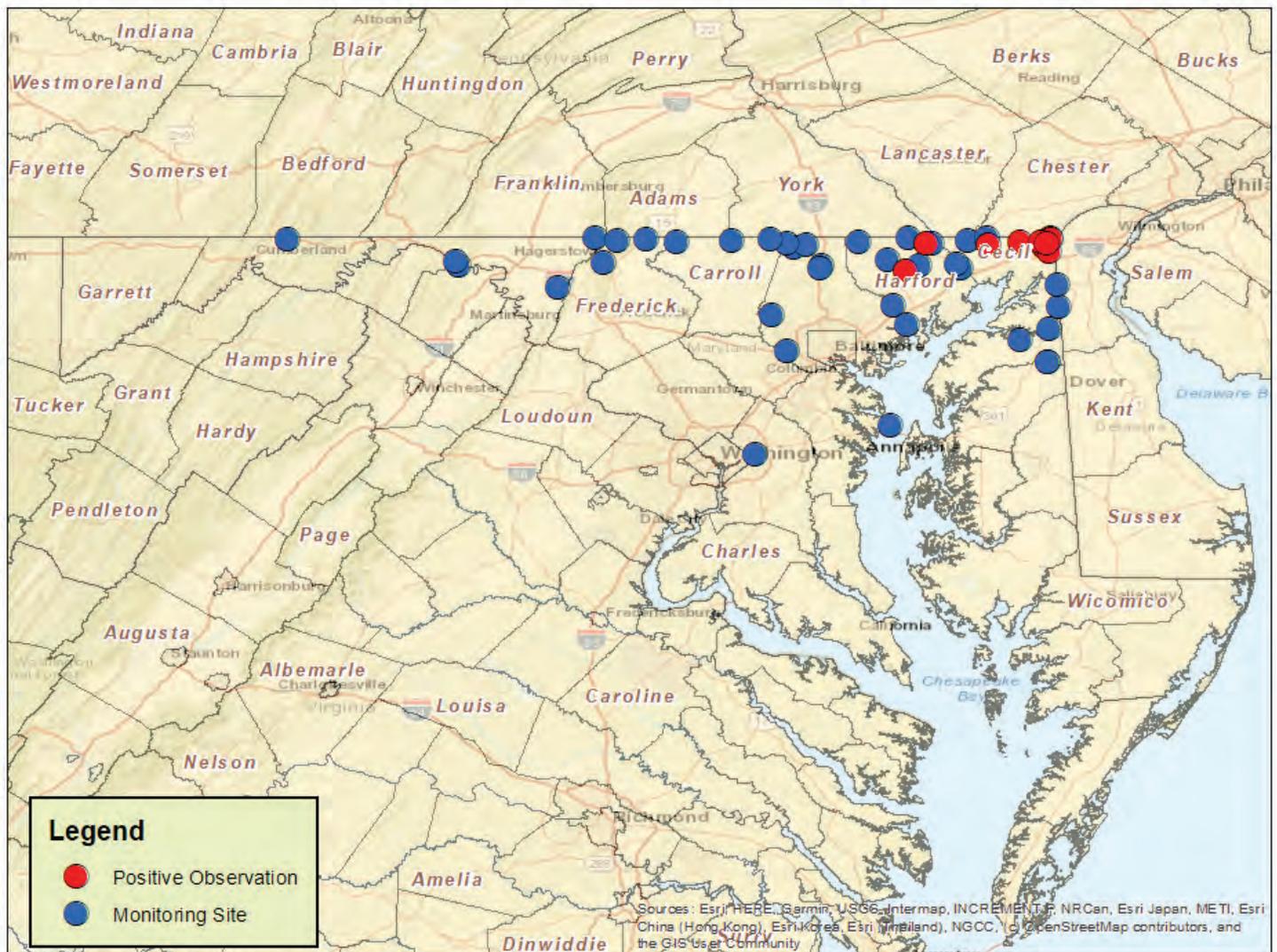
2019 MDA CAPS AND PLANT PROTECTION ACT SURVEYS



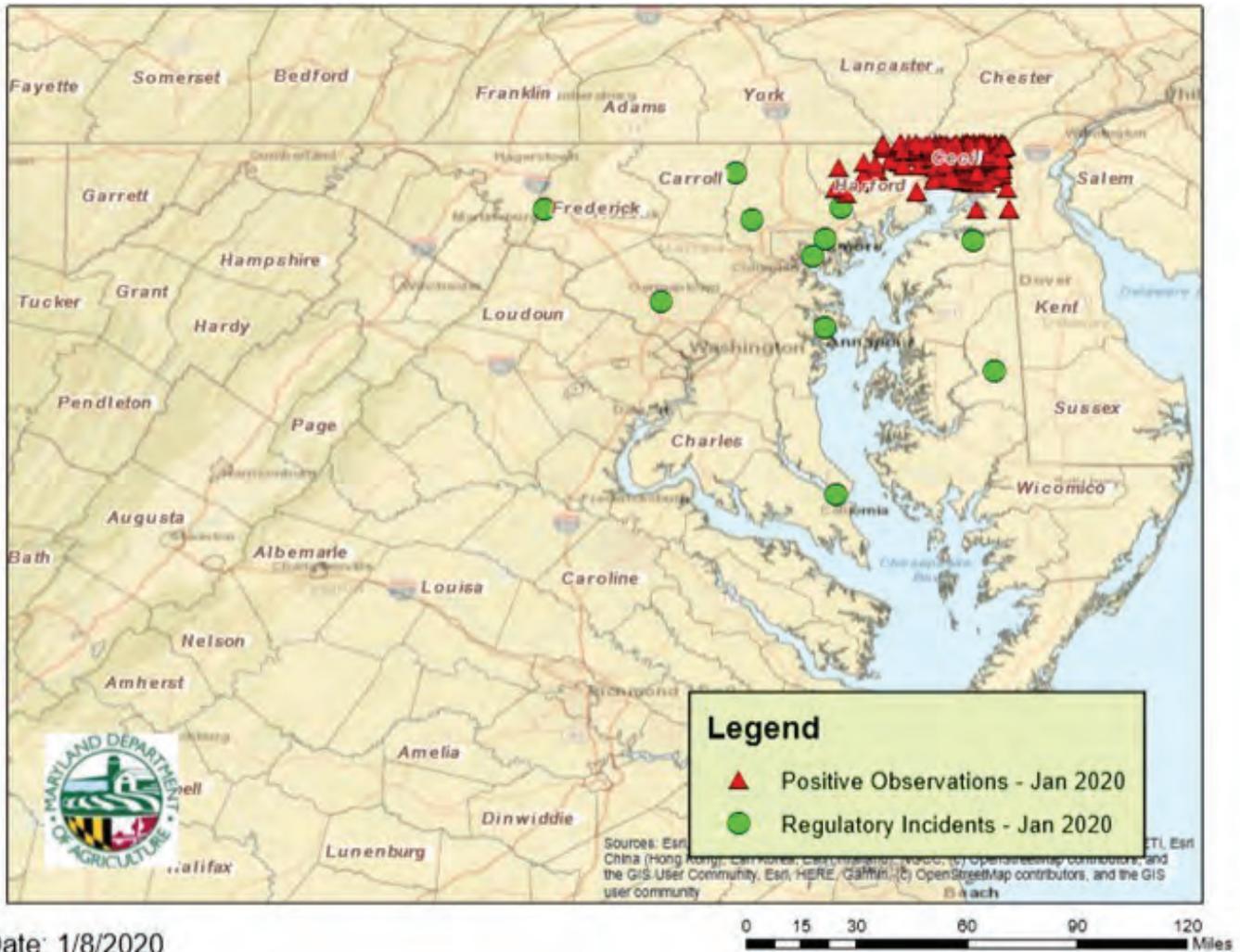
Spotted Lanternfly Survey. Spotted lanternfly, an invasive plant hopper native to Asia, is a destructive pest with a wide variety of hosts, including many economically important crops in Maryland such as grapes, hops, and tree fruits. The spotted lanternfly survey was conducted from May through December at 54 sites covering 11 Maryland counties. These sites were chosen because they were either located in close proximity to known populations of spotted lanternfly in neighboring states or in areas that see large amounts of visitor traffic. The survey was conducted via visual inspection, in addition to the use of sticky tree bands to capture the pests. Of the 54 sites monitored, spotted lanternfly was found at 21 sites and 20 of these infested sites had apparent populations present. *See map below: Spotted Lanternfly Monitoring*

Additionally, as part of the spotted lanternfly monitoring, delineation surveys were conducted at areas where Maryland citizens reported potential spotted lanternfly sightings to MDA. From June through December 2019, MDA responded to 244 reports of spotted lanternfly. Of these reports, evidence of the spotted lanternfly was corroborated at 210 sites, mostly located in northeastern Maryland in Cecil and Harford counties. An area encompassing a quarter-mile radius around each of these sites was searched for additional spotted lanternfly and the pests' main host *ailanthus altissima*, also known as the tree of heaven. In conjunction with the USDA, *ailanthus altissima* found in these areas will be treated with either a herbicide to remove the trees or with an insecticide to kill the spotted lanternfly when it feeds on the tree.

2019 SPOTTED LANTERNFLY MONITORING



2019 SPOTTED LANTERNFLY OBSERVATIONS



Date: 1/8/2020

To date, 2,698 *Ailanthus altissima* have been treated to combat spotted lanternfly and approximately 22,200 acres have been delimited. See map page 38: *Spotted Lanternfly Observations*

DIAGNOSTIC LABORATORIES

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

Entomology Laboratory. In 2019, submitted specimens of note included the giant leopard moth, which was mistaken several times for the spotted lanternfly, and the grass-carrying wasp. Through various survey traps, the following insects were also identified: nearly a dozen earwigfly, vampire ants, and *Agrilus smaragdifrons*.

A wingless, female *Dolophilodes distinctus* caddisfly was removed from a spotted lanternfly sticky tree band. Exotic wood boring beetle traps yielded adult telephone pole beetles, the giant resin bee, and several kudzu bugs. In Prince George’s County, a number of people reported seeing 17 year-cicadas. This may mean there will be higher populations of 17-year cicadas in 2021, when they are due to appear.

Plant Pathology Laboratory. The plant pathology laboratory provides testing, analysis, and recommendation services for problems caused by abiotic and biotic pathogens for MDA’s programs. MDA’s plant pathologist reviews and suggests changes on import permits for plant pathogens and genetically modified plant materials as part of the state’s regulatory responsibility.

The diagnostic laboratories’ primary responsibility is to test and detect pathogens, disease, and damage problems

encountered during inspection of plant materials in nurseries, landscapes, and retail stores throughout Maryland. The pathology laboratory received 58 plant samples for diagnosis and management solutions during the 2019 growing season. Several late season samples were tested through the University of Maryland's Plant Pathology Lab when the plant disease specialist position was vacant in fall 2019. A majority of samples came from Maryland nursery inspectors, with some from pesticide inspectors, landscapers, and homeowners.

The exotic disease boxwood blight remained a high-priority problem for the program. In 2019, suspected and confirmed boxwood blight cases were down from the previous year.

MDA's plant pathology lab tested certain Maryland nurseries for the initial pathogen of sudden oak death when potentially infected plant material was shipped from outside the state. Sudden oak death is a federally-regulated pathogen and poses a threat to Maryland's forest and horticulture industries. Federal labs found no presence of *Phytophthora ramorum* in any of the receiving nurseries. Federally-funded surveys for emerging pathogens in small berry crops, stone fruits, and solanaceous crops were performed on 26 farms in Maryland. No targeted emerging pathogens were detected in 2019.

Greenhouse Laboratory. Mile-a-minute (MAM) weed plants were produced for the Integrated Pest Management (IPM) and biological control program for insect colonies that require food and plant material. MAM stem cuttings were taken and



Plants inside MDA's greenhouse in Annapolis, MD.

approximately 1,500 MAM plants were transplanted and grown in the greenhouse in 2019. These MAM plants will be used as food for colonies of the stem-boring weevil, the biocontrol agent for MAM plants.

A new crop, knotweed, was started in the greenhouse which would feed another biocontrol agent once the permitting process is complete for that organism. Funding sources for this new biological control agent have been secured for the current fiscal year.

Virus indicator plants of 15 different genera and species are seeded and transplanted weekly to the greenhouse to be used, when needed, to test plants submitted by nursery inspection staff for the possible presence of diseases.

Additional support for the Maryland Nursery Inspection Program is provided when plant specimens believed to be infected with disease are brought in by nursery inspectors and held at the greenhouse for observation and further tests.

The greenhouse continues to provide large-scale sterilization of infested or weedy plant material and soil, in order to maintain colonies of MAM and dispose of quarantined nursery material.

A variety of other programs take place at the greenhouse on a yearly basis. These include plants produced to support department displays at the Maryland Home and Garden Show as well as the Maryland State Fair. Plants are also grown and maintained for use during the Certified Professional Horticulturist (CPH) exams given at MDA's headquarters twice a year and proctored by program staff in cooperation with the Maryland Nursery, Landscape, and Greenhouse Association (MNLGA).

PLANT CERTIFICATION

Maryland Ginseng Management Program. The Maryland Ginseng Management Program protects American ginseng by monitoring the harvest and 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 (USFWS). The program follows established protocols and Convention on the International Trade in Endangered Species (CITES) regulations to ensure continued viability of this potentially threatened native resource and to protect it from over harvesting. Through this program and the inspection and certification process, licensed dealers are enabled to legally sell the wild-harvested plant interstate and in international markets.

MDA also works with growers of wild-simulated and woods-grown ginseng to allow them to meet regulatory requirements and to market and export their highly-valued crops. These roots, both dried and green (fresh), are highly prized, especially in China and Korea, for properties that putatively promote good health.



Harvested American ginseng (left) and wild American ginseng (right).
Photo Credit: Larry Harding

During the 2018-2019 season, the Maryland Ginseng Management Program licensed 11 ginseng dealers and 151 ginseng collectors in the state. For the 2019-2020 season, 14 dealers and 134 collectors were licensed. Licensing for ginseng dealers and collectors starts after July 1 of each year, as the collection season for wild-harvested ginseng does not begin until September 1. Harvest season ends December 15 and the sales season ends March 31 of the following year. Harvest numbers reported are for the program season beginning September 1, 2018 and ending March 31, 2019.

Over the 2018-2019 harvest and sales season, the program inspected, collected size and age data from, and weighed and certified the following: 59.51 pounds of dry wild ginseng root, 3.88 pounds of green (fresh) wild ginseng root, 45.81 pounds of wild-simulated dry ginseng root, 82.2 pounds of wild-simulated green (fresh) ginseng root, and 15.5 pounds of green (fresh) woods-grown ginseng root. No cultivated ginseng root was certified for the 2018-2019 harvest season.

For the purpose of this report, both artificially propagated (cultivated and woods-grown) ginseng and wild-simulated ginseng harvests are recorded as artificially propagated. Both artificially propagated and wild-simulated ginseng, distinctions recognized by the USFWS and CITES, are being grown as alternative agricultural crops in Maryland.

As compared to numbers recorded for the 2017-2018 harvest, the 2018-2019 harvest and certification numbers were up about 8% for dry wild ginseng and 75% higher for artificially propagated dry ginseng. The amount of wild green (fresh) ginseng root certified in the 2018-2019 season represents an approximate 33% decrease as compared to 2017-2018. For wild-simulated green (fresh) ginseng root, there was an increase of about 20% compared to 2017-2018.

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 the USFWS and CITES requirements. The USFWS' 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 and certified by MDA, including woods-grown and wild-simulated designations in Maryland, 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.

Responses to annual questionnaires mailed to ginseng collectors and dealers at time of licensing were modified in 2019 to gather currently pertinent information on participants' concerns and opinions. Many respondents continue to relate that the incidence of out-of-season poaching of wild ginseng in Maryland remains high. Also expressed was the sentiment that preventing 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 2018-2019, Maryland's Ginseng Management Program staff concluded their participation in working groups that included members of each of the 19 states and one tribe that actively managed the harvest and sale of ginseng. These working groups shared ideas and experiences with the goal of achieving a higher level of consistency and understanding regarding both the preservation and certification practices regarding American ginseng. Groups were formed during the

American Ginseng Coordination Meeting between the USFWS and state and tribal ginseng management programs in July of 2017 and focused on issues including the biology, regulatory practices, and public outreach methods with regards to ginseng management. During the past year, each group conclusively submitted their findings for consideration by USFWS representatives. The results of these efforts could help to shape the way that MDA and other state and tribal agencies handle the preservation of American ginseng in the future.

WEED INTEGRATED PEST MANAGEMENT (IPM)

The department's Plant Protection and Weed Management Program entomologists and staff continued to work with the Maryland Department of Transportation (MDOT) State Highway Administration (SHA) to conduct an IPM program aimed at providing biological control for certain targeted weed species on SHA right-of-ways.

In 2019, weed IPM research and demonstration activities were conducted on SHA right-of-ways, using funding from SHA and the USDA APHIS PPQ program. The department's weed management and biological control research and demonstration projects have been conducted over the past 20 years under current program management, and have involved cooperation with SHA, the Howard County Department of Recreation and Parks, the Maryland National Capitol Park and Planning Commission, the Maryland Department of Natural Resources (DNR), USDA Agricultural Research Service (ARS), USDA APHIS, the U.S. Forest Service, the USFWS, the U.S. Geological Survey, and, in certain cases, private Maryland businesses and landowners.

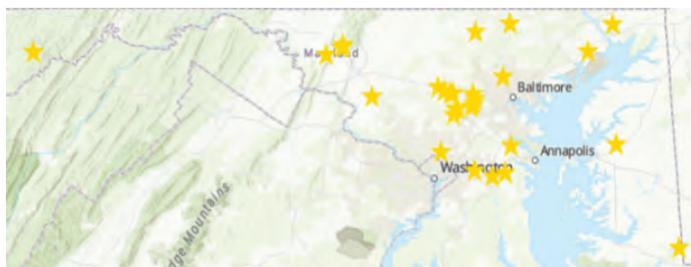
During 2019, MDA's Plant Protection and Weed Management continued working with the Landscape Operations Division of SHA to administer a program to continue biological control driven suppression of MAM weed and to start a program aimed at suppression of knotweed on state highway right-of-ways. These programs include lab, greenhouse rearing, and field release and monitoring of the weevil. Funding for rearing, release, and monitoring of the weevil and initiating the knotweed program is provided in part by SHA.

In 2019, the insect rearing lab staff bred 13,830 weevils and released 8,109 adult weevils statewide. Release numbers were supplemented by an additional 2,000 weevils acquired from the New Jersey Department of Agriculture's Phillip Alampi Beneficial Insects Laboratory. The rearing program also involves growing the weevil's host plant, MAM, at MDA's greenhouse in Annapolis. In 2019, approximately 1,500 MAM plants were grown to maintain the weevil colony growth and

ensure weevil releases throughout the state.

The MAM weevil, *Rhynoncomimus latipes*, has now been released by MDA staff and is established in 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.

2019 MDA MILE-A-MINUTE WEEVIL RELEASE SITES



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, such as Johnsongrass, shattercane, and thistles, can cause losses in excess of \$25 million annually to Maryland agriculture due to reduced yields, quality of crops and forages, and increased control costs. Increased expenses are also incurred for roadside and non-crop property management.

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

In the 15 participating counties, a Weed Control Advisory Committee, with representatives from farming organizations, government agencies, the local farming community, and property owners, provides guidance for the program in that county. A county weed control coordinator is employed to determine infestations within the county, inspect uncontrolled infestations, provide information on appropriate control practices, and initiate control agreements with landowners to implement control.

In 2019, noxious weed advisory notices were sent to 302 managers of property infested with noxious weeds. Generally,

these notices were effective in obtaining compliance. When notifications are unsuccessful, MDA may take legal action.

In 2019, House Bill 808, Weed Control – Noxious Weeds – Regulations and Penalties, proposed changes to the Maryland Noxious Weed Law to create new regulations for the designation of noxious weeds and to establish administrative penalties for certain violations. HB 808 will go into effect in 2020. In addition to current noxious weeds, the legislation proposed that Palmer amaranth and tall waterhemp be added to the Noxious Weed List.

The Weed Control Program at MDA also responds to citizens’ requests for technical assistance in controlling invasive, persistent weeds such as phragmites, ailanthus trees, kudzu, and MAM weed plants.

Weed Control staff 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 2019, two sites were treated for giant hogweed in Garrett County and three sites were treated in Baltimore County. County weed control programs provided spray crews and materials to treat these giant hogweed infestations. Eradication is a multi-year effort and the Weed Control Program will treat infestations at the landowners expense.

Weed Control staff partnered with DNR for the eighteenth year to help run a program that manages phragmites. Upon request from landowners or managers, program staff supplies technical and spraying assistance for control of phragmites. DNR provided all of the herbicides applied in the nine Eastern Shore counties for phragmite spraying.

