



# FY 2022



Maryland Department of Agriculture | FY2022 Annual Report





*Governor Larry Hogan*



*Lt. Governor Boyd K. Rutherford*



*Secretary Joseph Bartenfelder*



*Dep. Secretary Steven A. Connelly*

## 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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*Front cover and back cover photos: Aerials of farmland along the Chester River.  
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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 FY22. Despite the challenges endured over the last few years including COVID and an HPAI outbreak, Maryland's number one industry continues to be strong.

As the Hogan-Rutherford Administration ends and a new one begins, be assured the MDA mission to provide leadership and support to Maryland agriculture will remain strong. The legacy of the last eight years will mark a time in which many of the top priorities for agriculture in Maryland were finally addressed, including the construction of a brand new, state of the art Salisbury Animal Health Diagnostic Lab. When Governor Hogan toured the lab in 2016, he saw first hand the critical need for the lab to be updated and immediately began working on making that a reality. In spring of 2022 the new lab was opened, enhancing MDA's promote animal health while securing the safety and continued success of the industry.

During FY22 Maryland continued to provide relief to farmers affected by COVID-19 through the Maryland Farmer COVID-19 Relief Program. MDA has also provided funding through the Dairy Farmer Assistance Program, research for a comprehensive study of the Phosphorus Management Tool, as well as the Maryland Cover Crop Program.

I am also happy to report that we continue to make progress on restoring the health of the Chesapeake Bay, and this is due in large part to the efforts of our farmers. Through our use of best management practices and initiatives aimed at curbing nutrient runoff, Maryland has become the national model for sustainable agriculture.

I am very proud of our administration's many accomplishments and it has been an honor to serve you as your Secretary of Agriculture.

Sincerely,

**Joe Bartenfelder**  
**Maryland Secretary of Agriculture**





## Office of the Secretary

### MARYLAND AGRICULTURAL LAND PRESERVATION FOUNDATION

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. 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 FY22 alone, MALPF settled 81 easements and preserved 11,003 acres of farmland. Since its inception through the end of FY22, MALPF has purchased easements on a cumulative total of 2,585 properties and

permanently preserved 348,308 acres of farmland at a public investment of over \$874 million. Maryland has an agricultural land preservation goal of 1,030,000 acres, with a target date of 2030. As reported by the Maryland Department of Planning, as of August 2, 2022, all the contributing State programs, including MALPF, have protected over 875,000 acres of total private land under easement, which is 85% of the 1,030,000-acre goal. Over the past year, MALPF has continued the steady rate of new easement acquisitions, once again protecting more acres in a single year since before the "Great Recession." The continued increase in easement acquisitions settled in FY22 is a direct result of returning to the fully-funded, single-year easement application cycle that began in FY19.

### OFFICE OF THE ATTORNEY GENERAL

Under State law, the Office of the Attorney General (OAG) at the Maryland Department of Agriculture (MDA) is charged with advising MDA and, in particular, the Secretary of Agriculture, in implementing the many programs that MDA administers — programs that directly affect Maryland's agriculture industry, such as MDA's Animal Health Program. For example, earlier this year, the OAG advised the Secretary and the Animal Health Program in the many actions taken to date to address the outbreak of Highly Pathogenic Avian Influenza in this State, including: (a) quarantine orders that the Secretary issued to control the spread of this disease; and (b) numerous contracts that MDA executed to ensure clean-up of the affected facilities. The OAG also advised: (a) the Hemp Farming Program, the Resource Conservation Program, the Certified Local Farm Program, and several other programs in their actions to adopt/revise regulations implementing these programs; and (b) the Plant Disease Program, the Resource Conservation Program, and other programs in their

enforcement actions against persons charged with violating laws and regulations that MDA administers.

The OAG also is charged with advising the boards that exist within MDA, including the State Board of Veterinary Medical Examiners (SBVME), the Maryland Agricultural Land Preservation Foundation (MALPF), and the Maryland Horse Industry Board (MHIB). The SBVME is charged with governing the practice of veterinary medicine in Maryland. In 2022, the OAG, in its role as Board Prosecutor, prosecuted numerous disciplinary actions against licensed veterinarians and owners of licensed veterinary facilities charged with violating the Veterinary Practice Act; and in its role as the SBVME Board Counsel, the OAG advised the SBVME on a myriad of legal issues, including questions pertaining to: (a) the Open Meetings and Public Information Acts; and (b) regulations that the SBVME is proposing to adopt. MALPF's mission is: (a) to preserve agricultural land and woodland to provide sources of agricultural products within the State, (b)



to control urban expansion, and (c) to protect open-space land. MALPF accomplishes this by acquiring easements in land, restricting the land's use so as to maintain its character as agricultural land and woodland. In 2022, the OAG advised 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. The MHIB is responsible for licensing horse establishments in this State and disciplining those establishments that fail to take into consideration the welfare

of animals under their control. In 2022, the OAG assisted the MHIB Board in two such matters.

Lastly, in Fiscal Year 2022, the OAG continued to advise the State Soil Conservation Committee and many of the 24 soil conservation districts in the State. This work included Open Meetings Compliance Training and assisting 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.

### 2022 LEGISLATIVE SESSION

During the 2022 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. 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.

During the 2022 legislative session, the Maryland Department of Agriculture (MDA) followed many bills that could potentially impact the agency, agriculture, and its constituents. MDA's government relations staff conducted several meetings with legislators and attended numerous bill hearings, sub-committee workgroups, and full committee voting sessions.

MDA put forward one departmental bill during the 2022 legislative session that was adopted by the General Assembly and signed by Gov. Hogan:

- **SB 206 – Department of Agriculture - Spay/Neuter Fund - Extension.** This departmental bill extends the termination date for the Spay/Neuter Fund within the Maryland Department of Agriculture (MDA) by 10 years (from September 30, 2022, to September 30, 2032). By October 1, 2022, MDA must report to the General Assembly on the fund, including (1) spay and neuter

programs that are not receiving funding from the fund; (2) the market capacity for increasing the fees assessed on each brand name or product name of commercial feed that are paid into the fund; (3) a proposed fee structure that can be implemented over the next 5 to 10 years to enhance the revenue generated from the fees; and (4) additional sources of revenue for the fund.