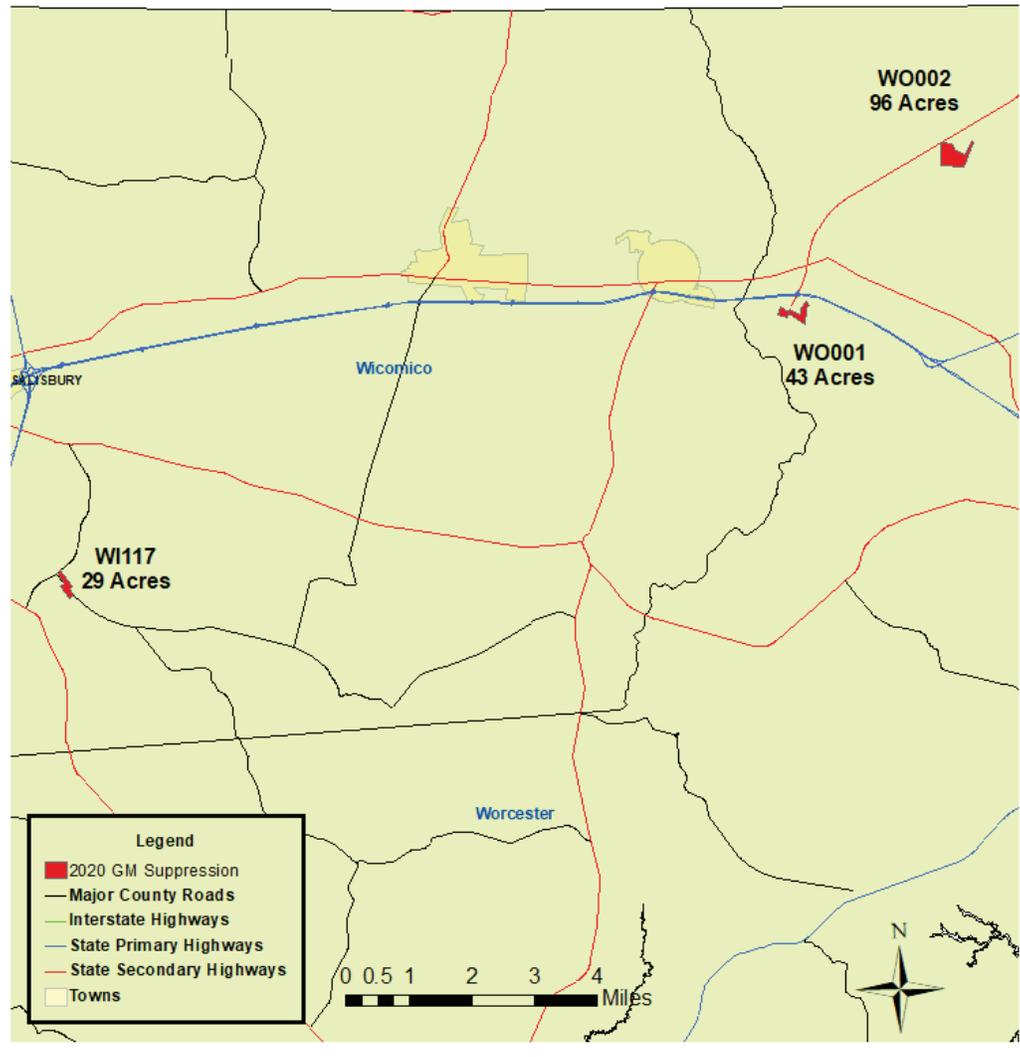
PLANT PROTECTION AND WEED MANAGEMENT SUMMARY OF ACTIVITIES

Activity	CY 2017	CY 2018	CY 2019
Beekeepers Registered	2,180	2,119	2,161
Honeybee Colonies Registered	15,630	14,415	15,923
Honeybee Colonies Inspected	3,011	1,438	4,430
Ginseng Dealers Registered	11	11	14
Ginseng Collectors Licensed	175	151	134
Nurseries Certified	299	311	300
Plant Dealers and Brokers Licensed	1,446	1,469	1,435
Phytosanitary Certificates Issued	176	473	592
Plant Pest Surveys – Number of Target Pests	36	38	54
Plant Pest Surveys – Number of Samples Processed	5,594	2,596	3,101
Target Pests Detected	13	12	11
Number of Noxious Weed Advisory Notices Issued	337	243	302

Note: Due to the seasonal nature of this program and calendar year federal reporting requirements, data is reported on a calendar year basis.

FOREST PEST MANAGEMENT

**Maryland Department of Agriculture
Forest Pest Management
2020 Gypsy moth Suppression Blocks
Eastern Shore of Maryland**

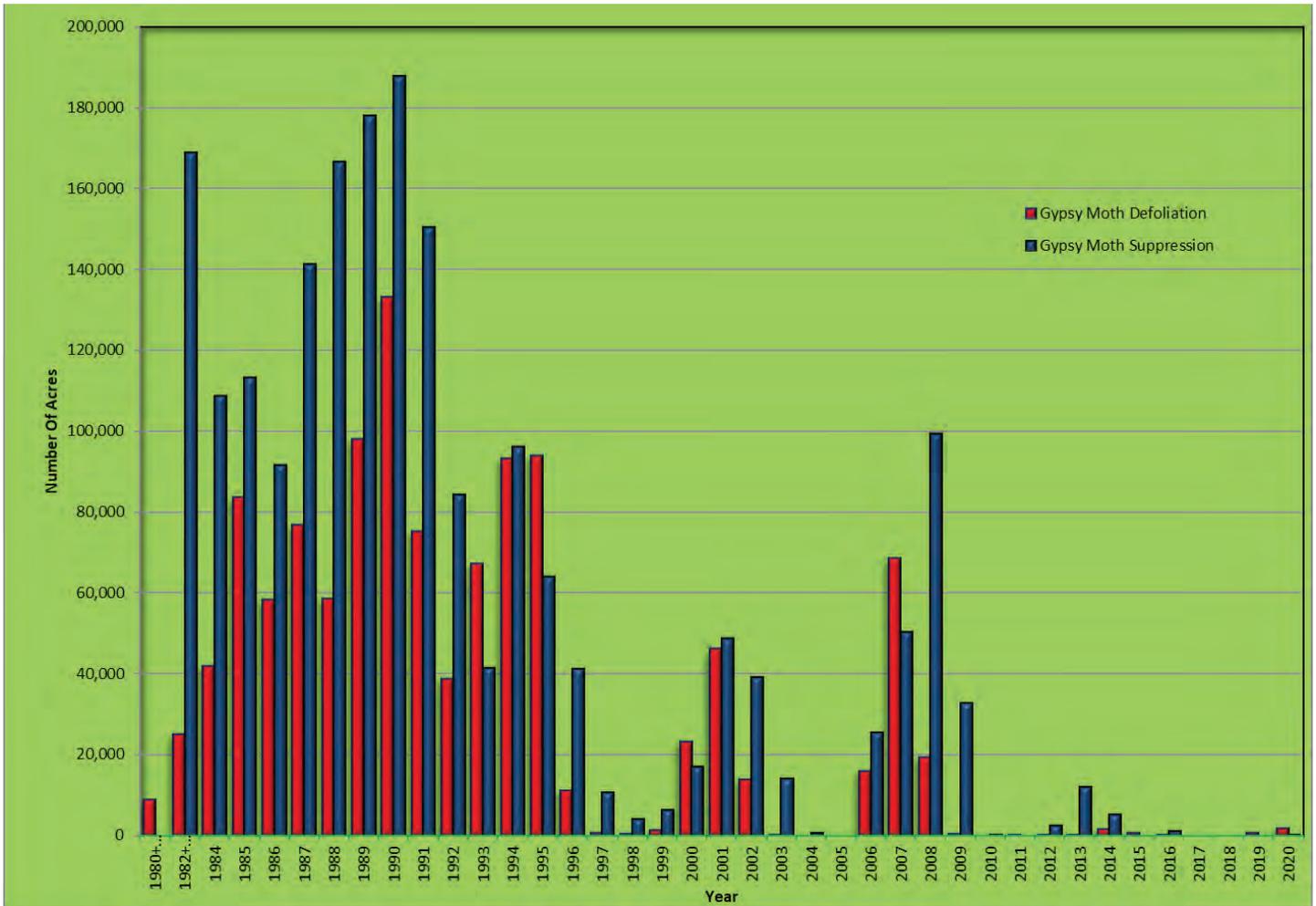


Date: 3/27/2020
Map Prepared by H. Disque

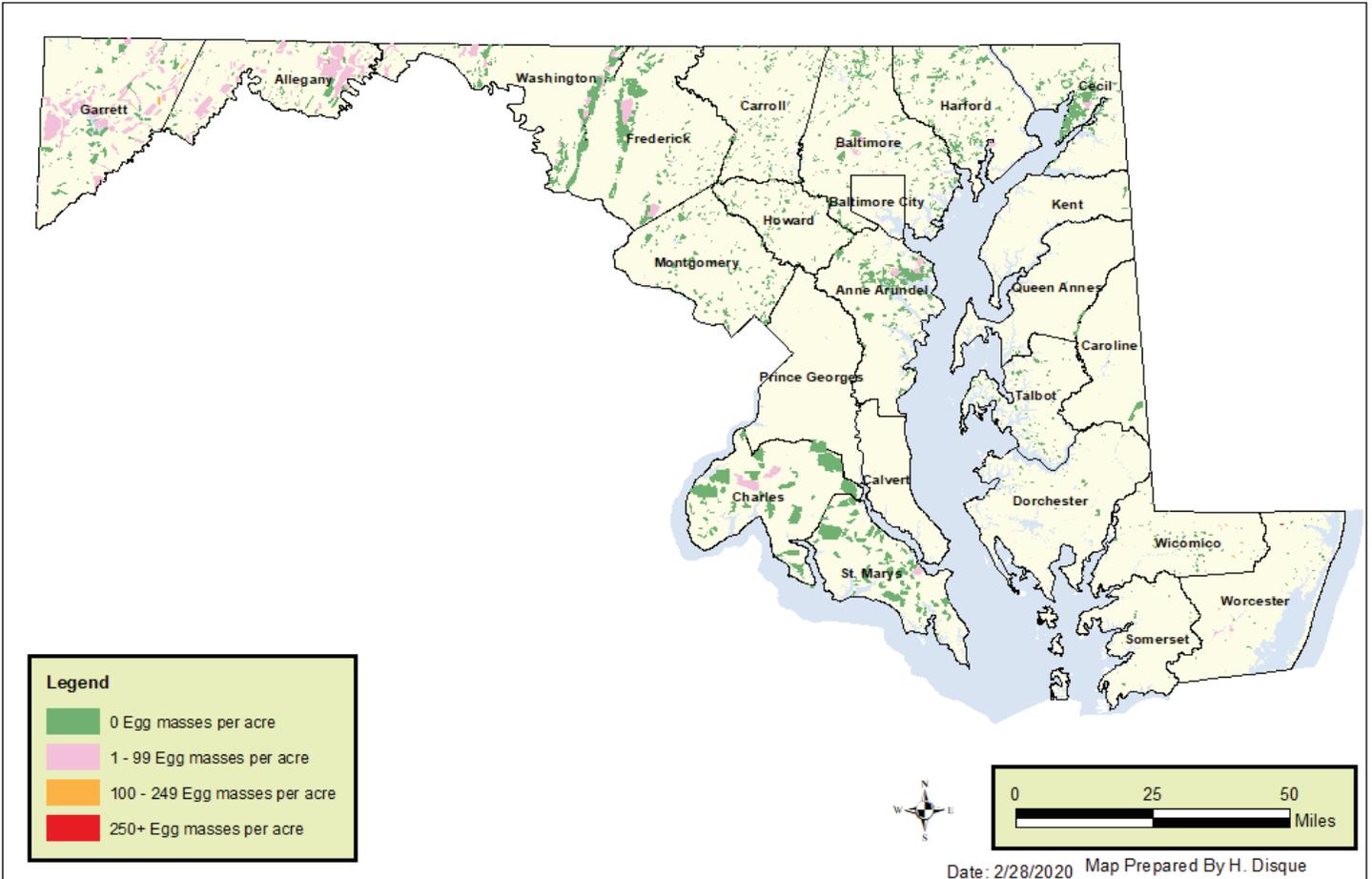
FOREST PEST MONITORING AND SURVEYING

Gypsy Moth. The European gypsy moth, *Lymantria dispar dispar*, 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, the department conducts an extensive survey for gypsy moth egg masses to determine potential areas of defoliation. From August 2019 through March 2020, MDA's Forest Pest Management (FPM) personnel conducted gypsy moth egg mass surveys on 483,223 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 sufficient to cause moderate to heavy defoliation on 218 acres in 2020. In April, 168 acres that are located on the lower Eastern Shore were sprayed with *Bacillus thuringiensis*. Gypsy moth defoliation in 2020 was seen on the lower Eastern Shore and totaled 1,700 acres.

MARYLAND GYPSY MOTH DEFOLIATION & SUPPRESSION 1980-2020



Maryland Department of Agriculture 2019-2020 Gypsy moth Survey Results Forest Pest Management Section



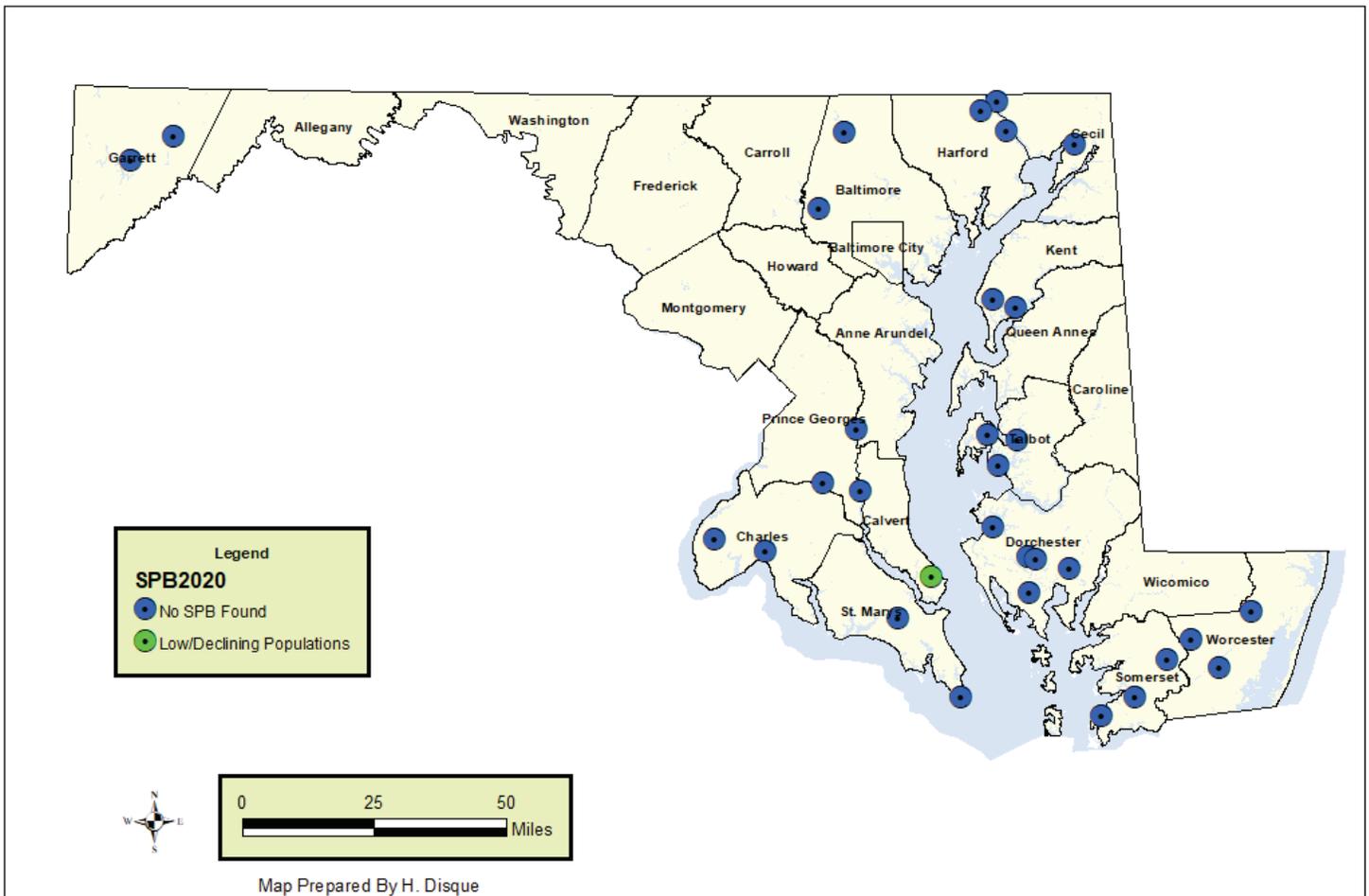
Southern Pine Beetle. The southern pine beetle is one of the most destructive insect pests of pines. Maryland is at the northern edge of its range and is commonly found on the lower Eastern Shore and in Southern Maryland. Since 1989, Maryland has participated in a multi-state southern pine beetle survey throughout the southern United States using pheromone-baited traps.

Traps were set up in 14 counties across Maryland. All traps collected had no presence of the southern pine beetle with

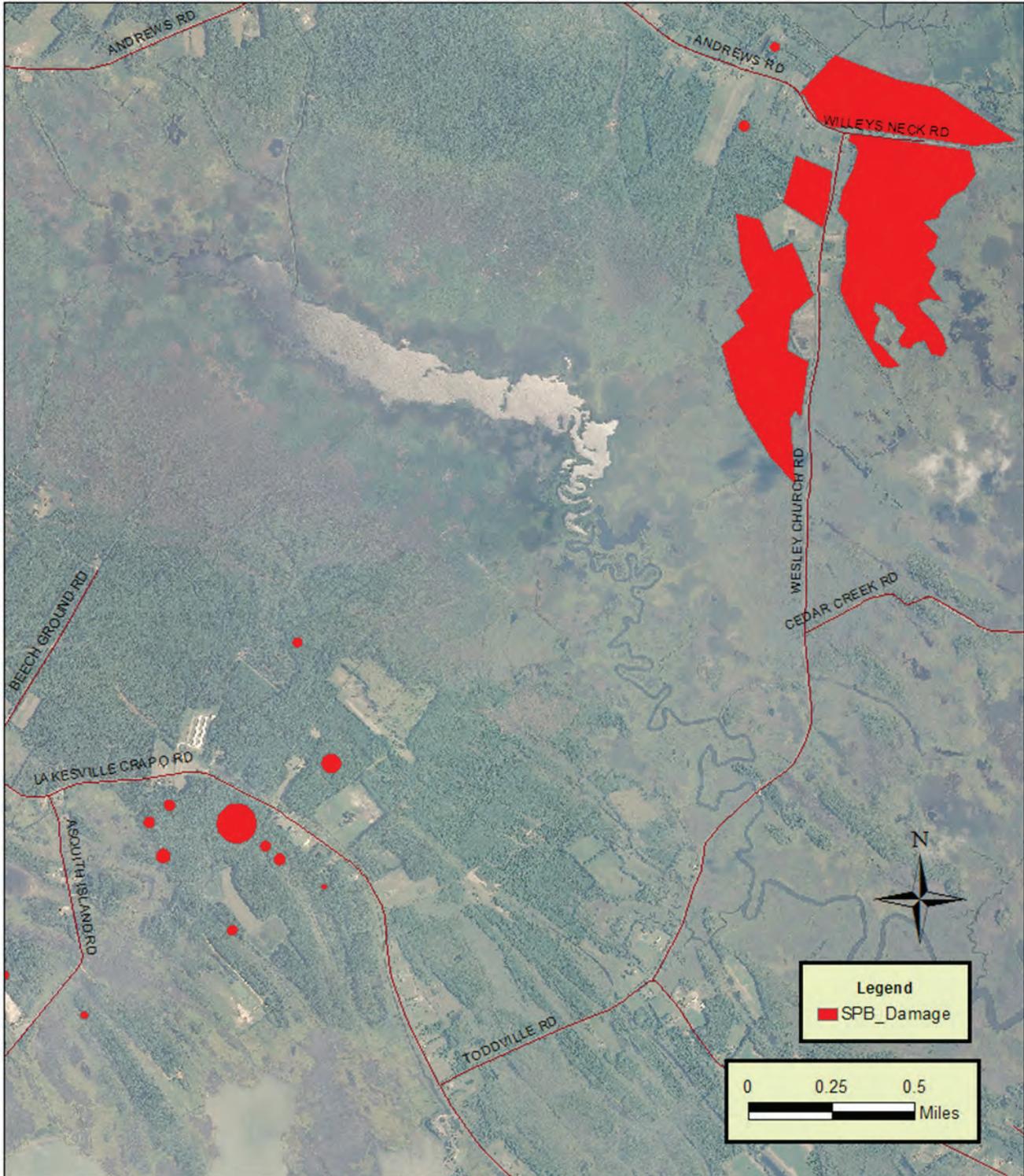
the exception of one trap in Calvert County, which collected 9 beetles during a seven-day period. This indicates that populations remain low in 2020. The traps were set up shortly after the time of redbud bloom.