The department also monitored a number of bills considered by the General Assembly in 2022. For a full list of those bills and any comments from the department, please visit: [mda.maryland.gov/about\\_mda/Pages/Laws%20and%20Legislation.aspx](https://mda.maryland.gov/about_mda/Pages/Laws%20and%20Legislation.aspx)

MDA was tasked with several reports during the 2022 legislative session including:

- **SB 567 - Property Tax - Agricultural Accessory Use Improvements - Study and Report.** This bill requires the Department of Agriculture and the State Department of Assessments and Taxation (SDAT) to jointly conduct a study of the assessment of agricultural accessory use improvements. The departments must submit a joint report of their findings and recommendations to the Senate Budget and Taxation Committee and the House Ways and Means Committee by December 1, 2022.
- **State Meat Processing Inspection Feasibility:** The Task Force to Study the Feasibility of Return to State Meat Process Inspection was established by the Joint Chairmen's Report - Operating Budget, April 2022. The committees were interested in exploring the option of returning to State meat processing inspection. Therefore, it was the intent of the committees that the Maryland Department of Agriculture (MDA) establish and lead a task force to study the feasibility of returning to State meat processing inspection. The task force is requested to do the following:



- o Study the feasibility of returning to State meat processing inspection;
  - o Make recommendations on implementing State meat processing inspection; and
  - o Advise on necessary rules and regulations relating to meat processing inspection and the establishment of production standards.
- **Integrated Pest Management in Schools Report:** The Joint Chairmen's Report - Operating Budget, April 2022 stated that the committees are concerned that insufficient information is known about the degree to which the integrated pest management (IPM) law

- Chapter 322 of 1999 (Public Schools - Integrated Pest Management) - is being enforced in school districts. Therefore, the committees request that the Maryland Department of Agriculture (MDA or Department), in consultation with the Maryland State Department of Education (MSDE) and the Children's Environmental Health and Protection Advisory Council (CEHPAC), submit a report on whether school districts are complying with the IPM law. The report is requested to include the status of school districts developing and implementing IPM systems for school interiors and grounds and notifying parents on the pesticide notification list of planned pesticide applications.

## 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. The goal of the office 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 and social 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 FY22, staff distributed 104 news releases to more than 500 media contacts and interested parties, which generated 106 logged inquiries from the media.

### NEWS STORIES

The Communications Office handled a variety of inquiries throughout FY22. Highlights included the following:

- During February of 2022, news coverage focused on a Highly Pathogenic Avian Influenza (HPAI) outbreak on Maryland's Eastern Shore which affected poultry operators
- Inquiries continued into the spring and summer about the virus affecting the wild bird population
- The summer of 2022 saw increased media interest in the

Spotted Lanternfly that has begun spreading rapidly throughout the State

### 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:** MDA's website, [mda.maryland.gov](http://mda.maryland.gov), functions as the 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 395,678 sessions on MDA's website with 734,995 pageviews during FY22. This represents a slight increase over FY21 metrics, marking another year of consistent sustainable audience growth.

Note: The Maryland's Best website was not included in the MDA website metrics reporting. [MarylandsBest.Net](http://MarylandsBest.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:** MDA uses Facebook and Twitter 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
- Promote MDA's website as the authoritative source of information for Maryland agriculture

The department continued to emphasize its social media presence during FY22 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 FY22 with more than 19,000 followers, a 14% increase from the previous fiscal year
- MDA's official Twitter feed ended the year with more than 16,000 followers

#### **Twitter:**

- @MdAgDept – Official MDA account
- @MdsBest – MDA's Marketing Program
- @MdsBestSeafood – MDA's Seafood Marketing Program
- @MdEquines – Maryland Horse Industry Board
- @MdFarm2School – Farm to School Program
- @MdGypsyMoth – MDA's Gypsy Moth Suppression Program

#### **Facebook:**

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

#### **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 Department of Emergency Management (MDEM) Joint Information Center. During the HPAI incident, MDA's Public Information Officer was assigned to the MD/DE HPAI Incident Command to serve as joint Public Information Officer throughout the event.

**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. This included planning of the Maryland Buy Local Challenge/Buy Local Week and Governor's Buy Local Cookout, the 2022 Maryland's Best Ice Cream Trail, Maryland Homegrown School Lunch Week, and other events as requested.

**Maryland Farm & Harvest:** The department continues to serve as a co-producer of the Maryland Public Television (MPT) series *Maryland Farm & Harvest*. The Communications Office serves as a liaison to MPT and plays a role in story development. More than 10 million viewers have tuned in to *Maryland Farm & Harvest* since its 2013 debut. The series has traveled to over 400 farms, fisheries, and other agriculture-related locations during its first eight seasons, covering every Maryland county, as well as Baltimore City and Washington, D.C. The series enjoyed continued success during its ninth season, airing first in November 2021, as MPT's highest-rated, locally-produced show. The series and its host, Joanne Clendining, have won several Emmy awards for their work.

**Memberships:** MDA's Communications Office is actively involved in the membership of the Communications Officers of State Departments of Agriculture, a group of communications professionals.

## ADMINISTRATIVE SERVICES

The Office of Administrative Services manages all technical and support services for the department. It comprises 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 provides comprehensive personnel services in the areas of recruitment, orientation, promotion, reclassification, compensation, employment verification, performance evaluation, disciplinary investigation, bullying investigation, leave administration, teleworking, health benefits, worker injury reporting, workers compensation, ADA accommodations, financial disclosure, separation, retirement, and unemployment. MDA has 408 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 Department of Emergency Management (MDEM). 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 253 vehicles in addition to semi-annual inspections on all vehicles. The departmental fleet traveled more than 2 million miles last year. The mileage figure for this year was larger than the 1.5 million miles from the previous year, though the previous year was low due to impacts from the COVID-19 pandemic.

## MARYLAND AGRICULTURAL COMMISSION

The Maryland Agricultural Commission is an advisory group to the Maryland Secretary of Agriculture. Its 30 members represent the state's major commodity groups as well as representatives from the University of Maryland (UMD), consumer interests, and other agricultural business sectors. The commission meets monthly, except for July and August, to discuss issues and topics concerning Maryland's agriculture industry. This year, commission meetings were held virtually via teleconference. During every meeting, members and staff

provided commodity reports from 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. This year the commission toured Carroll and Baltimore County in May and St. Mary's and Calvert County in October. Commission meetings along with farm tours keep the group proactive and up-to-date with agricultural issues and ensure 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 11 members represent young farmers from across the state. The board also includes representatives from the Maryland Farm Bureau, Maryland Department of Natural Resources Forestry Program, Maryland Department of Commerce, and MDA.

The advisory board meets quarterly and discusses current

agriculture issues relating to Maryland young farmers. During FY22, the board met virtually. During the meetings, 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 in 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."

GICA did not meet during Fiscal Year 2022. The last meeting – June 30, 2021 - was reported in the previous Annual Report.

## USDA-NATIONAL AGRICULTURAL STATISTICS SERVICE (NASS)

The Maryland field office of the National Agricultural Statistics Service (NASS), which is housed at the MDA headquarters building in Annapolis, offers information to the public about the production of most crops and livestock raised in the state. On an annual basis, data is supplied on the state's agriculture sector's overall economic health. NASS statistics are used to administer and support USDA agriculture programs that benefit Maryland farmers, examine the feasibility of new ventures benefiting Maryland farmers, and direct program research and development.

Every year, NASS staff members conduct numerous surveys and author reports that have an impact on every aspect of Maryland's agricultural sector. Every five years, NASS also releases a national Census of Agriculture. This year NASS is preparing to mail the 2022 Census of Agriculture to farmers and ranchers across the US in November 2022. The Census of Agriculture tells the story and shows the value

of U.S. agriculture. It highlights land use and ownership, producer characteristics, production practices, income, and expenditures, among other topics. This information is used by all those who serve farmers and rural communities from federal, state, and local governments to agribusinesses and trade associations. For more information or to try the improved online questionnaire, visit [agcensus.usda.gov](https://agcensus.usda.gov).

Maryland Agriculture generated more than \$2.5 billion in cash receipts for the state's farmers, not accounting for the additional impact provided by related jobs and services. Maryland's leading cash commodities were broiler chickens, corn, soybeans, milk and dairy products, and floriculture. The Maryland Field office of NASS estimated there were 12,400 farms in 2021 with an average size of 161 acres. Total land in farms in Maryland was 2 million acres. For more Maryland agricultural data, visit the USDA NASS website, which is [nass.usda.gov](https://nass.usda.gov).



*Belvedere Farm in Fallston, Maryland. Photo courtesy of Edwin Reminsberg.*



## Office of Marketing, Animal Industries, and Consumer Services

### AGRICULTURE MARKETING AND DEVELOPMENT

The goal of the MDA's 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 promotional 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. Due to COVID-19, many of the in-store promotions, farm visits and the annual Maryland's Best Expo did not occur in FY22. Previous analysis of Maryland's Best prior to COVID-19 demonstrated the program's efforts increased farm sales by \$7.6 million over five years, and for every \$1 the program spent on 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. In FY22 more than 3 million consumers received promotional messages from the department through radio, print, television, and online advertising. Press releases promoting Maryland agricultural products were distributed to more than 400 media outlets. For consumers, 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. Additionally, the 2022 Maryland's Best Ice Cream Trail promoted the state dairy sector and encouraged buyers to visit 10 dairy farms around Maryland that sell fresh-from-the-farm ice cream directly to consumers. In FY22 the program created printed Ice Cream Trail Passports, which provided a list of creameries and asked participants to simply take photos and share their visits to the ice cream farms. Also new in FY22 the program provided stickers with QR codes to each creamery location so that visitors could access a digital copy of the passport if they would rather.

#### MARYLAND'S BEST SEAFOOD

The 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 FY22, Maryland's Best Seafood executed an advertising and promotional plan that aimed to increase sales for Maryland crabs, crab meat, oysters, rockfish, blue catfish, and lesser species. Promotional events focused on the entire seafood supply chain, from seafood producers to wholesale buyers and consumers. These promotions featured in-season Maryland seafood recipes and food samplings by well-known Maryland chefs. The program also sponsored and promoted Maryland seafood at consumer and industry events including the Seafood Expo North America, Annapolis Oyster Fest, WTMD's Virtual First Thursday Concert Series, Got Oysters?, Maritime Museum's September Sunsets Series, and many more.

The seafood advertising campaign for 2022 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 14 million consumers through advertising in 2022.

**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 2022, 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, totaling over 55 certified True Blue restaurants and retailers at the end of the year. The department also distributed True Blue marketing materials to program participants.

**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 that has proliferated throughout the Chesapeake Bay and has had a negative impact on the ecosystem, out competing native species and feeding on blue crabs, rockfish, and more. The campaign included press releases, advertising, and sampling events in Baltimore, Boston, Annapolis and other locations.

## MARYLAND FARM TO SCHOOL PROGRAM

The Maryland Homegrown School Lunch Week is an element of the Maryland Farm to School Program, which is administered in partnership by the Maryland Department of Agriculture (MDA) and the Maryland State Department of Education. The program aims to bring locally-produced foods into schools, provide hands-on experiential learning to students, and integrate food-related education, while promoting the benefits of local, nutritious foods.

This year was the 14th year of the annual promotion that Governor Larry Hogan designated to occur the week of Oct. 4-8, 2021. To recognize the week, MDA's Secretary Joseph Bartenfelder joined St. Mary's County Public School leaders at Greenview Knolls Elementary School in Great Mills for lunch on October 7, 2021. The guests joined students as they rotated through stations with activities focused on animal agriculture, nutrition, farming, and sustainable fishing and oyster harvesting. Local farmers, staff from the U.S. Oyster Festival, and University of Maryland Extension (UMES) agents also participated. UMES has been partners with St. Mary's County Public School on Maryland Homegrown School Lunch Week activities since 2008.

Other school districts across the state participated in the Week by providing students with locally-sourced school meals and educational materials, including Anne Arundel, Baltimore, Carroll, Frederick, Garrett, Montgomery, Washington, and Wicomico County schools. Participating school systems were encouraged to use #MDHGSLW and #FarmToSchool when sharing social media posts.

According to the 2019 U.S. Department of Agriculture's (USDA's) Farm to School Census, Maryland schools spent over \$19 million on local foods in School Year 2018-2019. More than 95% of Maryland schools serve local foods, and nearly 97% of Maryland schools participate in Farm to School activities such as nutrition education, taste testing, gardening, and collaborating with local farmers. Maryland was also the first state in the nation to have every public school system participate in the Maryland Homegrown School Lunch Week.

## PROJECT GREEN CLASSROOMS

MDA 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, a signatory of the Memorandum of Understanding between the U.S. Environmental Protection Agency, the University of Maryland Eastern Shore (UMES), the Maryland Coastal Bays Program, the Maryland Department of the Environment, and Maryland Department of Natural Resources, continued to focus on increasing cooperation to advance and promote environmental and agricultural 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 and agricultural programs.