The Dorchester County area that had experienced a southern pine beetle outbreak from 2015 to 2017 has had no additional mortality due to the pest. Many trees in this area and in southern Dorchester County are exhibiting chlorotic needles due to flooding and salt-water intrusion.

Maryland Department of Agriculture 2020 Southern Pine Beetle Survey Forest Pest Management Section



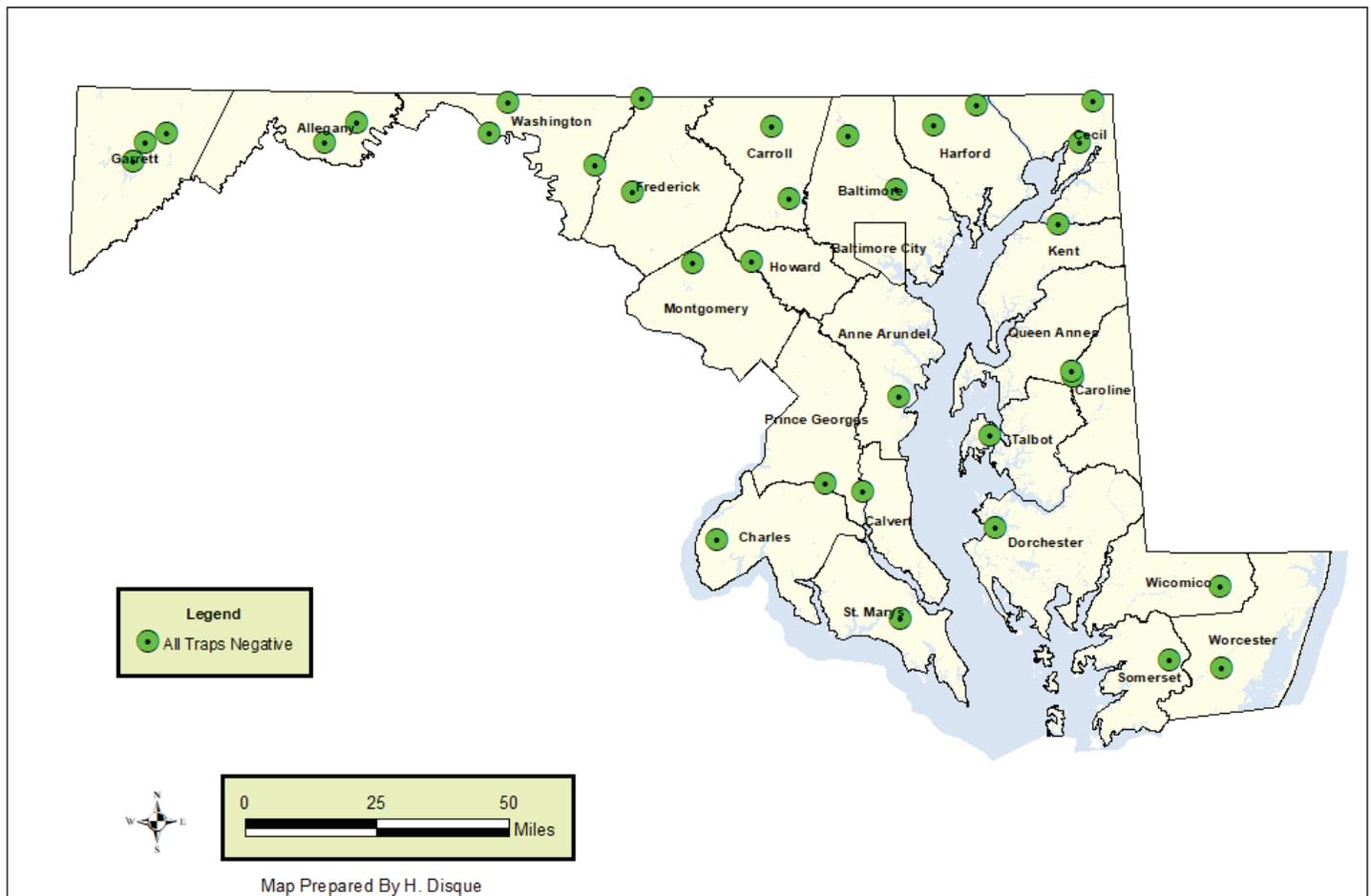
**Maryland Department of Agriculture
Forest Pest Management Section
Southern Pine Beetle Affected Area 2015-17
Dorchester County**



Woodwasp (*Sirex noctilio*) The sirex woodwasp has been the most common species of exotic woodwasp detected at U.S. ports-of-entry associated with solid wood packing materials. Recent detections of this woodwasp 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

woodwasp has not been detected in Maryland, but is known to be in Pennsylvania. To monitor for this insect, MDA placed traps in all Maryland counties and placed two traps in all northern tier counties bordering Pennsylvania. This totalled 33 traps in pine woods around the state. All traps were negative during the 2019 calendar year.

Maryland Department of Agriculture 2019 *Sirex noctilio* Trap Locations Forest Pest Management Section



Emerald Ash Borer (EAB). MDA's Forest Pest Management put up 22 green funnel traps in non-positive counties around the state and in the parasitoid release areas to monitor for EAB. EAB was found in Harford, Cecil, and Baltimore counties as well as Baltimore City. These areas were previously found to have an EAB presence. EAB was also found in Caroline County for the first time in May 2019. Two beetles were caught in a trap along a riparian forest edge.

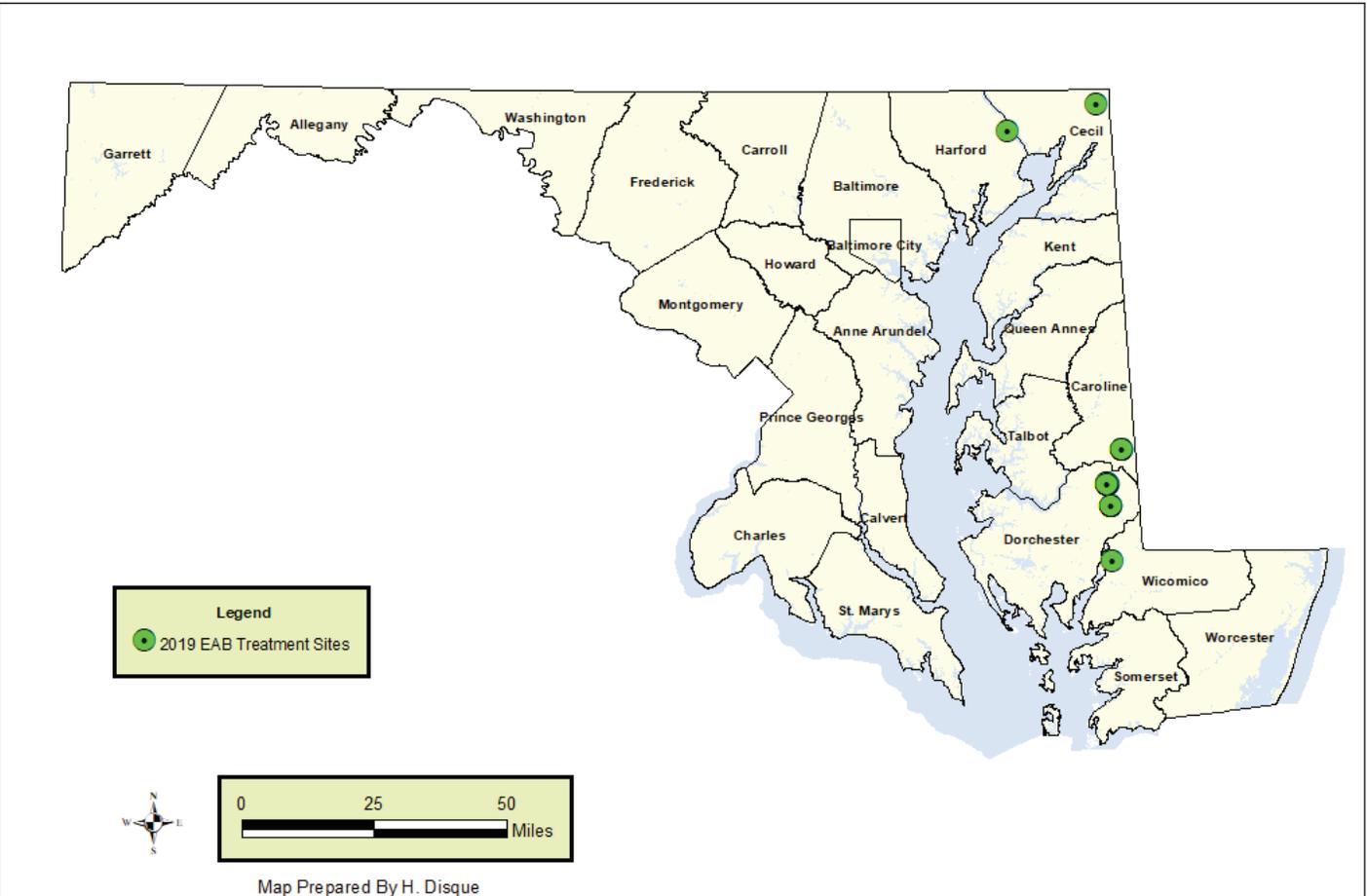
Large-scale, rapid tree die off has begun at the Baltimore County and Baltimore City parasitoid release locations. Rural forests along the upper Eastern shore are beginning to see tree mortality as well.

During the 2019 field season Forest Pest Management released 13,013 parasitoids of the EAB. This is down significantly from last year's total of 57,313 due to Brighton Lab's shipping restrictions. The parasitoids were released at six state park locations, two arboretums, one Nature Conservancy

property, and one national wildlife refuge in Garrett, Harford, Baltimore, Cecil, Caroline, and Dorchester counties as well as Baltimore City. Forest Pest Management released 11,200 *oobius agrili* as pupae in 112 vials. No *tetrastichus planipennis* were released. Two species of *spathius* were released, 1,235 *spathius agrili* as adults in 32 cups and 578 *spathius galinae* adults in 16 cups. These numbers are down from 6,359 *spathius agrili* released in 2018. This work is part of the IPM for the EAB landscape grant.

In addition, Forest Pest Management staff supervised treatments of ash trees around the state. This work was done at parks in cooperation with DNR, the Blackwater National Wildlife Refuge, and the Maryland Conservation Corps (MCC). In total 441 ash trees, 2,477" diameter at breast height (DBH) were treated using 10,665 ml of Tree-age, emamectin benzoate. Many of the trees treated were in riparian areas targeting rare tree species to provide seed for the future regeneration.

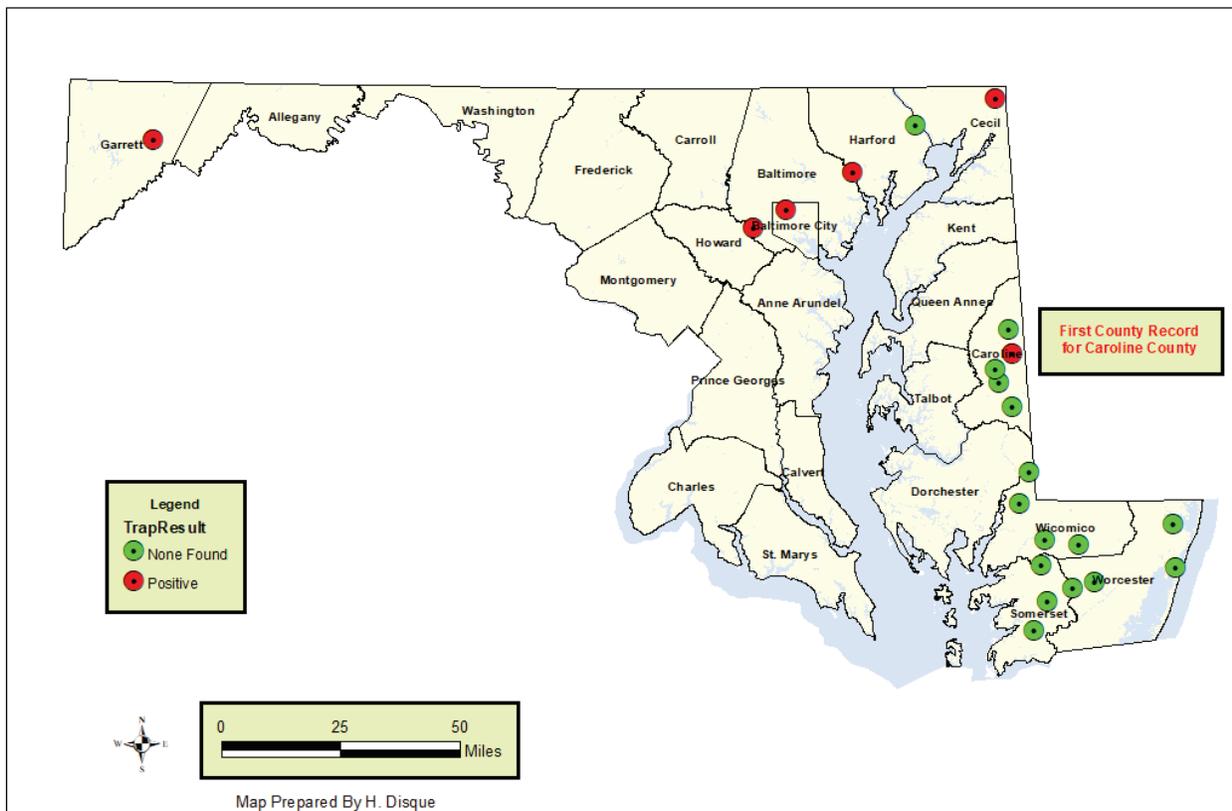
**Maryland Department of Agriculture
2019 Emerald Ash Borer Treatment Sites
Forest Pest Management Section & MD DNR & MD Conservation Corps**



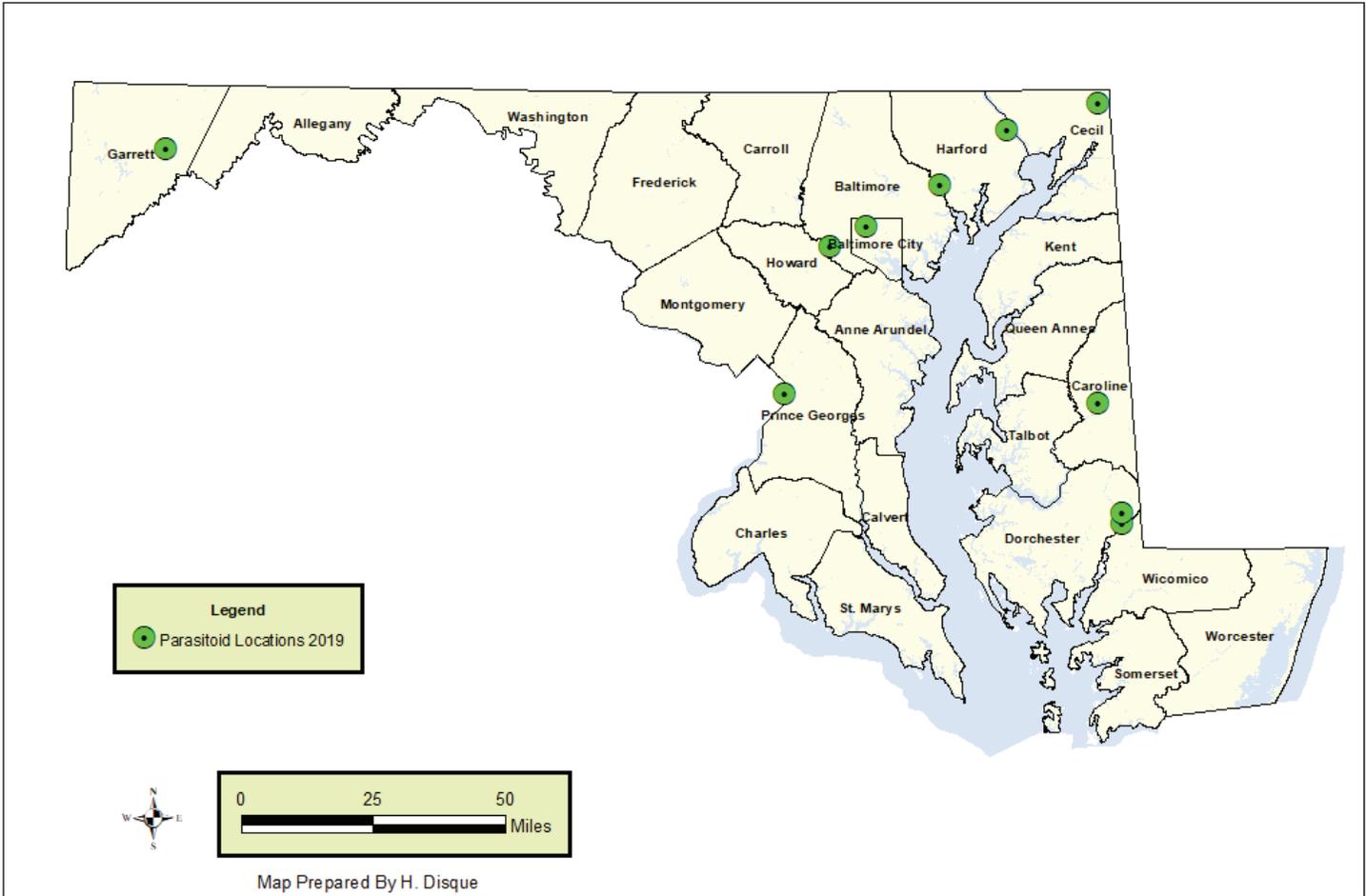
Maryland Department of Agriculture Forest Pest Management 2019 Emerald Ash Borer Parasitoid Release Summary

Site Name	Latitude	Longitude	Oobius agrili (vials)		Spathius agrili		Spathius agrili	
			# of Vials	Total	# of Cups	Total	# of Cups	Total
Cylburn Arboretum	39.3513	-76.65368	9	900				
Big Run State Park	39.5449	-79.13853	13	1,300				
Martinak State Park	38.86002	-75.84153	14	1,400	8	288		
Gunpowder Falls State Park	39.46263	-76.39238	6	600				
Susquehanna State Park	39.61383	-76.15099	6	600				
Patapsco Valley State Park	39.29593	-76.78358	9	900				
Fair Hill State Park	39.70282	-75.82881	6	600	8	338		
Blackwater NWR	38.52594	-75.7618	14	1,400	8	312		
Walnut Landing	38.53476	-75.76545	14	1,400	8	297		
National Arboretum	38.90597	-76.97334	21	2,100			16	578
Totals			112	11,200	32	1,235	16	578

Maryland Department of Agriculture 2019 Emerald Ash Borer Adult Trap Locations Forest Pest Management Section



Maryland Department of Agriculture 2019 Emerald Ash Borer Parasitoid Release Locations Forest Pest Management Section