## **USDA SPECIALITY CROP BLOCK GRANT PROGRAM (SCBGP)**

The department's Marketing Program administers the USDA SCBGP funds. During FY22, MDA awarded \$482,905 to seven 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. An additional \$642,545 was made available to MDA because of the passage of H.R. 133, Congress's Consolidated Appropriation Act, 2021. Projects enhanced the competitiveness of specialty crops through market enhancement and food safety.

## **GOVERNOR'S ADVISORY COMMISSION ON MARYLAND WINE AND GRAPE GROWING**

The Commission is no longer active due to SB 0698/HB0854, Chapter 462 Laws of Maryland 2022 which repealed the Maryland Wine and Grape Promotion Fund and the Advisory Commission on Maryland Wine and Grape Growing.

## **CERTIFIED LOCAL FARM ENTERPRISE PROGRAM**

The Certified Local Farm Enterprise Program encourages state agencies, including public four-year universities, to achieve an overall goal of purchasing 20% of their food from certified local farm enterprises. The law, created in 2021, established a definition of "Certified Local Farm Enterprise" as a farm with a nutrient management plan. In 2022, approximately 73 farms enrolled as Certified Local Farm Enterprises.

## **MARYLAND 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 MDH and the Maryland Department of Aging. 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, 211 farmers participate in the FMNP annually. All of the 101 recognized markets in Maryland have authorized farmers present who participate in the FMNP. In 2022, 10,563 WIC recipients used their FMNP benefit with Maryland farmers, purchasing \$316,885 of fresh produce. Seniors used \$161,150 of this benefit with Maryland farmers. MDA's FMNP also partnered with the UMD Extension's SNAP ED 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 in 2019, prior to the pandemic. SNAP ED continues to participate in outreach at Farmers Markets and hopes to have tastings again soon.

## **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 Maryland Agriculture and Resourced Based Industry Corp. (MARBIDCO) \$100,000 for this program, which was in turn administered by the Southern Maryland Agricultural Development Commission as part of its Maryland Market Money Program. Designed to increase buying power of limited-resource citizens at farmers markets, the program matches federal benefits programs, including WIC and SNAP, as well as MDA's Farmers Market Nutrition Program for seniors.

## **INTERNATIONAL MARKETING**

MDA's International Marketing Program represents Maryland's farmers, breeders, processed food companies, and nurseries in the Southern United States Trade Association. MDA is a member of the trade association through its membership in the Southern Association of State Departments of Agriculture. During the COVID-19 pandemic, work continued on connecting Maryland breweries to markets in Europe and



Canada and also to sponsoring virtual market consultations and trade shows. International Marketing has begun traveling again to help promote our companies and participated in trade shows in Australia, France, and South Korea.

## 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.

## 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 at MDA's headquarters in Annapolis.

Field Operations currently has six 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, two contractual front office staff, and two contractual relief veterinary pathologists. In FY22, due to COVID-19 absences, the USDA 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. 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 a hybrid work mode consisting of teleworking and working 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 Department of Emergency Management (MDEM) and all Animal Health personnel are emergency essential employees due to the critical nature of animal emergency response. The department has an 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. MDA's Animal Health Program also has a MOU 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 FY22, Animal Health Program staff processed

certificates of movement for 136,923 livestock animals, including 14,734 horses and over 543 million poultry.

**Animal Exhibitions and Backyard Flocks.** In FY22, Animal Health Program staff performed 60 inspections of exhibitions at shows. With the help of federal partners, exhibition officials, and trained volunteers, MDA's field inspection staff inspected and tested over 8,000 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 FY22, 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 risk. The COVID-19 pandemic has led to a significant increase in the popularity of backyard flocks. In FY22, 722 additional backyard poultry flocks were registered, for a total of 8,061 backyard flocks. The Animal Health Program continued to identify, inspect, and regulate 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. 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. Ultimately, three training sessions were done in FY22. As the state recovers from the COVID-19 pandemic, training and in-field certifications will continue in accordance with state COVID-19 guidelines.

Maryland regulations require, regardless of residency, all sellers of poultry or hatching eggs in the state to obtain a Maryland Permit to Sell. Maryland has 87 NPIP qualified premises with

Permits to Sell. 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. Out-of-state sellers are required to show avian influenza negative test results and must show proof of flock of origin by a NPIP certification or a pullorum typhoid testing of the flock.

**Livestock and Poultry Auctions and Dealers:** During FY22, Animal Health Program staff inspected 254 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 FY22, 24 inspections were conducted for the 25 livestock dealers. An additional 40 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.

**Biologics:** In FY22, the Animal Health Program evaluated 30 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 FY22, the Animal Health Program worked with legislators, veterinarians, farmers, and constituents to revise laws and regulations for antibiotic use in food animals. New state mandates prohibiting "Blanket Dry Cow Treatment" became effective this fiscal year, restricting use of antibiotics in dairy cattle without assessment of mastitis. Restrictions on use of antibiotics in food animals and compilation of data of the use of antibiotics in feed and water continued in FY22, with data provided in an annual report to the Maryland legislature in February 2022.

#### **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 FY22, the department issued 264 import permits through the CEM program, accruing \$219,600 in revenues.

**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 FY22, to increase compliance with ADT requirements, there was additional outreach to producers, markets, veterinarians, and University of Maryland Extension officials promoting free radio-frequency identification tags (RFID) tags for market operators, veterinarians, and producers. The Animal Health Program continued its ADT policy requiring the use of RFID tags in animals entering exhibitions. This upgrade enables better and more efficient tracking of animals moving in, out, and throughout Maryland. 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 FY22, 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' (SCS) 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 enables 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 128 new premises in Maryland for a total of 7,826 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, 8,061 poultry premises are registered under the state program, including 625 that were added in FY22.

**Veterinarian Accreditation Program:** The Animal Health Program in conjunction with the USDA Veterinary Services,

trains and certifies licensed Maryland veterinarians to perform regulatory functions as agents of the state and federal government. Accredited Veterinarians provide Certificates of Veterinary Inspection to allow interstate and international animal movement, as well as to certify animals to enter exhibitions or for certain sales. In the event of a major disease outbreak, Accredited Veterinarians can assist government officials in animal testing and vaccination for disease control or eradication. They have been instrumental in eradicating or controlling important animal diseases affecting humans, including tuberculosis, brucellosis, and rabies. There are 1,559 Accredited Veterinarians in Maryland, and all are required to have initial USDA and state-specific training. In FY22, the Animal Health Program, in conjunction with USDA, conducted four accreditation classes and provided accreditation to 76 veterinarian participants.

## EMERGENCY RESPONSE READINESS

The Animal Health Program continually prepares and trains for an emergency response. During FY22, 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. In FY22, program staff was scheduled to participate in one University of Delaware virtual emergency response exercise and two trainings primarily focused on HPAI response. In March of FY22, HPAI outbreak occurred in Maryland thus the training was real life. 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.

## 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 FY22, 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 6,358 avian influenza tests in FY22. The live virus was not detected in this testing. In March Of 2022, Animal Health responded to a HPAI outbreak in the Delmarva peninsula. The outbreak involved 4 premises and one dangerous contact premise in MD. There was one broiler premise, one pullet premise and two-layer premises. The dangerous contact was an egg processing plant connected to the layer premises. A total of 2 million birds were depopulated. All five premises were cleaned and disinfected. The response was a joint response with Delamarva and USDA. The response was completed in late August. An emergency Cooperative agreement was created with USDA to finance the response. The agreement was for approximately 9 million dollars. Many of the Animal Health personnel logged many hours responding to the outbreak. Help was requested and received from Resource conservation. This additional help was essential to the successful completion of the response, especially with the departure of USDA IMT teams.

**Foreign Animal Disease:** One foreign animal disease was detected in Maryland during FY22. The foreign animal disease detected was Highly Pathogenic Avian Influenza. The HPAI was found in Black Headed Vultures due to significant mortalities noted in several roosts around the state. The most notable was in the Conowingo Dam area. Animal Health worked with MD DNR, USDA Fish & Wildlife, and USDA Wildlife Services to break the infection cycle of the vultures, decreasing the mortalities and circulation of the virus in the birds. Four foreign animal disease investigations were conducted this fiscal year. The department has two qualified foreign animal disease diagnosticians on staff.

**Tuberculosis and Brucellosis:** Maryland remains free of bovine tuberculosis and swine brucellosis. In FY22, MDA performed 311 brucellosis surveillance tests in Maryland cattle and swine to continually monitor for these diseases as they are still found in the United States and therefore could be inadvertently imported into Maryland. The number of tuberculosis tests performed was 1,377.

**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 FY22, a total of 380 EHV-1 tests were performed by MDA labs.

**Quarantines:** As a result of disease surveillance and response efforts in FY22, 39 quarantines (hold orders) were placed. After being cleared, 39 quarantines were released on these farms. Additionally, there were 269 30-day quarantines issued for swine entering the state that were placed through the swine permit process. There were an additional 220 quarantine actions associated with 220 horses moving through the CEM Quarantine Import Station in Maryland.

## LABORATORY SYSTEM MISSIONS AND STAFF

MDA's 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 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 postmortem 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 can perform each critical diagnostic test.

Both the Frederick and Salisbury Animal Health Diagnostic Laboratories are accredited by the American Association of Laboratory Accreditation, 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 FY22, 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 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.

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, UMD, 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, John's disease, avian influenza, swine influenza, equine 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. Equine influenza testing was added in FY21 to better serve the equine industry and to be prepared for a possible disease outbreak of this important disease.

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 Salisbury laboratory 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. In FY21, construction began of a new laboratory to replace the aging existing laboratory in Salisbury, and the new

laboratory Salisbury, and the new Laboratory facility opened in February 2022. The Salisbury lab remained open to conduct testing for the HPAI response while moving the old lab into the new lab. Both labs were critical in the HPAI response. Surveillance testing for the response was conducted at both labs. Weekend testing for continuity of business for poultry producers was conducted on a rotating basis in both labs.

The SAHL moved into the new lab while keeping the testing capabilities operational while being understaffed. The labs were critical to the successful outcome of the outbreak.

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

## ANIMAL HEALTH PROGRAM FY 2022 – SELECTED PARAMETERS

Parameter	Total Number
Animals Certified to Move In, Out or Within Maryland/ Non Avian/Poultry	20,920
Avian/Poultry Total Animals - Export	90,573,378
Avian/Poultry Total Animals - Import	452,283,012
Biological Authorizations	30
CEM Permits (Quarantines)	328
Equine Health Certificate - Export	6,215
Equine Health Certificate - Import	3,272
Exhibition Inspections	47
Export Certificates (Non-Equine)	5,003
Foreign Animal Disease Investigations	7
Import Certificates (Non-Equine)	10,506
Inspections and Investigations - Total Combined	201
Intrastate Certificates Total (Show)	4,112
Livestock Dealer Licenses	6
Market Inspections	46
Quarantines Issued for Disease Investigations	73
Swine Permits Issued (Quarantines)	303

## ANIMAL HEALTH PROGRAM LABORATORY STATISTICS: FY21 VS. FY22

Diagnostic Activity	FY21	FY22
Total Accessions	14,120	13,060
Total Tests	43,343	35,415
Mammalian Necropsy	175	57
Poultry Necropsies (flocks)	874	492
Avian Influenza	6,134	7,290
Brucellosis	359	258
Contagious Equine Metritis	2,206	3,174
Equine Herpes Virus (EHV-1)	396	61
Equine Infectious Anemia	8,184	7,658
Johne's Disease in Cattle	2,009	1,751
Rabies	68	55
Salmonella Pullorum	3,470	3,819

*Note: This is a summary of testing carried out in FY21 and FY22 at the department's Animal Health Diagnostic Laboratories for regulatory or otherwise select significant diseases.*

## 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 has 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](http://mda.maryland.gov/vetboard).

### LICENSES

In FY22, the board issued the following:

- Number of New Veterinarian Licenses: 188
- Number of Veterinarians License Renewals: 2,578
- Number of New Registered Veterinary Technicians (RVTs) Licenses: 75\*



- Number of Registered Veterinary Technicians (RVTs) License Renewals: 165\*
- Number of New Veterinary Hospitals Licenses: 60\*\*
- Number of Veterinary Hospitals License Renewals: 589
- Animal Control Facilities Licensed: 30

*\*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 Maryland Horse Industry Board (MHIB). Together, they inspect nearly 600 veterinary hospitals and 750 licensed horse stables at least once every two years.