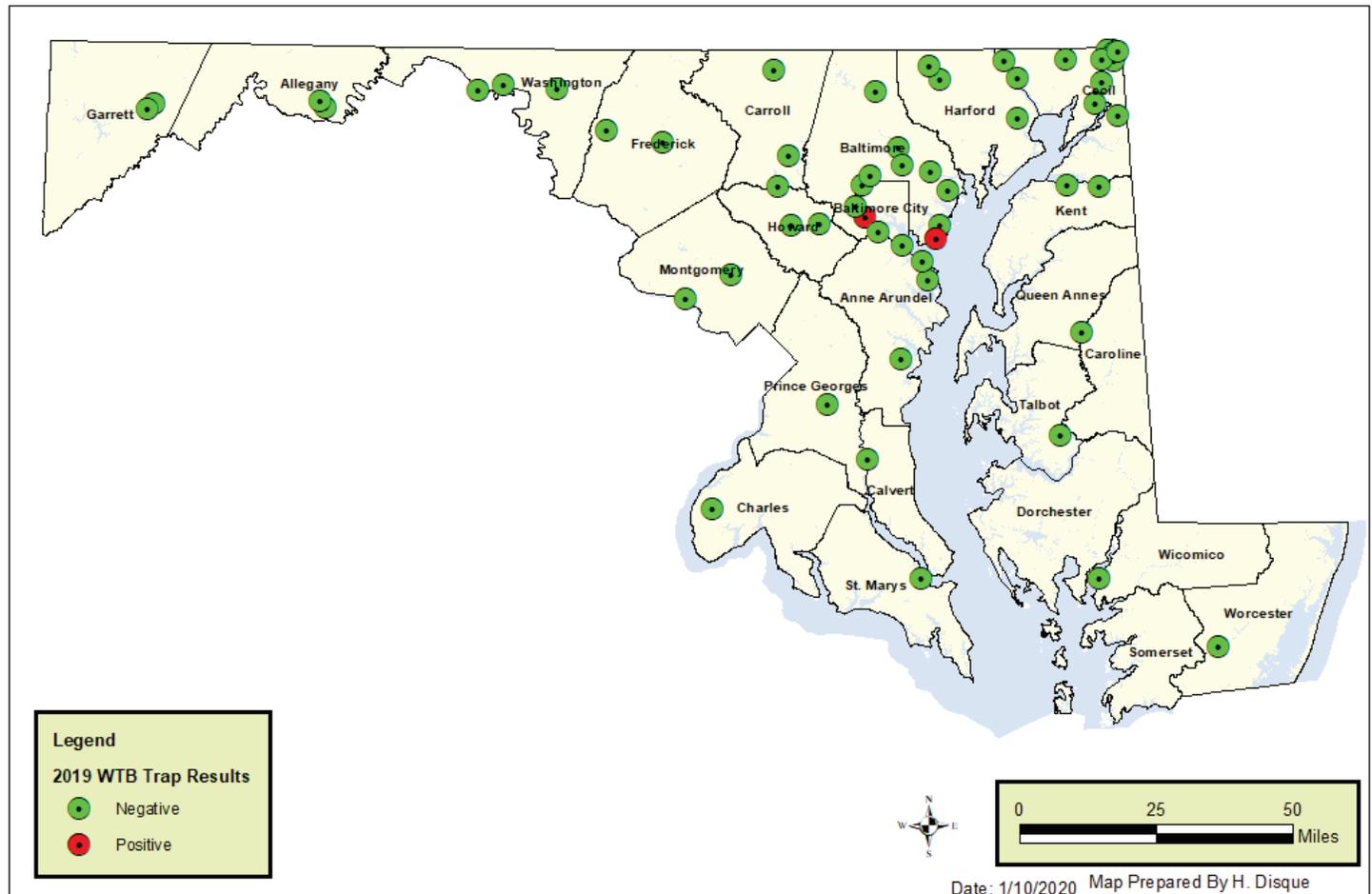


Thousand Canker Disease (TCD) of Black Walnut and Walnut Twig Beetle. TCD was first recognized in 2008 as a complex consisting of the walnut twig beetle, *pityophthorus juglandis*, and the fungus, *geosmithia morbida*. TCD is blamed for widespread mortality of eastern black walnut trees planted in the western U.S. 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 — Tennessee, Indiana, Ohio, Pennsylvania, Virginia, North Carolina, and Maryland. 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 TCD was confirmed. A quarantine order for northeastern Cecil County was issued by MDA in January 2015 to limit the spread of TCD in black walnut trees. Upon new positive detections in 2018, the quarantine order was updated to

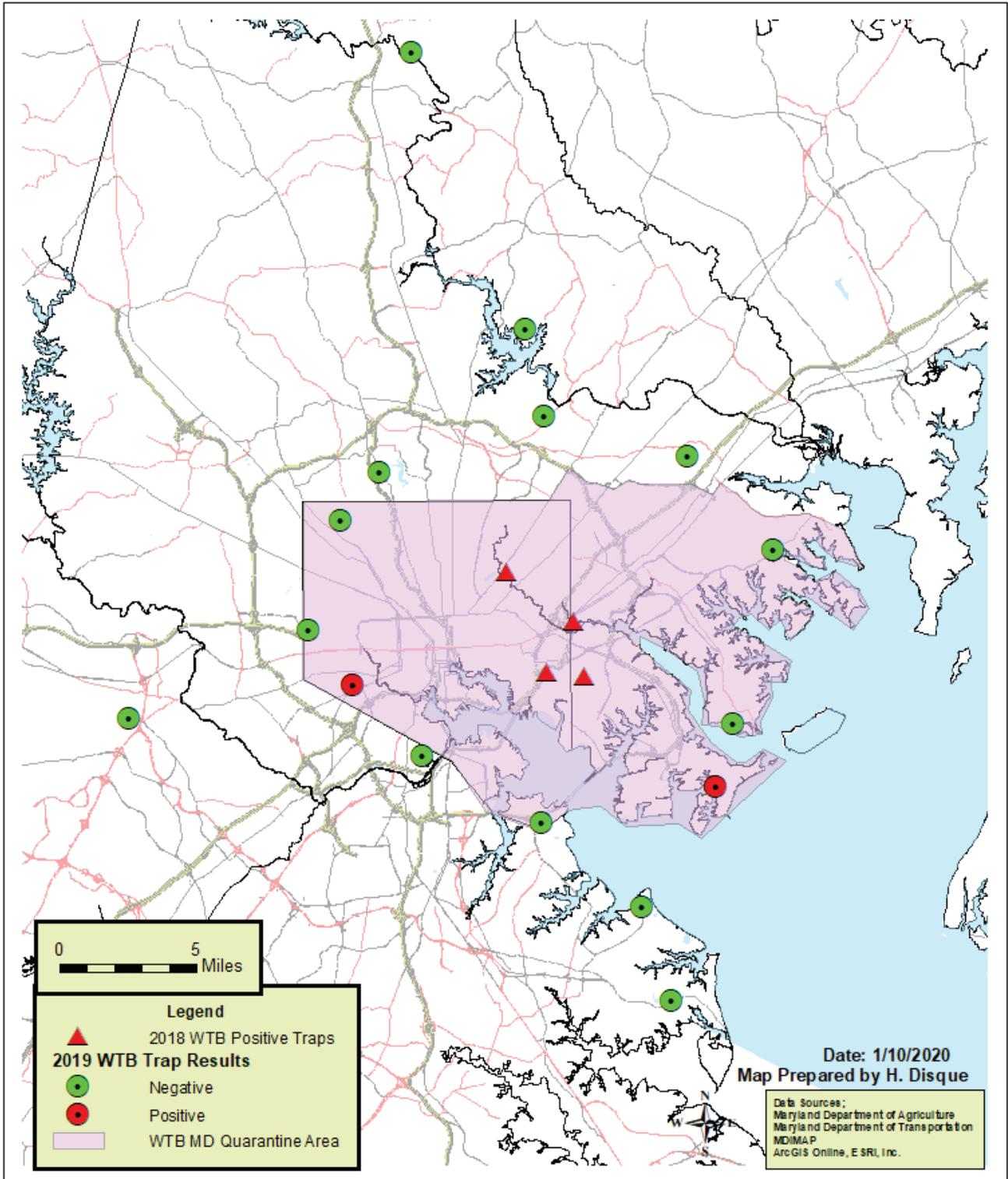
include all of Baltimore City and part of Baltimore County. This new quarantine was signed on May 1, 2019, by the Maryland Secretary of Agriculture.

In 2019, Forest Pest Management staff set 59 Lindgren funnel traps baited with the walnut twig beetle lure across 20 counties and in Baltimore City. Of these traps, 26 were set near previously positive sites in Cecil and Baltimore counties and Baltimore City to delimit the infested areas. Traps were checked every two weeks, field samples were collected, samples were sorted and labeled in office, and then samples were sent to the Pennsylvania Department of Agriculture for identification. The previously positive site, trap CE01, was not positive in 2019. Trees at the original positive site have shown no evidence of decline. One trap in Baltimore County and one trap in Baltimore City were found to be positive. These traps were within the quarantine area.

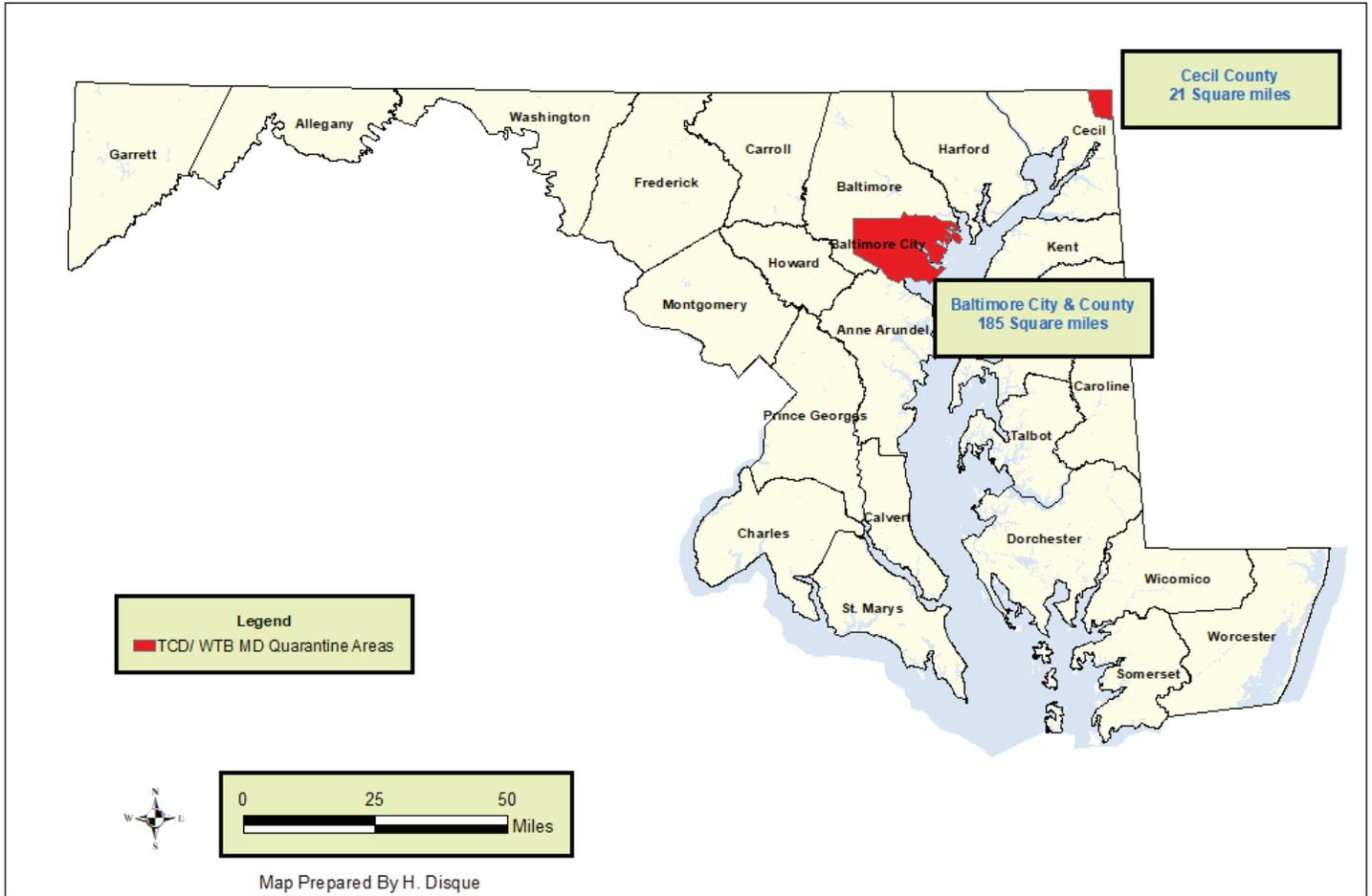
Maryland Department of Agriculture 2019 Walnut Twig Beetle Trap Results Forest Pest Management Section



**Maryland Department of Agriculture
Forest Pest Management
Walnut Twig Beetle Trap Results**



Maryland Department of Agriculture Thousand Canker Disease & Walnut Twig Beetle Quarantine Areas



Hemlock Woolly Adelgid (HWA) Suppression. The HWA remains the major threat to the health of eastern hemlocks. Infested hemlocks are present in the metropolitan area between Baltimore and Washington and in natural stands from Cecil to Garrett counties. In 2003 to 2004, a joint task force comprised of MDA Forest Pest Management and DNR experts addressed the multi-disciplinary needs of the HWA infestation. The task force prioritized more than 50 hemlock stands and selected them as the sites for joint suppression efforts, either chemical and/or biocontrol. Only publicly-owned or public-use sites are part of this suppression project. Currently, the chemical option involves treating the hemlock

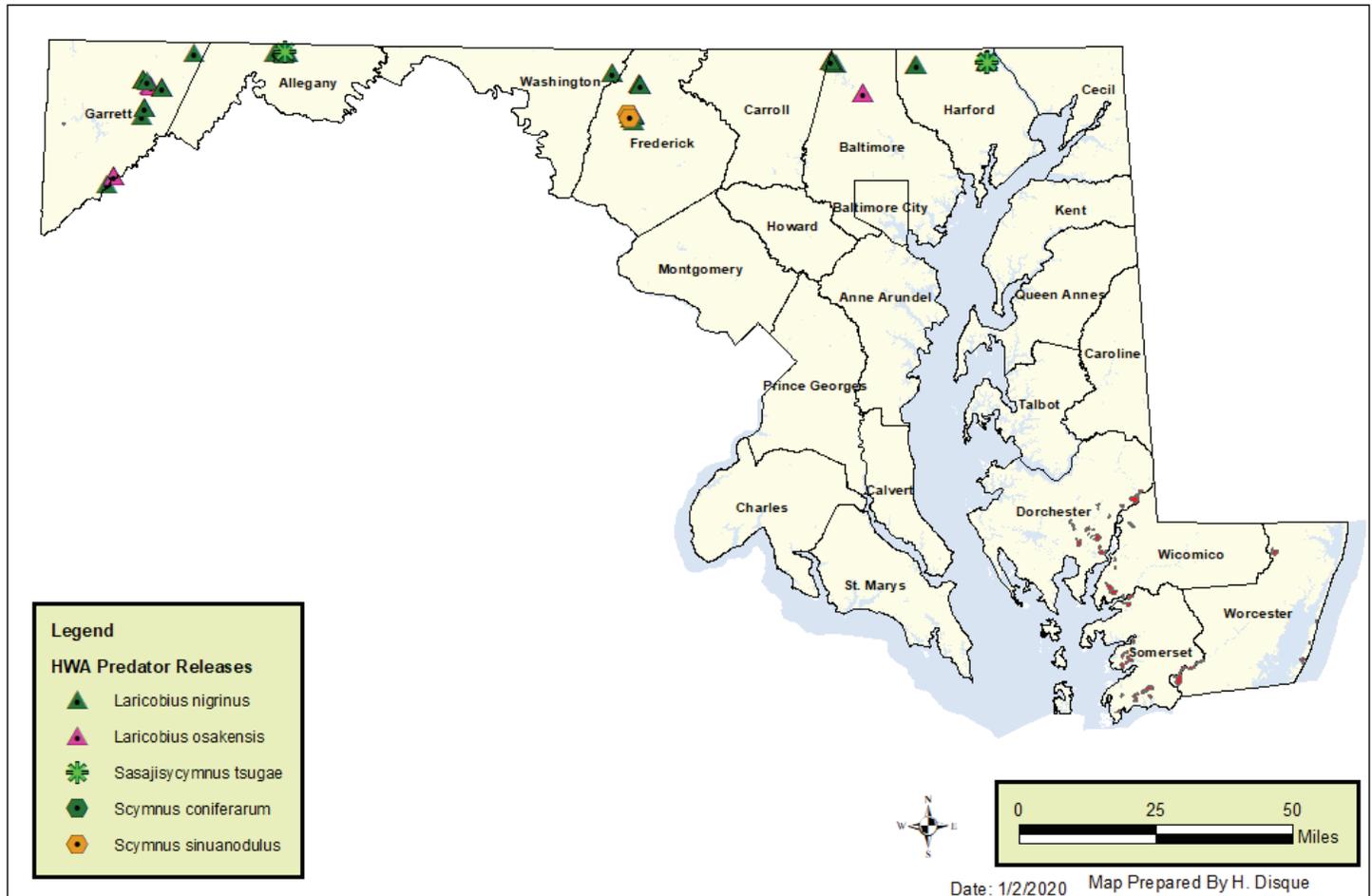
trees with an insecticide, imidacloprid, by one of two methods, trunk injection or soil injection. The biocontrol option involves releasing HWA predators into the hemlock stands in an effort to reduce HWA populations.

A total of 3,955 hemlock trees and 50,378" DBH were treated in Maryland between July 1, 2019 and June 30, 2020. Of this total, 724 trees or 8,065" DBH were trunk injected and 3,222 trees or 42,191" DBH were soil injected. CoreTect was used to treat 9 trees totaling 60" DBH. Treatment efforts in 2020 were severely affected by the COVID-19 pandemic.

Maryland Department of Agriculture Forest Pest Management Yearly Imidacloprid Treatments for Hemlock Woolly Adelgid Control in Maryland 2004 - 2020								
Year	Trunk Injection		Soil Injection		CoreTect		Total	
	# of Trees	Inches DBH*	# of Trees	Inches DBH*	# of Trees	Inches DBH	# of Trees	Inches DBH*
2004	166	2,687	0	0	0	0	166	2,687
2005	106	1,433	1,675	17,623	0	0	1,781	19,056
2006	38	476	1,015	9,465	0	0	1,053	9,941
2007	22	325	324	4,279	0	0	346	4,604
2008	129	1,982	18	257	0	0	147	2,239
2009	124	1,281	675	6,029	0	0	799	7,310
2010	724	8,534	3,673	33,701	98	862	4,495	43,096
2011	1,905	19,468	7,285	81,684	80	610	9,270	101,761
2012	1,957	20,206	10,086	105,395	4	45	12,047	125,645
2013	1,980	18,993	11,755	117,604	7	47	13,742	136,644
2014	1,844	19,047	6,915	75,751	644	7,853	9,403	102,651
2015	1,474	14,378	8,072	94,099	4	32	9,550	108,509
2016	1,822	19,791	8008	85,813	64	577	9,894	106,181
2017	1,435	15,610	8,511	93,997	234	252	10,180	109,859
2018	1,433	14,647	8,667	93,623	220	557	10,320	108,827
2019	1,431	14,994	8,386	82,628	27	180	9,844	97,802
2020*	127	1,893	555	13,102	5	37	687	15,032
Total	16,717	173,852	85,620	915,050	1,387	11,052	103,037	1,086,812

*Note: Includes totals from spring only.

Maryland Department of Agriculture Hemlock Woolly Adelgid Predator Releases in Maryland Hemlock Stands 1999 to 2019 Forest Pest Management Section



HWA Predator Releases. Over 51,801 HWA predators have been released in Maryland since 1999. In 2019, 974 *Laricobius nigrinus* were released at sites in Baltimore and Frederick counties. *See chart above.*

HWAS Efficacy Surveys. HWA treatment efficacy surveys have been conducted annually since 2006. Data analyzed through 2017 shows treated trees averaged a 79% reduction in HWA populations when measured one-year post-treatment and non-treated trees averaged a 24% increase in HWA populations over the same period. From 2019-2020, efficacy surveys were done at treatment sites in Baltimore, Frederick, Garrett, and Washington counties.