Inspections during FY22 were as follows:

- Number of Hospitals Inspected: 410
- Number of Hospitals Requiring Follow-up Before Passing: 55
- Number of Total Inspections Conducted: 487

## COMPLAINTS

During FY22, the board closed 152 complaints, compared to 130 in the previous year. These complaints include 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 OAG for action. At year end, the board had 62 open complaints. Of those, 38 were under investigation, 13 were pending with the OAG, and 11 were pending final board action.

## SPAY AND NEUTER GRANTS PROGRAM

Created in 2014, the Spay and Neuter Grants Program was established to assist in the reduction of dog and cat intake and euthanasia rates in Maryland animal shelters. The Program carries out its mission by financing competitive grants to local governments and qualifying animal welfare organizations for projects that will effectively facilitate and promote spay and neuter services for cats and dogs in Maryland. Funding for this Program comes solely from fees paid by the pet food industry. As mandated by State law, 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, 2022, the Program has funded 216 projects, which have provided 95,558 spay and neuter procedures across the state. Since the Program's inception in 2014, until the end of calendar year 2021, the amount of reported intakes of dogs and cats in Maryland shelters has decreased by 24.4% (78,349 animals down to 61,309) and euthanasia of dogs and cats has decreased by 82.53% (28,710 animals down to 11,936).

## 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 horse industry appointed by the governor to four-year terms. During FY22, a fully-appointed board met at 10 monthly meetings, eight by teleconference, two in person (Foxhall Veterinary Center, Prince George's Equestrian Center) and held a reception/information session at the initial running of the Maryland 5 Star at Fair Hill. FY22 was regarded as a pandemic recovery year with a hybrid mixture of virtual and in person meetings and the gradual resumption of in person marketing exhibitions and

conferences. Key achievements included:

- Oversaw licensing of a record number of 793 boarding, lesson, rental and rescue stables indicating continued pandemic-inspired growth for outdoors activities, including horseback riding and other equestrian activities.
- Saw fruition of the first phase of the long-planned and awaited Maryland Horse Park System when the Maryland 5 Star at Fair Hill was run Oct. 14-17, 2021 at the refurbished Fair Hill Special Events Zone. The event was

the outgrowth of a Maryland Stadium Authority study, commissioned by MHIB that was first released in 2006, and finally culminated in the first event run as a public-private enterprise 15 years later.

- Worked diligently to bring about improvements to the second phase of the Maryland Horse Park System at the Prince George's Equestrian Center (PGEC), meeting with Prince George's County officials and board members of the Washington International Horse Show (WIHS) to move the prestigious event to Maryland. During the pandemic, it was held outdoors for two years at the Tryon, N.C. International Equestrian Center. In December 2021, the WIHS board voted to move the show, rated as a 5 Star event in the discipline of Show Jumping by the Federation Equestrian International, to PGEC. In March 2022 Prince George's County officials allocated the first \$4 million in improvements to the project.
- Dispensed a record \$39,338 in grants to 38 industry organizations and individuals.
- Instead of hosting an in person Maryland Horse Industry Day in Annapolis for state lawmakers, MHIB and industry partners produced and distributed a 5-minute informational video from a horse farmer's point of view to public officials. The video was written and hosted by JoAnn Dawson, operator of the Fairwinds Farm & Stable "Horse Discovery Center" in North East, MD.
- Resumed international outreach by signing a Memorandum of Understanding (MOU) with Anhui province officials in China in February 2022 for equestrian exchange programs. In May 2022, MHIB helped arrange a delegation of Maryland harness horsemen to a racing festival in Menorca, Spain, spearheaded by MHIB advisory board member Alejandra Abella. MHIB developed an extensive equine itinerary for a trade visit by Governor Hogan, staff members and Maryland horsemen to France and Ireland in June 2022. On the trip, the Governor signed two MOUs with French and Irish horsemen for equestrian exchange programs.

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

- Promote the use and development of horses in Maryland;
- Support research related to equine health and related issues;
- Create public awareness of the value of equine activities as they relate to green space preservation;
- Develop and disseminate information concerning the

equine industry;

- Advise the department regarding matters affecting the state's horse industry; and
- License and inspect commercial stables that solicit business from the public, either by giving lessons, boarding horses, renting them for activities such as trail and carriage rides, or offering them a rescue or sanctuary.

As the commodity board for the state's horse industry, the 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 accomplishments of the MHIB in FY22 are listed below.

**Licensing & Feed Fund:** The MHIB licensed 793 stables in FY22. This figure represents the highest number of stables licensed by the board and an 11-stable increase from the previous year. Despite the pandemic and the fear that there might be a decrease in feed sales, the board collected \$206,544 from its Feed Fund program. The Fund stayed steady and showed a 5-year average of \$52,000 per quarterly feed payments in sync with pre-pandemic levels.

#### **Continued Involvement in the Development of the Maryland Horse Park System:**

- **Sponsorship/Participation at the Maryland 5 Star at Fair Hill:** Fair Hill is one of three venues proposed in the Maryland Horse Park System and the first one to operate a major international event. The other two are Prince George's Equestrian Center, slated for improvement, and the construction of a Maryland Horse Library and Education Center in Reisterstown, MD. After winning the bid to host one of only seven 5-star shows worldwide in the discipline of Eventing, MHIB member Jay Griswold helped raise \$4M in private funds for the project and now serves as Chair Emeritus of the Fair Hill Foundation. He and MHIB executive director Ross Peddicord serve on the Maryland 5 Star Event Committee. For the first event, MHIB signed on as a Blue Ribbon sponsor, organized the Horseland activities area for youngsters and families, produced an equestrian-themed military and first responders exhibition in the Main Arena and hosted state and embassy officials at an MHIB tailgate for 50 people on Cross Country day.
- **Bringing the Washington International Horse Show (WIHS) to Maryland:** Bringing a world-renowned show like WIHS with national television coverage on

CBS Sports to Maryland is the catalyst for making improvements to the Prince George's Equestrian Center (PGEC), first built 33 years ago. Once MHIB learned in July 2021 that the show could move either to PGEC or the Virginia Horse Center, MHIB swung into action. MHIB director Ross Peddicord worked with Sheila Curry from the Office of Strategic Partnerships for Prince George's County executive Angela Alsobrooks, meeting several times and making formal presentations to County Council members, PGEC officials and WIHS board members. Peddicord visited the WIHS board in person at the October 2021 show in Tryon, N.C. to underscore Maryland's desire to host the show. In December 2021, WIHS announced they were moving to PGEC and in the spring about \$4 million in improvements began to be made at PGEC.