Exotic Asian Defoliator Survey. A comprehensive exotic Asian defoliator survey was proposed and funded through

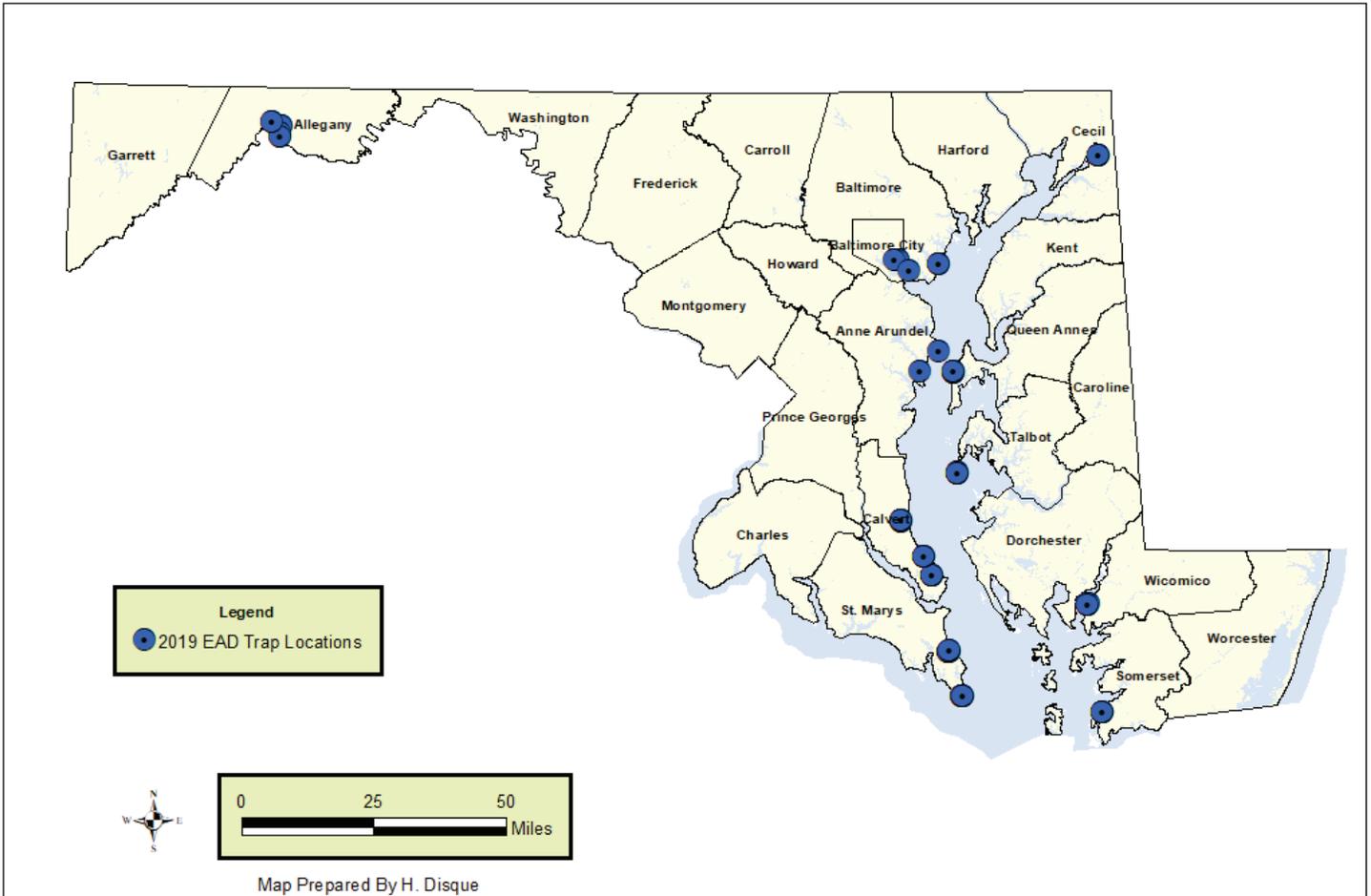
the Farm Bill for 2019. This survey increases the likelihood that these harmful invaders can be detected early and that an appropriate eradication response can be mounted to protect Maryland’s forest industry. One of the high-risk areas targeted is the Chesapeake Bay, as it is a major thoroughfare for ships coming into 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. Eight moths were chosen to survey based on their biological characteristics that enable them to become successful invaders, for their habitat preference, and prior intelligence that suggests an increased risk of introduction.

Traps were deployed at 14 locations statewide to determine the presence or absence of exotic Asian defoliator moths. At each location six traps were set to survey for the eight species

of moths. Traps ran from May to September and were checked bi-weekly. Forests composed of oak, willow, sweet gum, poplar, beech, pine, and other host trees and shrubs were surveyed. Several Asian gypsy moth, *lymantria dispar asiatica/japonica*, traps were found positive for gypsy moths. The European and

Asian gypsy moths are difficult to morphologically separate, so the specimens were sent to the USDA's Otis Laboratory for genetic testing and species determination. All specimens were determined to be European gypsy moth, *lymantria dispar dispar*.

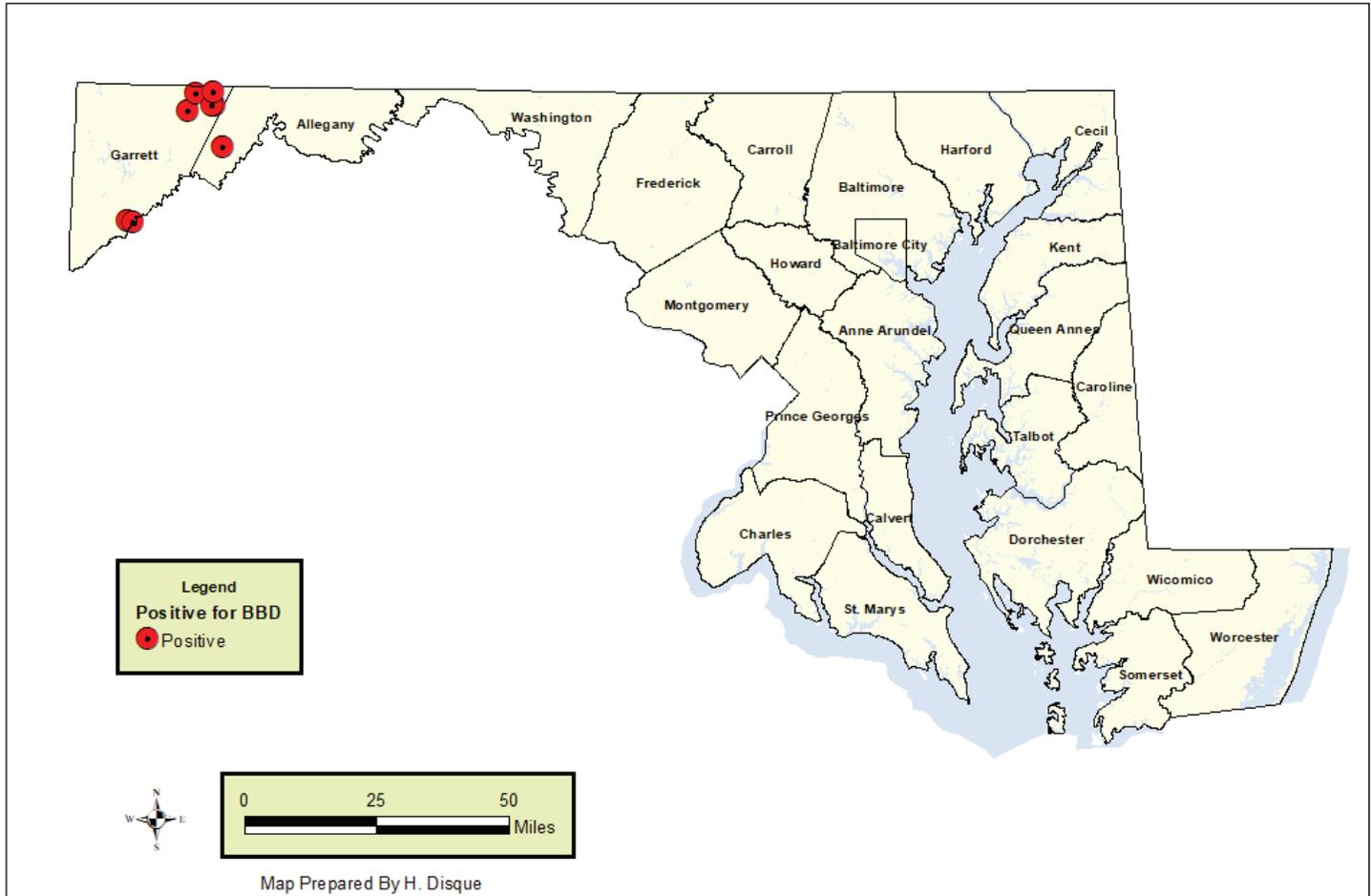
Maryland Department of Agriculture 2019 Exotic Asian Defoliator Trap Locations Forest Pest Management Section



Beech Bark Disease (BBD). BBD has been found in approximately 160,000 acres in Allegany and Garrett counties. In 2013, four permanent BBD monitoring sites were established. Permanent plots were visited in 2020 for the

detection of beech leaf disease. During beech leaf disease surveys, BBD was found in the Frostburg Watershed for the first time. *See chart below.*

Maryland Department of Agriculture Positive Beech Bark Disease Locations Forest Pest Management Section



Saltwater Intrusion. In July 2019, a saltwater intrusion delineation flight was flown across the lower Eastern Shore. This flight mirrored one taken in 2017 in order to determine which areas are affected by saltwater intrusion and to map those changes.

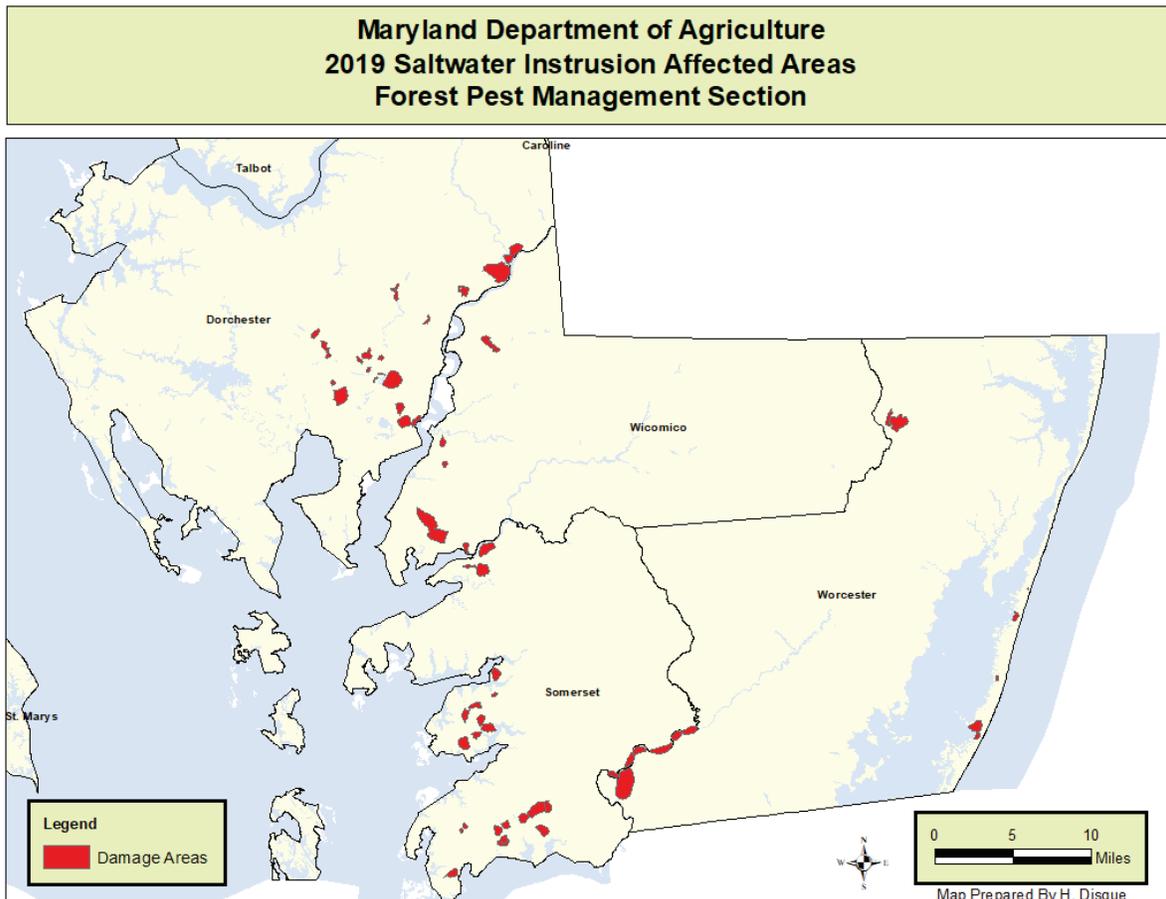
In total, 10,174 acres of forest were found to be affected by saltwater intrusion. The affected acres were spread more evenly across the lower Eastern Shore in Dorchester, Somerset, Worcester, and Wicomico counties. This is in contrast to 2018 when 41,094 acres were found to be affected by saltwater intrusion. In 2019, 76% of the mapped forests were either very severely or severely affected by saltwater intrusion.

MDA Forest Pest Management Saltwater Intrusion Flight Summary – Percent of Forest Affected

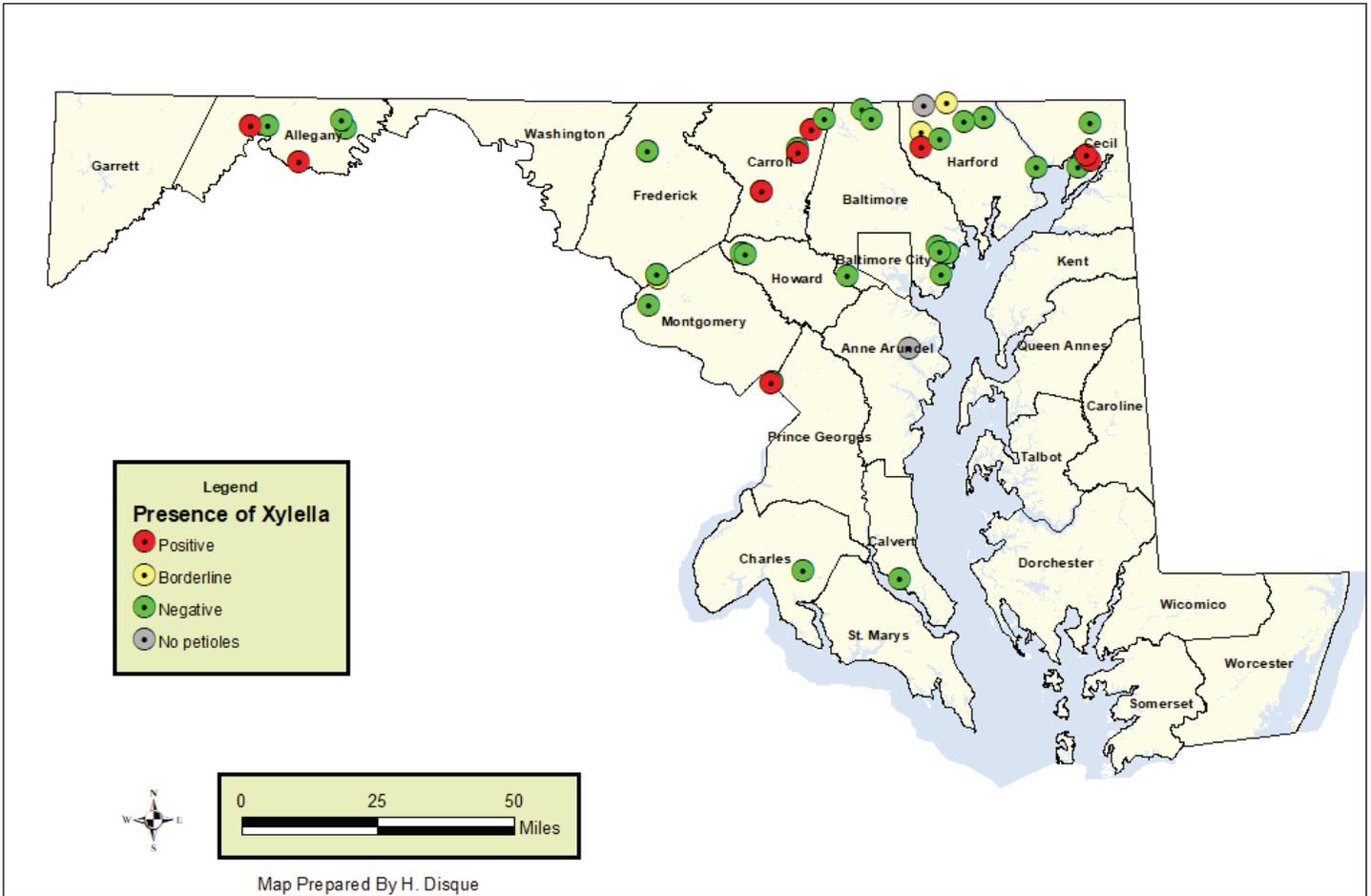
Percent of Forest Affected	Acres
Very light (1-3%)	0
Light (4-10%)	0
Moderate (11-29%)	2,451
Severe (30-50%)	5,064
Very Severe (>50%)	2,659
Total	10,174

MDA Forest Pest Management Saltwater Intrusion Flight Summary

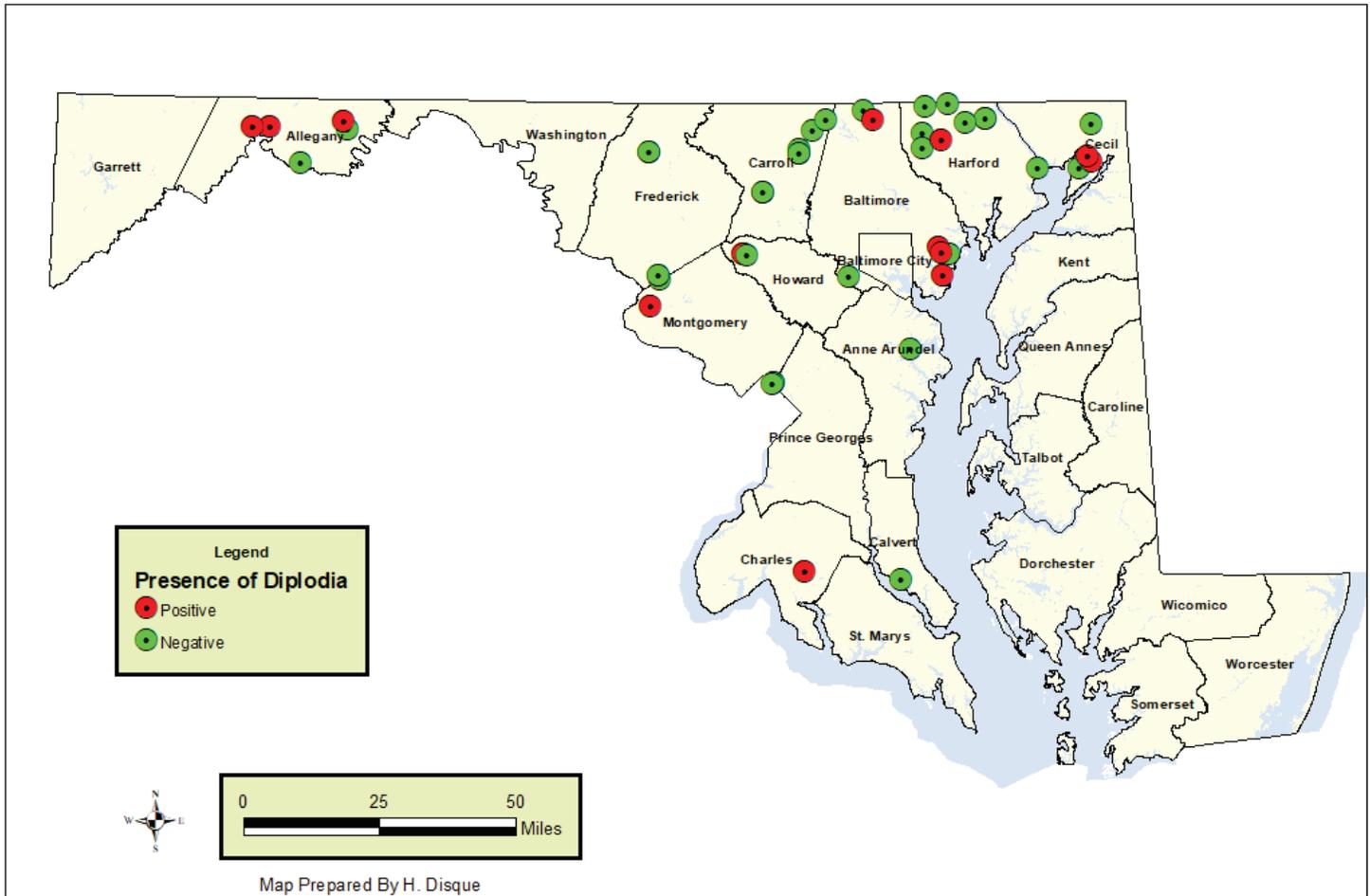
County	Acres Affected
Dorchester	2,479
Somerset	3,827
Wicomico	1,798
Worcester	2,070
Total	10,174



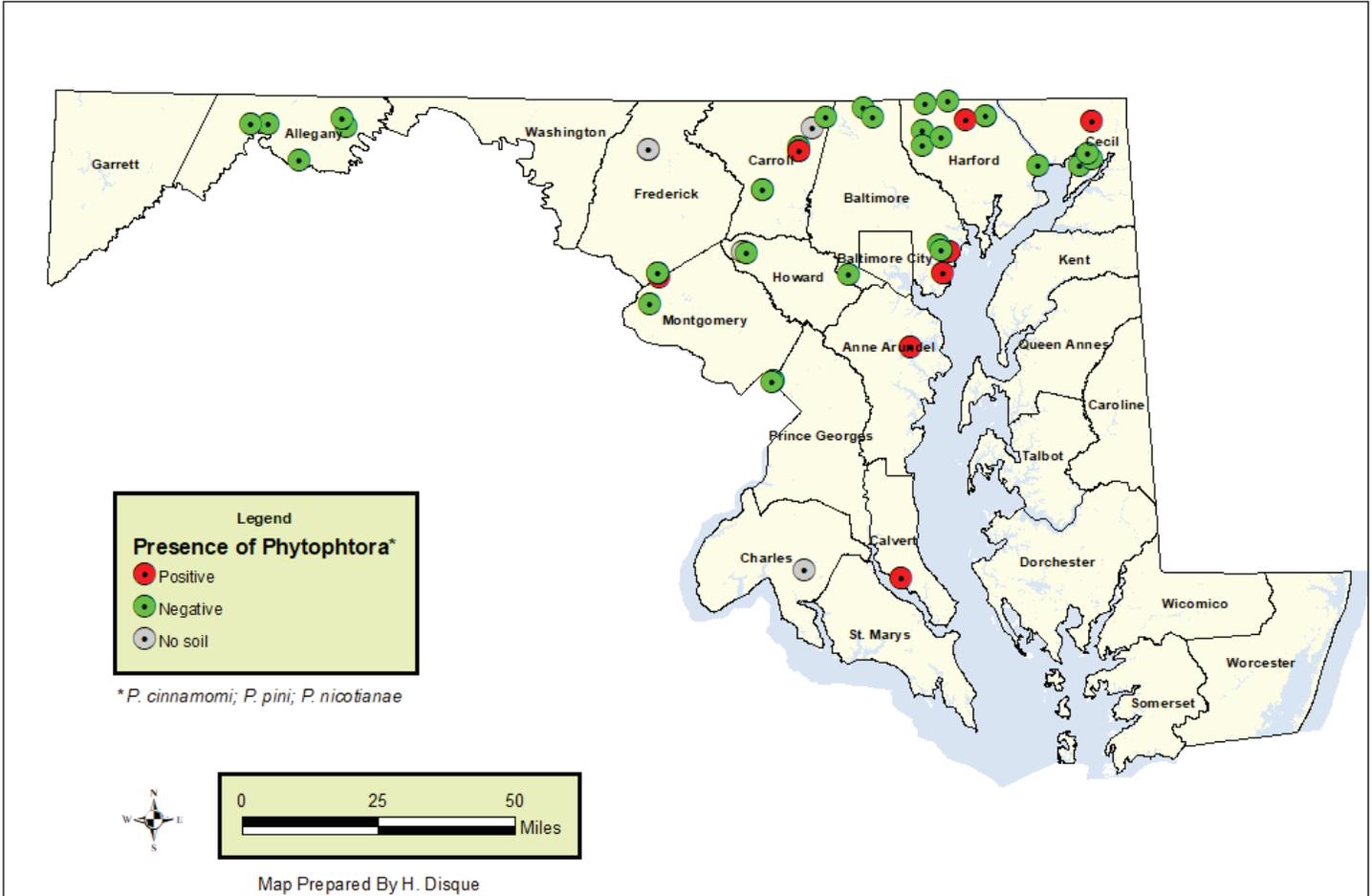
Maryland Department of Agriculture 2019 Oak Decline Survey Results- Bacterial Leaf Scorch Forest Pest Management Section



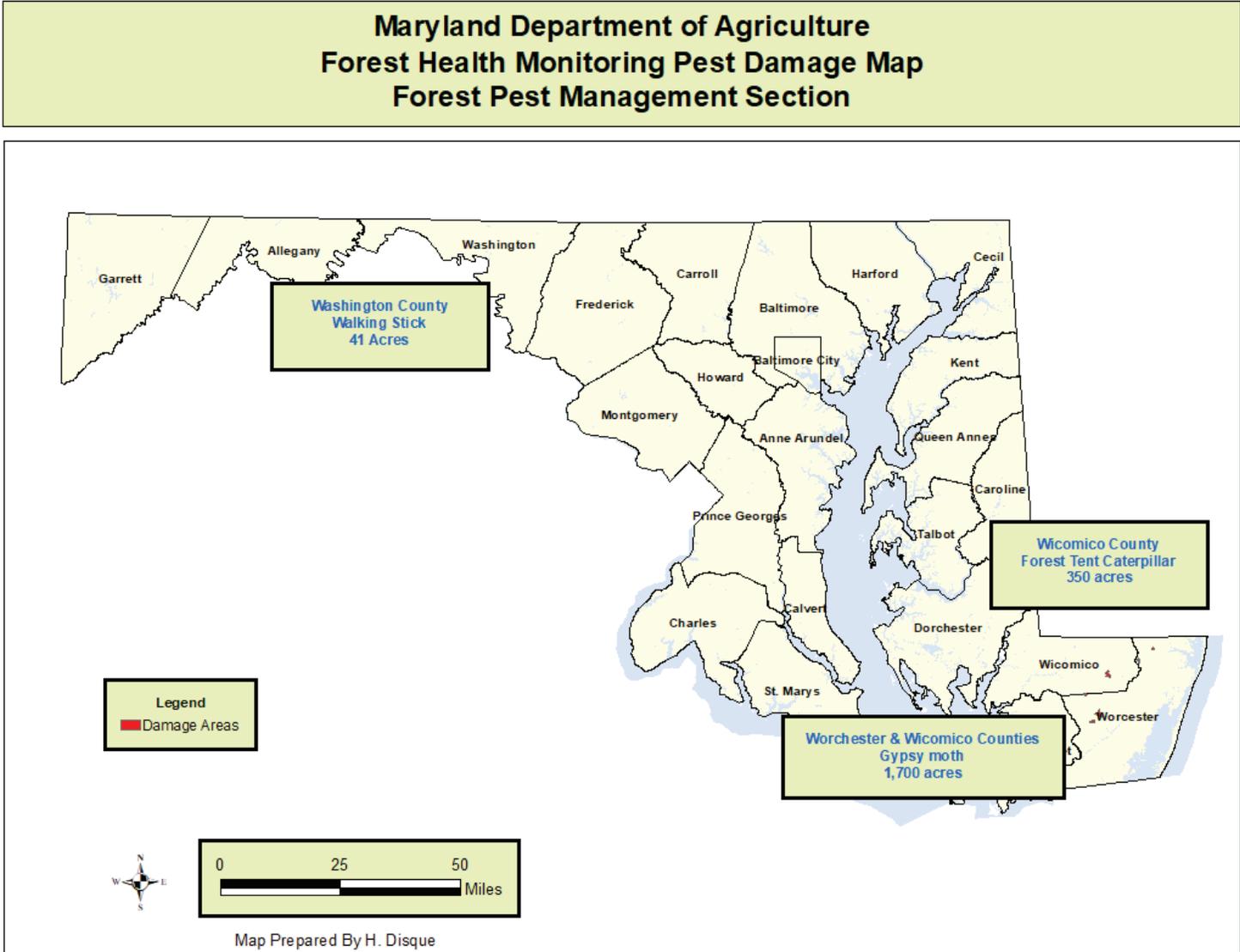
Maryland Department of Agriculture 2019 Oak Decline Survey Results- *Diplodia corticola* Forest Pest Management Section



Maryland Department of Agriculture 2019 Oak Decline Survey Results- Phytophthora Forest Pest Management Section



Forest Health Monitoring Pest Damage. Defoliation areas were mapped during an aerial flight, a drone flight, and a ground survey.



MOSQUITO CONTROL

The department's Mosquito Control Program provides an important public health and quality of life service to Maryland residents in 2,491 communities in 15 counties through mosquito abatement work, arbovirus surveillance, public education, and enforcement.

The program is staffed by 16 classified employees, eight long-term contractual employees and 75 seasonal contractual employees. The program's administration, laboratory, and the Anne Arundel County program staff are all located at the department's headquarters in Annapolis. Regional offices and laboratories are located in College Park, Hollywood, and Salisbury.

The work of Mosquito Control is conducted under the authority of the Maryland Mosquito Control Law. Participation in Maryland's 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 2019, six human cases of WNV were reported by the Maryland Department of Health (MDH). In addition to these human cases, six pools of mosquitoes tested positive for WNV. No horses were affected by WNV this year. WNV cases were much lower in 2019 compared to the previous year.

Eastern Equine Encephalitis (EEE). Eastern Equine Encephalitis (EEE) is one of the most severe mosquito-borne diseases in the United States. In 2019, EEE was detected three times in mosquito pools trapped east and south of Salisbury. No human cases of EEE were reported in Maryland in 2019. EEE has an average mortality rate of 33% and most survivors experience significant brain damage. In 2019, there was one horse that tested positive for EEE. It was believed that the disease was contracted outside of Maryland.

Zika Virus. Zika virus seems to be taking on less importance as a disease of concern. This virus was the mosquito-borne disease of most concern in 2016. There was a large outbreak of zika virus in the American tropics. Much of the concern was based on the fact that zika infections can cause 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 zika after

having traveled to the tropics. There were no travel-related cases of zika virus in the summer of 2019. In Maryland, no zika infections have been transmitted by local mosquitoes. Maryland residents that travel to the tropics should still be concerned about zika virus 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. At this time, we do mostly land-based ditching projects because of the many restrictions placed on open marsh water management. In 2019, the total area managed by source reduction projects was 647 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 projects. It is very important that the Mosquito Control Program has this resource available, as it allows them to rectify or prevent issues that create mosquito problems. Ditch maintenance projects involved the removal of silt, debris, and vegetation from the outlets of these systems to allow floodwater to flow, thus eliminating mosquito breeding zones.

Mosquito Control continued its annual inspections of the Crisfield city dike system. Mapping is still ongoing. The program mapped areas in need of future repairs. In addition to the excavator, the department also used an all-terrain Argo ATV for personnel and equipment transport to remote areas of this system. 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 habitats in the Crisfield community. These efforts not only prevent mosquito breeding, but also prevent property damage.

BIOLOGICAL CONTROL

In an effort to control mosquito populations, MDA uses several approaches as part of its IPM program. One component of this program is the use of the native mosquitofish 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 Mosquito Control are reared

in a facility at the Salisbury office. From there, the fish are transported and stocked into suitable habitats, such as stormwater management facilities, closed ditches, or artificial containment sites. These areas are inspected by MDA personnel to determine if the introduction of the mosquitofish 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 2019 mosquito season, 4,610 mosquitofish were stocked in closed pond habitats. The department will continue to monitor and inspect suitable sites to determine where future mosquitofish stocking is necessary.

PUBLIC EDUCATION

Our public education efforts during the 2019 mosquito season was split between media, social media, school, professional associations, and general presentations. At the beginning of mosquito season, MDA distributed two press releases, one about general tips to rid your home of mosquito breeding sites and the other announcing the start of mosquito control spraying in areas around the state. Press releases were distributed to the media, stakeholders, and constituents every time there was an unscheduled mosquito control spraying due to a public health concern. These messages along with others about protecting yourself from mosquito-borne and tick-borne illnesses were posted on the department's social media pages throughout the season. There was one television interview done in 2019. Mosquito Control staff attended numerous community meetings and responded to complaints in the central part of the state and on the Eastern Shore.

In Prince George's County, the program held four learning forums where they instructed government officials, educators, and citizens on the Mosquito Control Program and how to practice mosquito control at home. Staff also did presentations for two university classes.

Public education continues to be an important part of MDA's Mosquito Control Program, especially with the continuing problems created by the introduction and spread of the Asian tiger mosquito, the recurrence of WNV, and imported diseases of concern like zika virus.

AERIAL SPRAY

The aerial spray program continues to provide a high-level of service to the state. The department owns and operates a Beechcraft King Air, which has been modified specifically to be operated for a modern mosquito control program. The pilot is also the administrator for the aerial spray program.

The aerial spray season began in April 2019 with applications of biorational larvicide to 5,378 acres of seasonally-flooded woodlands. 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 arboviruses in bird populations. Controlling these species helps to reduce the risk of transmission of arboviruses to horses and humans later in the season.

In 2019, 77,219 acres were treated by aircraft, the majority for control of adult mosquitoes. MDA's Mosquito Control Program treated mostly saltmarsh species in 2019. Precision navigation and flow control equipment are critical for the safe and efficient aerial application of insecticides. The program uses Ag-Nav Guia, a state-of-the-art GPS-based navigation system, for all aerial applications of insecticides. 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% or more are achieved within a defined target area at a cost that is lower than spraying with truck-mounted spray equipment.

MOSQUITO CONTROL ACTIVITY SUMMARY: CY 2017 – 2019

Activity	CY 2017	CY 2018	CY 2019
Communities Participating in Mosquito Control Program	1,977	1,854	2,491
Number of Light Trap Nights	2,675	2,358	2,381
Percent of Light Trap Nights Below Threshold	61.53%	946%	66.36%
Number of Landing Rate Counts Performed	17,070	15,162	18,738
Percent of Landing Rate Counts Below Action Threshold	20.03%	19.91%	33.25%
Number of Public Service Requests	4,400	5,256	3,133
Number of Inspections by Request	925	1,449	962
Number of Mosquitofish Stocked	1,300	600	4,610
Acres Managed by Open Marsh Water Management	205	1,018	647
Acres Treated with Insecticide	1,322,042.4	1,305,790.27	1,230,684.35
Acres Treated for Mosquito Larvae	26,628.92	7,014.87	617.95
Acres Treated for Adult Mosquitoes	1,295,413.48	1,298,783.50	1,230,246.4
Acres Treated by Aircraft	126,138.64	213,334	8,2597
Acres Treated by Ground Equipment	1,196,141.76	1,092,456.27	1,263,080.36
Number of Mosquitoes Tested for Arboviruses	18,140	17,890	18,401
Number of Human Cases of West Nile Virus Statewide	5	46	6
Number of Cases of Arbovirus in Domestic Animals	11	6	1
Number of Mosquito Pools Positive for Arbovirus	9	4	11

PESTICIDE REGULATION

The Pesticide Regulation Section 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 section contains five major programs: Pesticide Applicator Certification and Training; Pesticide Use Inspection and Enforcement; Pesticide Technical Information Collection and Dissemination; IPM in Schools and on School Grounds; and Special Programs.

PESTICIDE APPLICATOR CERTIFICATION AND TRAINING

Two types of pesticide applicators are certified by the Pesticide Regulation Section, 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.

In FY20, MDA's Pesticide Regulation accomplished the following:

- Certified 87 new private applicators for a three-year period. These new private applicators passed a closed book examination administered by section personnel.
- Renewed 1,097 private applicator certificates for those who attended recertification meetings. There were 837 private applicators whose certificates expired on Dec. 31, 2019, and needed renewals.
- Approved and monitored 147 private applicator recertification sessions conducted by the University of Maryland Extension, MDA, or the pesticide industry.
- Certified 345 new commercial pest control applicators and consultants in one or more of the 13 categories of pest control. These new commercial pest control applicators met the minimum experience of education requirements and passed a written certification examination.
- Certified 156 public agency applicators.

In FY20, there were 4,451 commercial, public agency applicators, and consultants. Twelve exam sessions were

held, during which 1,690 exams were administered to 639 applicants. There were six exam sessions that were cancelled due to the COVID-19 pandemic. Certified commercial applicators are required to participate in at least one MDA-approved training session each year in order to renew their certificate. Pesticide Regulation approved and monitored 1,441 recertification training sessions for commercial and private pesticide applicators that were conducted by the pesticide industry, the University of Maryland Extension, or MDA. In FY20, a total of 5,028 applicators were recertified.

During FY20, Pesticide Regulation licensed 1,296 commercial businesses and 110 not-for-hire businesses to apply pesticides and to perform pest control services. The section issued 235 public agency permits to government agencies that apply pesticides. Pesticide Regulation also issued 37 pest control consultant licenses. A total of 8,220 registered employee identification cards were issued in FY20. The employees of pesticide businesses and public agencies are registered to apply pesticides under the supervision of certified applicators. The section issued 156 dealer permits to businesses that sell restricted-use pesticides.

At this time, due to the COVID-19 pandemic, all professional licenses have been extended until the Maryland State of Emergency is lifted. At the end of FY20, over 1,000 businesses have not yet renewed their licenses.

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 Pesticide Regulation inspectors. In FY20, 502 routine business inspections and 12 complaint investigations were performed. Of the inspections conducted, 134 violations were cited. Due to the COVID-19 pandemic, Pesticide Regulation has not issued any civil penalties as of the close of FY20.

PESTICIDE TECHNICAL INFORMATION COLLECTION AND DISSEMINATION

A list of pesticide sensitive individuals was first compiled in 1989. During FY20, MDA registered 108 individuals. These individuals receive advance notification of pesticide applications 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 along with the names and addresses 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 the 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 ingredients, and the brand name.

INTEGRATED PEST MANAGEMENT (IPM) IN SCHOOLS AND ON SCHOOL GROUNDS

MDA's Pesticide Regulation continues to promote and support implementation of IPM programs in public schools. Regulation that requires schools to develop and implement notification and IPM plans for indoor pest control took effect in 1999, and regulations for notification and IPM plans for school grounds took effect in 2002. Staff provided technical assistance in the

development of the plans and distribution of information on potential adverse effects of pesticides applied. Pesticide Regulation staff continues to work with Maryland public school districts on implementation of IPM plans on school property.

TRAINING EVENTS

During FY20, Pesticide Regulation's enforcement coordinator and inspectors attended the EPA Region 3 Pesticide Inspector's Workshop held in Wilmington, Delaware. The agenda for this meeting included health and safety information regarding pesticides as well as respirator fit tests. In addition, one inspector attended Pesticide Inspector Residency Training (PIRT) and another attended a week-long residency training with the EPA's Region 3 Office in Philadelphia. All of these trainings mentioned are required for MDA's Pesticide Regulation inspectors to maintain their federal credentials per the operating agreement with EPA Region 3.

In FY20, Pesticide Regulation continued its partnership with FieldWatch. FieldWatch is a pesticide sensitive crop locator database which has taken the place of MDA's outdated Pesticide Sensitive Crop Locator Map. Not only does the agreement include FieldWatch, it also comes with DriftWatch, a cropping database, and BeeCheck, a program that allows beekeepers to input colony locations. Both DriftWatch and BeeCheck show locations of crops and honeybee colonies that are sensitive to pesticide damage so that pesticide applicators can avoid these areas while spraying pesticides on nearby properties. Information contained within FieldWatch is voluntarily provided by the beekeeper or grower of the sensitive crop. In FY20, there were 107 registrations accepted, 78 honeybee colonies and 29 sensitive crops.

STATE CHEMIST

The State Chemist Section protects the public and the environment by ensuring that pesticide products distributed within the state are properly formulated and labeled. This is accomplished through inspection, education, technology, and administrative review.

The State Chemist Section ensures consumer protection in the fertilizer and soil conditioner marketplace by verifying the ingredients in these products. This section also monitors safety in the storage, handling, and use of fertilizer material, including anhydrous ammonia, to protect all who come in contact with the product and to safeguard the water quality of the state.

Additionally, the State Chemist Section also assures that animal feeds, including pet foods, are correctly labeled, nutritionally sound for their intended use, and free of adulterants and unwanted contaminants. Enlisting the involvement of industry, consumers, veterinarians, and state and federal regulators, the State Chemist Section investigates animal deaths, complaints of feed-related illness in animals, and other adverse effects suspected to be caused by feed.

REGISTRATION OF PRODUCTS

Pesticide products, commercial feeds, fertilizers, fertilizer/pesticide combination products, 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 CY20, the section registered: 13,143 pesticide products; 18,119 commercial feeds; 4,455 fertilizers; 461 fertilizer/pesticide mixtures; 135 liming materials; and 98 soil conditioners. MDA inspectors also brought 108 previously unregistered products into compliance. *Please see Table 1.*

INSPECTION

MDA 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 CY20, the State Chemist Section inspectors performed 778 on-site inspections. *Please see Table 2.*

STATE CHEMIST SECTION ONLINE REGISTRATION PORTAL

The Maryland Department of Information Technology (DoIT), NIC Maryland, and the State Chemist Section, developed a new online platform for the registration of pesticides and animal feeds. Initial planning meetings started in July 2016 and culminated in the pesticide renewals going live for the 2018 registration year. Approximately 65% of pesticides were registered through the NIC portal. There are still some registrants that cannot renew online. The online renewal percentage for animal feeds is approximately 68%. The system, both what registrants use and the State Chemist staff use, are constantly being improved for better efficiency and usability. The remaining commodities will be put in the pipeline when the majority of bugs in both systems are worked out. The program's goal is to have an 80% online renewal rate. Tonnage reporting and inspection fee payment will be the last to migrate to the online portal.