**Development of the second October Horse Month:** For the second year, the Governor proclaimed October as Maryland Horse Month. Because of the pandemic, events the first year were held virtually or without spectators. MHIB continued to work with the Maryland Office of Tourism to promote the October events, including the Maryland 5 Star at Fair Hill and the Maryland Million, and to track results from attendance figures, Maryland Public television viewers and social media hits.

## MHIB STRATEGIC MARKETING PLAN

The MHIB continued to implement its strategic marketing plan, pivoting from virtual to in person events. Key components included:

### Horse Discovery Centers (HDCs) and public outreach programs continue to mature.

- Five new Horse Discovery Centers in Prince George's, Charles, Baltimore, Frederick and Montgomery counties were certified and three from Anne Arundel, Calvert and Montgomery withdrew from the program. There are now 42 Horse Discovery Centers in 18 counties.
- Anne Litz conducted four virtual regional meetings of the HDC network to maintain contact and produced monthly newsletters on HDC activities.

After a year off because of the pandemic, Horseland returned to the Maryland State Fair, managed by MHIB advisory committee member Hope Birsh with daily operations overseen by Dawn Leung of Wellspring of Life Farm, a HDC from Baltimore County. MHIB also sponsored a military and first responders exhibition at the Fair, organized by Dawn Leung.

### The MHIB continued the Touch of Class Award, social media programs, and distribution of promotional materials.

- During FY22, the MHIB honored Maryland horses and riders who won national and international recognition with the Touch of Class Award in these disciplines: sport horse breeding (Harris Paints/Lopin Lazy); steeplechasing (Jack Fisher, Hall of Fame inductee); hunter/jumper (Goucher students Cole Jackson, Jacob Connell) and dressage (Michael Bragdoll/Qredit). The horse board has over 6,400 Facebook and 1,000 Instagram followers. MHIB has not gotten much traction from Twitter so rarely uses it. A new brochure, "*Welcome to Maryland Horse Country*" was produced, showcasing the reinvigorated Horse Park System sites and translated into French and Spanish for overseas trips. Promotional materials are available at Welcome Centers around the state, Clark's Elioak Farm in Ellicott City, Horse Discovery Centers, and major tourism centers. All publications can be downloaded on the MHIB website. MHIB participated in a full page ad in *Destination Maryland*, the State's official tourism magazine; and advertised trail riding opportunities in the **Baltimore County Tourism Guide** and **Recreation News**. MHIB received an EQUUS Film Festival award for "Best Short Video" for the "*Why Horses*" video written and produced by MHIB advisory committee member Alejandra Abella.

### New Initiatives:

- Among new projects during FY22 was work with Mildred A. Allen Arabber & Heritage Center in Baltimore City. This was an effort through the Johns Hopkins Innovation Fund and Baltimore Heritage in partnership with Dorothy Johns, Arabber stable owner, and MHIB. However, after more than a half dozen meetings, site visits and plans, the project was abandoned due to disbursement of funding.
- Other new projects included sponsorship of the first Chesapeake City Christmas Horse Parade; discussion about conducting a 2024 Maryland horse census; and applications to two grant programs in partnership with the Maryland Horse Foundation, one through the Rural Maryland Council for census funding; and the other for marketing of the Maryland Horse Park System through a federal American Rescue Package grant program.

### Promotions and participation at Maryland horse and community events.

- **Sponsorships (26):** During the year, the horse board provided sponsorships at the EQUUS Film Festival, Mustang Ride Across America; Future Event Horse Champion MD Bred, Loch Moy Farm; Forever Maryland;



Horseland/MD State Fair; Timonium Racetrack College Day; MD 5 Star at Fair Hill; MD Million; Military/First Responders Day, MD State Fair; Frederick Fair Classic Cart Series; Celebration of the Horse, Tuckahoe Equestrian Center; *"Why Horses" video*; MD Travel & Tourism Summit; Chesapeake City Christmas Horse Parade, Md. Farm Bureau annual conference; Freedom Hills Therapeutic Riding 40th Anniversary; WIHS site visit to PGEC; MD Horse Council; Equestrian horse association; the Foxcatcher Endurance Ride; Fair Hill International; *America By Horseback* TV show featuring Valley Meadow Farms; National Sporting Library; National Pike Wagon Train; Pet Expo; and the Lisbon Horse Parade.

- **MHIB had attended, virtually or in person, and/or made presentations at 20 venues:** These events included: Horse Talk in Annapolis (6); regular Maryland tourism meetings (6); Maryland Horse Council quarterly and annual meetings (4); Anhui delegation and Hauts de France virtual meetings (4); MARES virtual meeting

(1); Maryland 5 Star Event Committee monthly virtual meetings (10); Fair Hill Foundation meetings (4); Leadership Circle (4); Prince George's County Gov't/ WIHS (10); Johns Hopkins Innovation Fund Arabber Project/ Mildred A. Allen Center (8); MACO/Prince George's Co. reception; DNR meeting Patapsco State Park; Cecil Land Trust; Baltimore County Ag Center horse show ring dedication; WIHS/Tryon N.C.; Baltimore Co. Horse Heritage presentation; Well Spring of Life Veterans Day; Preakness Sunrise Tours; MD Tourism Council Agri-Tourism Day.

- **MHIB awarded \$39,338 in grants to 38 Maryland horse organizations and individuals:** MHIB distributed a record \$39,338 in grants funding. More funding was available in FY22 due to decreased spending during the first year of the pandemic.
- **Cross-Disciplinary Cooperation:** MHIB continued coordinating meetings with the Maryland Horse Industry Marketing/Leadership Circle both virtually and in person.

## MHIB SELECTED STATISTICS: 2022

Category	
Number of Stable Licenses Issued	793
Number of Inspections Performed Annually	702
Percentage of Facilities Inspected and Brought into Compliance	100%
Revenue Collected from Licensing Horse Stables in Maryland	\$99,125
Revenue Collected from Assessment Based on Tons of Horse Feed Sold in Maryland	\$206,544
Outcomes	
Total Amount of Money Distributed as Grants for Promotional, Educational, or Research Projects for the Maryland Horse Industry	\$39,338
Percentage of Total Revenue Distributed as Grants for Maryland Horse Industry	19%
Presented Talks at Meetings and Conferences Promoting Maryland Equine	66

## 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. MDA'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 COVID-19 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:

- 204 million pounds of poultry;
- 11.3 million dozen of shell eggs;
- 16 million pounds of meat;
- 12 million pounds of vegetables; AND
- 215, 266 metric tons of grain.