ENFORCEMENT

Any regulated product determined to be ineffective,

misbranded, or deleterious to the public, agriculture, or the environment is removed from the marketplace. Determination for product removal is based on the following: 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

MDA's laboratory is staffed with chemists and technicians who have expertise 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. The laboratory staff provides reliable scientific data that is used to assist farmers and to initiate or support regulatory actions against products that violate or violators of state and federal agricultural and environmental laws. The laboratory also provides support to the Maryland Department of the Environment (MDE), DNR, the USDA, and the EPA. *Please see Table 4.*

RAW MILK PET FOOD

Raw milk for pet food is an up and coming market in Maryland. The program has seen an increase in the number of registrations for this commodity. MDA 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 is not 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 15 registrants and four more in the process of registering their products.

HOMELAND SECURITY

Ammonium Nitrate - Potential Explosive for Terrorist Activities. MDA 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 and state law.

Food Emergency Response Network for Chemistry.

The State Chemist Section's laboratory is the primary Food Emergency Response Network chemistry laboratory in 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 25 check sample rounds involving highly toxic materials, four of which are among the most deadly toxins. The laboratory successfully identified the toxic materials in the check samples. The toxins and chemicals include heavy metals, ricin, alpha amanitin, 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 (FDA) 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 FDA and the department are concerned about the presence of various pathogenic organisms in dog and cat food. The FDA has indicated that between June 2017 and August 2018, ten pet food manufacturers were required to remove products from the marketplace 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 countertop 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 or plates placed in a pet feeding area easily accessible to young children.

In CY20, department scientists and technicians routinely screened 38 pet food products collected by the inspection staff from warehouses, distributors, and retail outlets. Products found to contain pathogens are 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 are used by federal regulatory agencies based on DNA identification, bioluminescence, and other established techniques. Twenty samples of fresh and frozen pet food, pet treats, and pet nutraceuticals were screened as part of State Chemist's FDA contract for Salmonella sp. Out of the 20 samples analyzed, one was found to be positive. State Chemist isolated the Salmonella sp. to send to the FDA District Laboratory in Denver for serotyping and whole genome sequencing.

Mycotoxins and Environmental Toxins Contamination in Grains and Animal Feeds. The department routinely monitors Maryland-produced and imported grain products for livestock or human use, animal feed ingredients, and finished animal feeds for certain mold secondary metabolites (mycotoxins) known as aflatoxins, fumonisins, ochratoxin, zearalenone, and vomitoxin.

The laboratory analyzed finished feeds as part of the State Chemist's FDA Contract. Samples analyzed were finished feeds. Results from analysis indicated that the overall mycotoxin contamination was low, therefore no violations were detected.

Metals in Animal 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 metals: aluminum, arsenic, beryllium, cadmium, chromium, mercury, nickel, antimony, selenium, tellurium, thallium, uranium, vanadium, and zinc. None of the metals analyzed, either nutritive nor toxic, were over regulatory limits.

Bovine Spongiform Encephalopathy (BSE) or Mad Cow Disease. The department continued an inspection program in conjunction with the 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 FY20, 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 polymerase chain reaction (PCR) instead of the regular 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.

USDA 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 diverse items, such 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 EPA 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

Maryland Bee Pollen Survey. In conjunction with the University of Maryland's Honey Bee Lab, headed by Dr. Dennis vanEngelsdorp, the State Chemist Section has been supporting the lab through the analysis of pesticides in bee pollen. The Honey Bee Lab has diverse personnel with multidisciplinary scientific backgrounds. Research in the laboratory is focused on an epidemiological approach to honeybee health.

Major mechanisms that are responsible for continued high-loss levels in honeybee populations include pests and pathogens associated with honeybees, loss of natural forage habitat due to large monocultural croplands, and pressure from human induced changes in the environment.

The lab is a major partner and founding member of the Bee Informed Partnership (BIP), who collaborates closely with beekeepers from across the country to study and better understand the loss in honeybee colonies in the United States. Through the BIP, the largest and most comprehensive honeybee survey in the world was conducted. The data that was compiled through the BIP survey is utilized to conduct research to better improve IPM practices for beekeepers.

The State Chemist Section has provided laboratory support for the determination of approximately 198 pesticides in bee pollen samples. The bee pollen samples are gathered from sentinel hives and from apiary colonies. The data submitted to the Honey Bee Lab becomes part of the National Honey Bee Survey and is used to help improve IPM practices for beekeepers and to improve colony health. The State Chemist Section has been analyzing samples for the past five years.

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 phosphorus 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% must be slow release. State Chemist inspectors perform surveillance of retail outlets to ensure that lawn and 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 then may increase nutrient runoff due to erosion, driveway runoff, etc. Additionally, the law requires the registrants and manufacturers of the products to annually submit the amount of these products sold and distributed specifically as fertilizer for lawns, turf, golf courses, nurseries, etc. The purpose of this 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 an MDA-certified facility operator to be onsite to oversee the compost manufacturing process. Before becoming certified, an individual must pass an examination. During CY20, 12 people passed the exam. Additionally, individuals passing the exam must maintain their certification by attending training courses approved by Maryland State Chemist and must participate in facility inspections conducted by State Chemist inspectors.

TABLE 1—CY 2020: REGISTRATION AND ENFORCEMENT

Registration	
Pesticides	13,143
Fertilizers	4,455
Soil Conditioners	98
Fertilizer/Pesticide Mixtures	461
Liming Materials	135
Feeds	18,119
Total	36,411
Companies with Registered Products	2,484
Registrants	1,844
Enforcement - Non Registered Notices Brought Into Compliance	
Pesticides	8
Fertilizers	16
Soil Conditioners	1
Fertilizer/Pesticide Mixtures	0
Liming Materials	2
Feeds	81
Total	108
Enforcement - Non Registered Stop Sales	
Pesticides	8
Fertilizers	16
Soil Conditioners	1
Fertilizer/Pesticide Mixtures	0
Liming Materials	2
Feeds	81
Total	108

TABLE 2—CY 2020: INSPECTIONS

Product Manufacturing Sites Visited [Plants, Warehouses, Retailers]	1,038
FDA Regulation Ruminant Tissue [BSE] Feed Inspections	10
FDA cGMP Inspections	10
USDA/MDA Pesticide Data Program Sites Visited	266
USDA/MDA Pesticide Data Program Samples Collected	510

TABLE 3—CY 2020: REGULATORY ACTIONS

Regulatory Action Stop Sales	
Active Ingredient Deficiencies	
Pesticides	5
Fertilizers	7
Feeds	7
Active Ingredient Over Formulations	
Pesticides	5
Fertilizers	21
Feeds	15
Mycotoxins in Feeds	0
Label Violations	22
Phosphorus Levels in Turf/Lawn Fertilizers	0
Regulatory Action Warnings	
Active Ingredient Deficiencies	
Pesticides	5
Fertilizers	21
Feeds	7
Active Ingredient Over Formulations	
Pesticides	0
Fertilizers	45
Feeds	4
Mycotoxins in Feeds	0

TABLE 4—CY 2020: LABORATORY ANALYSES PERFORMED

	Samples Collected	Number of Analyses
Pesticides	231	261
Fertilizers	169	328
Liming Materials	10	19
Feeds and Pet Foods	357	1,313
Feed – Microbiology	28	84
Broiler Feeds for Phytase	52	52
Livestock Feeds – Drugs, Additives, Mineral Supplements, Ingredients	387	1,840
Toxic Metal Screen	47	385
Maryland Bee Pollen Survey	58	11,484
EPA (Pesticide Regulation – Maryland)	145	15,127
FDA Contract – Prohibited Material	20	60
FDA Contract – Heavy Metal Screen	20	480
FDA Contract – Mycotoxin Screen	20	100
FDA Contract – <i>Salmonella sp.</i>	20	20
Food Emergency Response Network of Federal & State Laboratories	16	16

TABLE 5—CY 2020: PRODUCT SALES IN TONS

Fertilizers	371,692
Fertilizer/Pesticide Mixtures	7,653
Soil Conditioners	425,690
Compost	34,730
Liming Materials	161,982
Total	1,001,747

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 consumers. Today's seed industry exists in an environment of rapid change. The continued development of biotechnology and the expansion of genetically modified organisms (GMOs) has had an enormous effect on the production, distribution, and marketing of seed as well as on state seed programs nationwide. 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

Maryland's State Seed 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. SHA relies upon the laboratory to test all grass, wildflower, shrub, and other seed planted along Maryland's highways. Maryland farmers participating in the department's 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 the 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.

A well-trained staff is key to a successful laboratory operation. 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 exams, 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 across 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 to be labeled accurately. This includes: agricultural, vegetable, flower, lawn, and turf seed; seed of trees, shrubs, native species, and 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. Maryland relies heavily on other states and countries, where climates are better suited for seed production, to supply its seed needs. Thus, it is important that Maryland maintains 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 statewide. 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 relabeling, 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. Large investments in biotech research by private companies are increasing, driving the demand for traditional certification services down and decreasing the involvement of public institutions which have been the primary source for 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 rise 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, which has helped strengthen Maryland's agriculture industry and the state 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 maintaining the genetic purity of foundation seed of public varieties that are 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 SHA 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.

TURF CERTIFICATION

Maryland's turf certification program serves as a national model. Growers must plant varieties recommended by the University of Maryland based on performance trials conducted in the 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.

MARYLAND INDUSTRIAL HEMP RESEARCH PILOT PROGRAM

The purpose of the Maryland Industrial Hemp Research Pilot Program is to authorize and facilitate the research of industrial hemp and any aspect of growing, cultivating, harvesting, processing, manufacturing, transporting, marketing, or selling industrial hemp for agricultural, industrial, or commercial purposes. This program requires farmers to partner with institutes of higher education to grow industrial hemp under a research program. During FY20, industrial hemp was not grown in Maryland for general commercial activity, only as part of a research project. Farmers were allowed to sell their crop for profit at the end of the growing season. Maryland currently does not limit acres or number of applications for this pilot program. The Turf and Seed Section approves farmers and registers the fields where industrial hemp is grown. During the 2020 growing season, 102 farmers had research projects with six different institutions to grow and conduct research on industrial hemp.

CUSTOMER SERVICE

Providing good customer service is a priority of the Turf and Seed Section. Since the marketing and planting of seed is time-sensitive and dependent on weather, 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 OBJECTIVE

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 2020
Outcome: Percent of Seed Lots Found to be Correctly Labeled	96%

TURF AND SEED ACTIVITIES: 2018 - 2020

	2018	2019	2020
Field Inspections			
Acres of Turf Inspected	6,990	4,749	3,617
Acres of Crop Seed Inspected	8,931	5,978	4,037
Supervised Mixing			
Pounds of Seed Mixed (thousand)	1,878	2,081	2,035
Retail and Wholesale Seed Inspections*			
Number of Lots Sampled	779	453	364
Number of Regulatory Seed Tests Conducted	2,056	1,435	964
Seed Testing			
Samples Tested	2,587	2,947	2,790
Service Seed Tests Conducted	4,082	4,388	4,191

**Note: Retail and Wholesale Seed Inspections were impacted by closures due to the COVID-19 pandemic and employee health and safety concerns*



2020 Annual Report | Office of Resource Conservation

The Maryland Department of Agriculture's (MDA's) Office of Resource Conservation partners 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, financial, technical assistance, and regulatory programs to help farmers install conservation practices on their farms that

meet Chesapeake Bay restoration goals. Staff work with local, state, and federal agencies to carry out policies and programs established by the State Soil Conservation Committee (SSCC).

The Office of Resource Conservation has five program areas: Program Planning and Development, Conservation Grants, District Operations, the Watershed Implementation Program, and the Nutrient Management Program.

STATE SOIL CONSERVATION COMMITTEE (SSCC)

Established in 1938, the SSCC 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, and advises the Maryland Secretary of Agriculture on these matters. Importantly, the committee serves as a forum for all agencies involved in protecting natural resources.

In FY20, the SSCC:

- Voted to make conservation drainage practices eligible for state cost-share assistance. This action will support the state in achieving Chesapeake Bay cleanup goals.
- Received updates on Maryland's Industrial Hemp Research Pilot Program, Maryland's Healthy Soils Program, the status of the Chesapeake Bay cleanup efforts, stress and mental health in the agricultural community, and governance/responsibilities for soil conservation districts.

- Provided guidance to help soil conservation districts comply with the Maryland Department of the Environment's (MDE) updated stormwater management rules for agricultural structures.
- Updated soil and erosion control plans associated with forest harvest operational permits to allow explicit right of entry to Maryland Forest Service staff to monitor compliance.
- Received a briefing from MDE and the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) on roles and responsibilities of soil conservation districts in the small pond approval process.
- Worked with the state's conservation partners to review and execute Unfunded Cooperative Agreements (UCAs) between each soil conservation district and USDA's NRCS. The agreements formalize the commitment and shared resources between the federal government and its key partners.
- Worked with MDA human resources to improve recruitment and retention of soil conservation district field staff.

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. Program partners include soil conservation districts along with public, private, agriculture, and natural resource organizations. The section provides staff support to the SSCC 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. Examples include technologies that generate energy from animal manure, reduce on-farm waste in streams, and repurpose manure by creating marketable fertilizer products and by-products. Grants awarded through the Animal Waste Technology Fund are part of the state's ongoing commitment to manage animal manure, protect natural resources, and pursue renewable energy sources.

In FY20, the fund:

- Received three bids in response to its annual request for proposals. The bids were reviewed by a seven-member technical review subcommittee. A project submitted by International BioRefineries, LLC was awarded a grant.
- International BioRefineries, LLC will use a thermochemical conversion technology to convert poultry litter into a variety of value-added byproducts at a Wicomico County farm.
- The fund continues to support five additional projects that were approved in previous years.
- To date, \$7.8 million in grants has been issued to approved projects.

Geographic Information Systems (GIS). A Geographic Information System (GIS) captures, stores, manipulates, visualizes, and presents all types of data for decision-making, resource management, and development planning. Data from many sources, including digitized and scanned maps, aerial photography, soil surveys, and global positioning systems, are integrated and analyzed using GIS to create and share "smart maps." GIS allows users to visualize, analyze, and interpret data to better understand relationships, patterns, and trends. It is used daily by internet users to view maps and data collections.

In FY20, the department's GIS staff:

- Developed a new web map application to connect consumers with Maryland farmers and seafood companies offering direct sales. This was especially crucial as Marylanders sought local alternatives to grocery store shopping during the COVID-19 pandemic.
- Conducted training sessions on newly-introduced GIS software, ArcGIS Pro.
- Updated the department's web map applications with the most current data and enhanced tools.
- Attended conferences and workshops and continued to participate in an inter-agency technical committee that implements policies on the transparency, availability, and quality of spatial data in Maryland.
- Continued to provide technical assistance on GIS capabilities to programs within the department.

Maryland Healthy Soils Program. Established by Maryland law in 2017, Maryland's Healthy Soils Program charges the department with developing a roadmap to improve the health, yield, and profitability of soils; increasing biological activity and carbon sequestration in agricultural soils; and promoting further education and adoption of healthy soil practices.

In FY20, the program accomplished the following:

- Sec. Bartenfelder appointed a 32-member Soil Health Advisory Committee. The group's mission is to guide the development and framework of the Maryland Healthy Soils Program so it is able to accomplish its legislative charge.
- The program was awarded a three-year, \$1 million grant by the National Fish and Wildlife Foundation to promote the use of soil health practices. Funds will be used to provide financial and technical assistance to producers who implement qualifying conservation practices. Soil health assessments will be conducted on crop fields to increase understanding of soil health measures.
- Farmers in Caroline, Kent, Queen Anne's and Talbot counties continued to show strong interest in a 2018 Regional Conservation Partnership Program (RCPP) grant opportunity that supports the installation of practices that increase soil organic matter, reduce erosion,

promote nutrient cycling, improve water retention, and reduce competition from weeds.

- Program staff represented Maryland on the U.S Climate Alliance and promoted the Healthy Soils Program as a part of the climate solution.
- Soil health will be included in the state's updated Greenhouse Gas Reduction Act Plan.

Information and Education. This program provides creative, editorial, web content, graphics, and production services for the department's conservation programs.

In FY20, program staff:

- Produced annual reports for the Maryland Agricultural Water Quality Cost-Share (MACS) Program, the Nutrient Management Program, and soil conservation districts.
- Developed a statewide manure education program to help citizens understand how farmers use manure.
- Promoted the department's first mail-in sign up for its popular Cover Crop Program during the COVID-19 pandemic.
- Developed a comprehensive farmer education program to promote the department's new FastTrack Grants for manure transport.
- Revised and updated numerous publications including the 42-page Farmers Guide to Environmental Permits and a 32-page booklet on best management practices in use on Maryland farms entitled Conservation Choices.
- Developed news releases, a newsletter, Facebook posts, and monthly agricultural highlights on conservation grants, nutrient management regulations, education and training opportunities, and Maryland's Lawn Fertilizer Law.
- Developed several new outreach publications on stream protection practices, cost-share grants for conservation drainage practices, and conservation employment opportunities.
- Represented the program at numerous public outreach events prior to the COVID-19 pandemic, including the 2019 Maryland State Fair and the 2020 Maryland Home and Garden Show.
- Provided conservation displays and educational materials to soil conservation districts and the University of Maryland Master Gardeners to assist with conservation education.

CONSERVATION GRANTS

The Maryland Agricultural Water Quality Cost-Share (MACS) Program helps farmers finance water quality improvement projects on their farms, invest in sustainable agricultural practices, and comply with federal, state, and local environmental requirements. In FY20, the program provided Maryland farmers with \$32.8 million in cost-share grants to install 2,160 conservation projects on their farms to prevent soil erosion, manage crop nutrients, and protect water quality. Grants cover up to 87.5% of the cost to install more than 30 eligible best management practices, including: cover crops, grassed waterways, manure storage structures, and stream protection practices. Farmers receiving these grants invested \$647,083 of their own money into projects that will prevent an estimated 3.5 million pounds of nitrogen, 24,480 pounds of phosphorus, and 13,148 tons of soil from entering Maryland waterways.

Projects Financed with Special Funds. MACS receives funding from the Chesapeake Bay Restoration Fund and the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund to finance highly-valued best management practices included in Maryland's Chesapeake Bay restoration commitments. These include the state's popular Cover Crop Program and the contract-signing incentive payment for the Conservation Reserve Enhancement Program (CREP), a federal-state partnership program that provides incentives to farmers to protect environmentally-sensitive land. Portions of the Manure Transport Program, certain best management practices, and grants to help farmers inject manure into the soil are financed with special funds.

- **Cover Crop Program.** The Cover Crop Program is the largest and most popular cost-share program offered by MACS. It provides farmers with grants to help offset seed, labor, and equipment costs associated with planting fall cover crops to control erosion, recycle unused plant nutrients, build healthy soils, and protect water quality in the Chesapeake Bay and its tributaries. During the 2019-2020 planting season, farmers planted 488,214 acres of traditional cover crops statewide using approximately \$26.6 million in MACS cost-share grants. This figure does not include cover crops planted for harvest, which were not eligible for cost-share this year. For the second straight year, planting was hindered by excessive rainfall resulting in poor field conditions.
- **Manure Transport Program.** This program provides grants to help poultry, dairy, beef, and other livestock producers transport manure away from farms with high soil phosphorus levels. The program experienced

continued growth in FY20 as farmers continue to transition to Maryland’s Phosphorus Management Tool regulations. During the year, the transport program provided Maryland farmers with \$1,382,822 million in grants to transport 309,374 tons of manure to approved farms and businesses. Delmarva poultry companies provided \$455,681 in matching funds to transport poultry manure.

- o In FY20, a proposal to repeal and resubmit the Manure Transportation Project Regulations (COMAR 15.20.05) was made. This action was taken to expand and increase the efficiency of the Manure Transport Program. It is one of many steps that the department has taken to support manure transport needs as farmers fully implement the Phosphorus Management Tool.
- o In conjunction with the regulation changes, new processes were developed for participants to apply for and receive Manure Transport Program cost-share funds. These were developed based on recommendations from a commissioned university study, as well as listening sessions conducted with existing and potential manure brokers and poultry company representatives.
- **Conservation Reserve Enhancement Program (CREP).** Maryland’s CREP 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. MACS provides participating landowners with grants to establish conservation practices on environmentally-sensitive land that they have agreed to no longer till or graze. During FY20, MACS provided landowners with \$174,038 in grants to install 30 CREP-related projects. Special funds are used to award a \$100 per acre signing bonus to landowners who enroll or re-enroll land in the program. In FY20, landowners received \$209,752 in signing bonuses during a shortened acreage enrollment period.
- **Manure Injection Program.** Injecting manure into the soil, instead of spreading it on top, helps prevent nutrient runoff, reduces odors, and preserves beneficial surface residue. In FY20, 29 farmers were awarded \$369,056 in cost-share grants to offset operating costs associated with this practice.

DISTRICT OPERATIONS

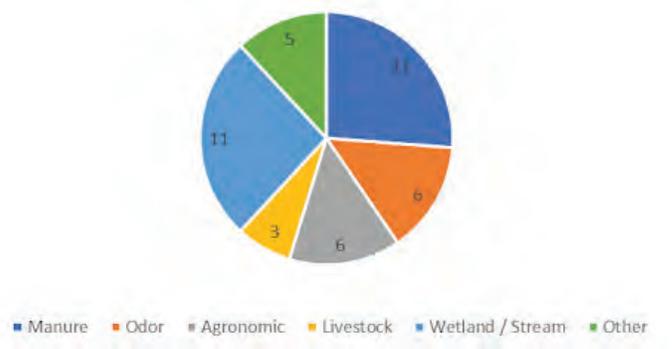
District Operations provides operating funds and staffing support to the state’s 24 soil conservation districts for promotion and delivery of local soil conservation and water quality programs to the agriculture community.

Technical Assistance. In FY20, the program funded 75 technical positions throughout local soil conservation district offices. An additional 28 agricultural technicians and conservation planners were funded by grants provided by the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund.

Soil Conservation and Water Quality Plans. Technical staff worked with farmers to develop Soil Conservation and Water Quality Plans to protect natural resources on farms. These plans are required by many state and federal programs as a condition for receiving cost-share funds. MDE requires certain livestock and poultry farmers to implement Soil Conservation and Water Quality Plans as part of its Maryland Animal Feeding Operation (MAFO) permit requirements. In addition, Soil Conservation and Water Quality Plans are included in Maryland’s Watershed Implementation Plan (WIP) to restore the health of the Chesapeake Bay. In FY20, 861,876 acres of agricultural land were managed using Soil Conservation and Water Quality Plans. Also during the year, technical staff helped farmers install 2,140 best management practices on their farms to control soil erosion, manage nutrients, and protect water quality. These best management practices were supported by both state and federal financial assistance programs.

Enforcement. Agricultural complaints concerning water pollution 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.

FY20: TYPES OF AGRICULTURAL COMPLAINTS



During the year, MDA and MDE worked jointly with soil conservation districts to investigate farm management complaints and take action against polluters when necessary. In FY20, the program received 42 complaints concerning odors, livestock, manure, sediment, wetlands/stream disturbance, and pond issues. Of these complaints, 39 were corrected or closed, three complaints are pending, and no enforcement actions were initiated.

Agricultural Water Management. Drainage ditches are common on Maryland's Eastern Shore, where 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. This network drains approximately 183,000 acres of agricultural and developed land. The District Operations Program coordinates the activities of public drainage associations to ensure that operation and maintenance plans are in good working order and that best management practices are protecting water quality.

Permitting and Compliance Assistance. During the year, program staff helped farmers comply with MDE's Animal Feeding Operation (AFO) permit. The General Discharge Permit for AFOs is revised and reissued every five years. It expired on Nov. 30, 2019. The new permit will be for the 2019-2024 cycle. In FY20, field staff also prepared Comprehensive Nutrient Management Plans (CNMPs) for farmers; secured cost-share assistance to install best management practices; provided status updates; organized partner-agency site visits; performed site inspections; and conducted pre-transfer analyses to ensure a smooth transition as poultry farms are constructed, transferred, sold, or decommissioned. This year, the program strengthened its communications network, developed new record keeping tools, and began writing new compliance guidebooks for dairy and livestock operations.

Maryland Envirothon. The SSCC and soil conservation districts are primary sponsors of the Maryland Envirothon — an environmental academic competition that challenges high school teens to solve complex environmental issues. Students are trained and tested in aquatics, forestry, soils, wildlife, and a special environmental issue that changes every year. They compete at the local, state, and national levels. In any given year, approximately 1,000 high school students from counties across the state compete in the event. This year's competition was cancelled due to COVID-19 restrictions.

WATERSHED IMPLEMENTATION PROGRAM

This program provides direction and leadership to develop

and evaluate strategies to carry out agricultural commitments included in Maryland's Watershed Implementation Plan (WIP) to restore the health of the Chesapeake Bay, as required by the Chesapeake Bay Total Maximum Daily Load (TMDL) cleanup plan.

The TMDL requires Maryland and the other Chesapeake Bay watershed states to reduce the amount of nitrogen, phosphorus, and sediment entering the bay by amounts that will allow the estuary to be removed from the federal government's list of "Impaired Waters." Established by the U.S. Environmental Protection Agency (EPA) in 2010, the Chesapeake Bay TMDL aims to ensure that all pollution control measures needed to fully restore the health of the bay and its tidal rivers are in place by 2025.

Phase III WIP. Maryland submitted its final Phase III WIP to the EPA in April 2019. The Phase III WIP builds on previous plans and includes considerable public input. The plan's agricultural component was developed based on stakeholder feedback obtained through a series of public meetings held over the summer and fall in every Maryland county. Follow-up meetings were organized to address concerns after stakeholders reviewed the draft plan. Overall, Maryland's WIP III is a solid, realistic, and achievable plan for meeting Maryland's nutrient and sediment reduction goals. The cleanup plan is the first among the bay states to take into account the potential impacts of climate change. A midpoint assessment of Maryland's cleanup progress showed that while the state is on track to meet its phosphorus and sediment reduction goals, additional focus is needed to reduce nitrogen. Accordingly, the agricultural component of Maryland's plan focuses on the need to lower nitrogen levels in the bay.

In FY20, the department continued to support local conservation efforts conducted by members of Maryland's Conservation Partnership. The Watershed Implementation Program provided overall guidance on documenting and reporting best management practices installed by Maryland farmers and submitted annual progress reports to the Chesapeake Bay Program.

Agricultural Representation. Representatives from the department serve on a number of Chesapeake Bay Program workgroups. They provide technical information and input concerning restoration goals, policies, programs, and research needed to reduce agricultural pollutants entering the bay and its tributaries. The department chaired the program's Agriculture Workgroup from 2018 to 2020.

Nutrient Trading. MDA and MDE continue to work together

to foster a voluntary, market-based program to promote the use of nutrient and sediment trading as a viable option for achieving the state's water quality goals. During the year, the online trading platform's agricultural assessment tool was calibrated with the latest phase 6 version of the Chesapeake Bay Program Watershed Model. In addition, changes to the registry component were compiled in anticipation of the needs of users across all sectors. Pennsylvania has indicated that it plans to join Maryland in using the online trading platform to conduct trading activities. This development will create consistency between the two states and lay the groundwork for possible interstate transactions in the future.

Conservation Tracker. This integrated database management system tracks agricultural best management practices installed on Maryland farms to protect and restore the bay. The system tracks both publicly and privately funded best management practices outlined in Maryland's WIP. Information obtained through Conservation Tracker is regularly reported to the Chesapeake Bay Program for use in assessing restoration progress. As part of the Chesapeake Bay TMDL Midpoint Assessment, the department was required to strengthen accountability and transparency of best management practices installed on Maryland farms. In response, the program developed a six-member verification task force to provide an objective, third-party review of all best management practices installed on Maryland farms since 1985. Since 2016, the verification task force has reviewed approximately 15,500 best management practices. This represents 45% of all practices implemented since 1985. Of the practices evaluated, 80% continue to provide water quality benefits, approximately 17% are no longer present on the landscape, and 3% require maintenance.

Agricultural Certainty Program. This program rewards farmers who install multiple best management practices on their farms to protect natural resources. Participating farmers receive a 10-year exemption from new environmental laws and regulations in return for voluntarily installing conservation measures that help the state meet its 2025 water quality goals ahead of schedule. In FY20, the department continued to promote the program to the farm community and began planning for the next round of required training sessions for the re-calibrated version of its online assessment tool.

Research and Special Projects. The Watershed Implementation Program manages multiple 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.

MARYLAND NUTRIENT MANAGEMENT PROGRAM

MDA's Nutrient Management Program protects water quality in the Chesapeake Bay and its tributaries by ensuring that farmers and lawn care 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 oversees a certification and licensing program for lawn care professionals, enforcement activities, continuing education classes for certified professionals, and a homeowner education program.

Agricultural Nutrient Management Program. Maryland law requires farming operations that generate at least \$2,500 in gross income or have 8,000 pounds or more of live animal weight to follow nutrient management plans when fertilizing crops and managing animal manure. These 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.

Phosphorus Management Tool (PMT). To further protect water quality, farmers with fields containing high soil phosphorus levels are required to transition to the new PMT over the next several years. This updated tool identifies fields at risk for phosphorus loss and prescribes best management practices that prevent the additional buildup of soils that are already saturated. Farms with soils that are over certain thresholds will be limited in how much phosphorus can be applied to their fields. High soil phosphorus levels are typically found on farms that have used manure or poultry litter as a crop nutrient over an extended period.

PMT Advisory Committee. The PMT Advisory Committee provides guidance for the implementation of the PMT. It was established in 2015 and is chaired by the Maryland Secretary of Agriculture. In December 2019, the committee overwhelmingly voted down a proposed one-year delay in implementing the PMT. The recommendation was sent to Sec. Bartenfelder, who announced in late December, that there would be no delay in fully implementing the PMT. The committee had received PMT progress updates throughout the year along with a final economic analysis conducted by Dr. Memo Diriker of Salisbury University's Business Economic and Community Outreach Network (BEACON). There is

one additional opportunity for the Secretary to delay the implementation of the PMT by one year. The determination is required to be made before January 1, 2021. The PMT Advisory Committee will meet before the end of 2020 to once again vote on the issue. The program will notify farmers of the results of the vote on its website at mda.maryland.gov.

As of June 30, 2020:

- The program has compiled soil phosphorus data for 1,120,668 acres of regulated farmland. Approximately 20% of farm fields tested have soil phosphorus levels that will require use of the PMT. State law requires soil phosphorus data to be collected every six years beginning in 2015. Plans are underway for the next round of soil data collection in 2021.
- The program continues to target farms that have not submitted soil data for audits and inspections.
- Three tier groups have been established for farmland required to transition to the PMT based on average soil phosphorus levels. Tiers govern how long a farmer has to transition to the PMT.
- The high-risk and medium-risk groups have begun transitioning to the PMT. The low-risk group began transitioning to the PMT in 2020. All farm fields with high soil phosphorus levels will be required to implement the PMT fully by 2022, unless the deadline is extended.
- During the year, the program provided the University of Maryland with funding to conduct a five-year study of phosphorous loss risk assessment tools. The study will provide important information gathered through field tests. The University of Maryland also received a small grant from a federal source to supplement the research.

Compliance and Enforcement. Maryland farmers are required to follow nutrient management plans that specify 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 for their own operations. Farmers are required to update their nutrient management plans before they expire, submit Annual Implementation Reports summarizing nutrient applications for the previous year, and most importantly, follow their nutrient management plans. The program's team of eight nutrient management specialists analyze Annual Implementation Reports and conduct site visits to verify that operators are following their plans.

FY20 Enforcement Highlights:

- **Nutrient Management Plan Submissions.** New farming operations are required to submit copies of their initial nutrient management plans to the department. This is the first step toward achieving compliance. The program actively works to locate new farming operations and pursues enforcement actions against operators who have not met this initial requirement.
- **Annual Implementation Reports.** Farmers are required to update their nutrient management plans before they expire and submit Annual Implementation Reports to the department by March 1, summarizing nutrient applications for the previous calendar year. By the end of the FY20, approximately 96% of regulated farmers managing about 1.3 million acres of land had submitted these reports. Due to COVID-19, the program delayed issuing fines during the fiscal year to give operators more time to submit late or missing implementation reports.
- **On-Farm Audits and Inspections.** Enforcement specialists conducted 720 on-farm audits, a decrease from FY19 due to COVID-19 restrictions on travel and in-person meetings. The program experimented with virtual reviews during the last quarter of FY20 and will continue to offer this option as an alternative for farmers. The program worked on protocols for on-farm reviews and resumed some farm visits on a limited basis in June. Of the audited farms, 68% were in compliance. The program is actively pursuing full compliance for all audited operations. The program issued \$10,800 in fines against 12 operators for violations. This figure is significantly less than previous years due to the pandemic.

Certification and Licensing Programs. The following activities took place in FY20:

- **Nutrient Management Exam Training.** The program offered one nutrient management certification exam that was attended by 37 people.
- **University of Maryland Consultant Program.** The University of Maryland Agricultural Nutrient Management Program funded 20 university advisors to provide farmers with nutrient management plans free of charge.
- **Consultant Certification.** The program certified 24 new consultants to write nutrient management plans for farmers and renewed 120 certifications.

- **Farmer Training and Certification.** The program trained and certified 20 farmers to write nutrient management plans for their own operations and renewed 64 certifications.
- **Nutrient Applicator Voucher Training.** The program partnered with the University of Maryland Extension to conduct a series of statewide voucher training sessions. During the fiscal year, 129 new vouchers were issued and 601 vouchers were renewed.
- **Continuing Education.** Certified consultants are required to take 12 hours of continuing education credits every three years. During the year, 115 continuing education events were attended by 3,069 individuals.

Turfgrass Nutrient Management Program. Maryland's Lawn Fertilizer Law requires lawn care professionals who fertilize turf to be certified by MDA or work under the direct supervision of an individual who is certified. The law applies to professionals hired to fertilize home lawns, as well as individuals responsible for turf management at golf courses, public parks, airports, athletic fields, businesses, cemeteries, and other non-agricultural properties. Additionally, both lawn care professionals and homeowners are required to obey fertilizer application restrictions, use best management practices when they fertilize lawns, observe fertilizer blackout dates, and follow University of Maryland fertilizer recommendations.

The following activities took place in FY20:

- **New legislation.** The Maryland General Assembly passed legislation that makes it illegal for lawn care companies to operate without a fertilizer business license. The action strengthens the department's ability to enforce the law.
- **Fertilizer Applicator Exams.** Five professional fertilizer applicator exams were offered across the state and attended by 109 lawn care professionals. The program issued 862 business licenses and 1,435 Professional Fertilizer Applicator Certificates. An additional 1,463 lawn care company employees have been trained to apply fertilizer under the supervision of a certified professional.
- **Training, Certification, and Licensing.** To renew their certificates, professional fertilizer applicators are required to complete two hours of continuing education each year. Six recertification classes were offered throughout the year. The program also

approved a number of training opportunities offered by private industry and trade groups. Two additional live webinars were added to the schedule in spring. As a result of the COVID-19 pandemic, the June 30 expiration date for licenses and certifications was extended for 30 days after the end of the State of Emergency.

- **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 FY20, the program had received activity reports for 795 businesses representing an 88% compliance rate. The department expects the compliance rate to increase following the end of the State of Emergency.
- **Enforcement Activities.** During the year, 233 record reviews were conducted, with 80% of the firms in compliance. On-site reviews were suspended in March due to COVID-19 and later conducted electronically. A limited number of on-site reviews resumed in June following social distancing guidelines.
- **Homeowner Outreach.** The program continued to educate citizens about Maryland's Lawn Fertilizer Law through a partnership with the University of Maryland Master Gardeners, news releases, social media, online, and at public events.

MDA BUDGET ALLOCATIONS FOR FY20

MDA BUDGET ALLOCATIONS FOR FY20

	GENERAL	SPECIAL	FEDERAL	BONDS	TOTAL
Operating	\$38,007,134	\$75,612,472	\$7,128,878		\$120,748,484
Capital		\$51,471,000			\$51,471,000
TOTAL	\$38,007,134	\$127,083,472	\$7,128,878		\$172,219,484
BONDS					
MACS				\$9,000,000	\$9,000,000
Animal Health Labs				\$12,417,000	\$12,417,000
TOTAL				\$21,417,000	\$21,417,000

LONG SERVICE AWARDS

MARYLAND DEPARTMENT OF AGRICULTURE HONORS EMPLOYEES FOR YEARS OF CONTINUED SERVICE

On Oct. 7, 2020, the department honored 69 employees for their years of dedicated service to MDA and the state of Maryland. Of the employees honored, 15 had 30 or more years of service; three had 40 or more years of experience; and one had 50 years experience. All together, these 69 employees represented 1,235 years of public service and over 2.5 million hours worked.

The following is a list of department employees who were recognized with service awards. The list is categorized by county of residence.

Allegany

- Biff Thompson, Forest Pest Management, 30 years

Anne Arundel

- Brenda Alexander, Central Services, 35 years
- Barbara Smallman, Turf & Seed, 30 years
- Cindy White-Hicks, State Chemist, 30 years
- Donna Birdsong, Turf & Seed, 25 years
- Lynn McNally, Central Services, 25 years
- Philip Davidson, State Chemist, 20 years
- Amy Eichelman, State Chemist, 20 years
- Tonya Kendrick, Maryland State Board of Veterinary Medical Examiners, 20 years
- Stephen Hurst, Turf & Seed, 15 years
- Jessica Koontz, Pesticide Regulation, 15 years
- Vanessa Orlando, Maryland State Board of Veterinary Medical Examiners, 15 years
- Genesis Parker, Turf & Seed, 15 years
- April Salisbury, Maryland Agricultural Water Quality Cost-Share (MACS) program, 15 years
- Willie Taylor, Central Services, 10 years
- Matthew Malinowski, State Chemist, 5 years
- Carolyn Shepke, Pesticide Regulation, 5 years
- Cassandra Shirk, Executive Direction, 5 years

Baltimore City

- Susan Payne, Resource Conservation, 15 years
- Chana Turner, Maryland Agricultural Land Preservation Foundation (MALPF), 10 years

Baltimore County

- Rowland Agbede, Resource Conservation, 30 years
- Karen Wick, State Chemist, 30 years
- Venus Torbit, State Chemist, 15 years
- Amanda Massoni, Maryland Agricultural Land Preservation Foundation (MALPF), 5 years
- Weida Stoecker, Marketing, 5 years

Calvert

- Greta Jones, Mosquito Control, 5 years

Carroll

- Jason Watt, Resource Conservation, 20 years
- Jaime Tsambikos, Plant Protection & Weed Management, 5 years
- Amy Vargas, Animal Health, 5 years

Caroline

- Deborah Minnich, Resource Conservation, 25 years
- Jeffrey Dean, Resource Conservation, 5 years

Dorchester

- Charles Coleman, Weights & Measures, 35 years
- Richard Colburn, Executive Direction, 5 years

Frederick

- Kenneth Favorite, Nutrient Management, 30 years
- Holly Boyer, Resource Conservation, 15 years

Garrett

- Christopher Herbert, Resource Conservation, 20 years
- Roger Kitzmiller, Resource Conservation, 20 years

Harford

- Christopher Prigge, Resource Conservation, 15 years

Howard

- John Nickerson, Fiscal Services, 25 years
- Wendy Lloyd, Resource Conservation, 15 years

Kent

- Robert Hofstetter, Pesticide Regulation, 20 years
- Robert Myers, Resource Conservation, 20 years

Montgomery

- Assefa Fitta, State Chemist, 10 years
- Zacharias Tripoulas, Weights & Measures, 10 years
- Kevin Conroy, Executive Direction, 5 years
- Jason Schellhardt, Executive Direction, 5 years

Prince George's

- Pegeen Morgan, Maryland State Board of Veterinary Medical Examiners, 40 years
- Gaye Williams, Plant Protection & Weed Management, 40 years
- Daniel Davis, Food Quality Assurance, 5 years
- Elizabeth Hoffman, Resource Conservation, 5 years
- Karen Kirksey, Marketing, 5 years
- Hannah Peete, Pesticide Regulation, 5 years

Queen Anne's

- Hans Schmidt, Executive Direction, 5 years

Somerset

- Mark Carey, Resource Conservation, 15 years

St. Mary's

- John Heard, Mosquito Control, 50 years
- Parran Russell, Resource Conservation, 20 years
- Steven Bell, Plant Protection & Weed Management, 10 years

Talbot

- Kimberly Rice, Plant Protection & Weed Management, 20 years

Washington

- Lane Heimer, Plant Protection & Weed Management, 35 years

Wicomico

- Richard Glasgow, Resource Conservation, 35 years
- Thomas Phillips, Resource Conservation, 20 years
- Dawn Bradley, Maryland Agricultural Water Quality Cost-Share (MACS) program, 20 years
- John Hughes, Resource Conservation, 15 years

Worcester

- Alicia Walsh, Mosquito Control, 5 years

Other

- Jay Duell, Resource Conservation, 35 years, Pennsylvania
- Deborah Hayes, Plant Protection & Weed Management, 35 years, Delaware
- Laura Iacona, Food Quality Assurance, 20 years, Delaware
- Bryce Miller, Food Quality Assurance, 20 years, Pennsylvania
- Tynetta Cannon, Mosquito Control, 15 years, Delaware
- William Rawlings, Resource Conservation, 15 years, West Virginia
- Andrew Thomas, Resource Conservation, 15 years, Pennsylvania



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FOR THE BETTER

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