### COMPLIANCE AUDITS

Many buyers require compliance audits of production practices as well as product certification. The Food Quality Assurance Program conducts compliance audits to ensure agricultural production facilities comply with standards related to animal welfare, good agricultural practices, food security, food safety, and quality assurance. As buyers and consumers continue to demand verification of compliance with these standards, MDA anticipates increased demand for compliance audits and is training additional staff members to meet that demand. The program has adapted to continual changes in the agricultural commodity industry by offering the services necessary for the industry to market its products. MDA's Good Agricultural Practices (GAP) food safety program for fruit and vegetable producers has experienced a significant increase

in participation. However due to COVID-19 pandemic, the number of growers requesting a GAP audit for FY22 decreased to 16. 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. 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 20 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 its sixth year of work, and first year of work under our second 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, UMD Plant Sciences Department, UME, and the UMD Agricultural Law Education Initiative cooperatively provided education, outreach, and technical assistance to Maryland fruit and vegetable growers to assist them in compliance with the rule.

MDA 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 On-Farm Readiness Reviews. An On-Farm Readiness Review consists of a voluntary on-site, nonregulatory 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 only able to conduct one in-person On-Farm Readiness Review as planned in 2022. This number was extremely low due to COVID-19 restrictions and producers' hesitancy to have people on their farm. 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 416 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. In 2022, MDA conducted nine inspections of produce growers with more than \$500,000 in fruit and vegetable sales, and three inspections of produce growers with \$250,000-\$500,000 in fruit and vegetable sales. All inspected farms had an On-Farm Readiness Review prior to inspection and there were very few observations of deficiencies that needed correction. To date, MDA has conducted 40 Produce Safety Rule inspections.

## 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 \$0.0026 per dozen eggs sold in Maryland. The number of lots inspected decreased as inspections at retail and food service locations were on a complaint basis due to

COVID-19 restrictions that took effect starting in March 2020 and continued into 2022. Because of this, the percentage of sampled eggs in compliance with the Maryland Egg Law has decreased from previous years to 50%. MDA 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 62 farms and “on-farm” processors of organic products during FY22. MDA recently underwent a handler scoop reduction, which limits certification to those conducting “on-farm” processing. The program also registered an additional five 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 FY22, MDA licensed 23 businesses with 45 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 was canceled 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 is offered to producers, which allowed additional small poultry and rabbit producers to become certified to market their products. The virtual training is 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 be 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 in place 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 composed 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 meteorologist 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 61,695 weighing and measuring devices in commercial use in Maryland at 7,401 separate business 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 6,241 businesses across the state and is now using electronic inspection software instead of paper reports. With these new tools, staff can 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.

### FY22 ACTIVITY

In FY22, the program's field staff conducted 22,819 device inspections. Inspectors also tested 7,211 individual lots of prepackaged commodities.

In FY22, field staff investigated 231 consumer complaints. The majority of the complaints were related to gasoline sales. Consumer complaints are given priority over routine inspections and require a significant number of staff hours to investigate.

**WEIGHTS AND MEASURES ACTIVITY TABLE: FIELD INSPECTION AND TEST EFFORT**

Activity	2020		2021		2022	
	% Violations	Total Tests	% Violations	Total Tests	% Violations	Total Tests
Weighing Systems						
Large Scales	14.4	654	14.7	812	19.5	513
Medium Scales	15	373	8.1	62	12.3	544
Small Scales	11.3	3,102	5.6	567	8.1	13,964
Liquid Measuring Systems						
Retail Gasoline Meters	19.9	11,355	18.3	43,984	18.8	6,538
L P Gas Meters	9.1	88	2.8	36	22.8	457
Vehicle Tank Meters and Other Large Meters	14	972	25	4	8.7	572
Grain Moisture Meters	0	0	3.4	166	2.2	92
Programmed Tare Inspections	14.8	1,657	2.5	281	7.7	1,698
Price Scanning and Method of Sale	7.3	1,060	4.5	198	3.0	2,604
Delivery Ticket Inspections	0	2,107	0	50	0.8	1,939
Package Lots	18.8	1,163	28.6	293	21.5	7,211

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

**WEIGHTS AND MEASURES ACTIVITY TABLE: LABORATORY EFFORT**

Inspection and Test	2020		2021		2022	
	% Rejected	# Tested	% Rejected	# Tested	% Rejected	# Tested
Weights	10	890	14.1	857	2.5	930
Volumetric Measures, (Non-Glass)	65	20	79.7	69	10.5	19
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	132	N/A	132	N/A	127

*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	2020	2021	2022
Weighing and Measuring Devices Registration Certificates Issued	6,604	6,340	6,241
Type Evaluation of Devices Conducted (NTEP)	8	11	8
Citizen Complaints Received and Investigated	257	168	231
Disciplinary Hearings, Criminal Arrests, Summonses Obtained and/or Civil Penalties	1	3	27

*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.*



*Aerial of farmland along the Chester River. Photo courtesy of Edwin Reminsberg.*



## MARYLAND AGRICULTURAL FAIR BOARD

The Maryland Agricultural Fair Board was established in 1937. Originally known as the Maryland State Fair Board, the office was based at the Maryland State Fairgrounds in Timonium. When MDA was established in the 1970s, the office was moved to Annapolis and renamed the Maryland Agricultural Fair Board.

The board consists of nine 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 pari-mutuel

tickets and various fees. 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 office. 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.

## FY21 FINAL BUDGET FIGURES

0100	Personnel Costs	\$0
0300	Communication Costs	\$909
0400	Travel	\$2,588
0700	Motor Vehicle Operations	\$0
0800	Contractual Services	\$3,795
0900	Supplies & Materials	\$23
1036	Replacement Equipment	\$0
1207	Grants to Non-Government Entities	\$668,516
1299	Grants, Subsidies & Contributions	\$559,104
1300	Fixed Charges	\$93
TOTAL APPROPRIATION		\$1,238,082



## Office of Plant Industries and Pest Management

### PLANT PROTECTION AND WEED MANAGEMENT

Due to the seasonal nature of this program and calendar year federal reporting requirements, data reported in this section is from the 2021 calendar year.

#### APIARY INSPECTION

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** is the most serious brood disease of honey bees and can destroy a colony in one year. In 2021, No colonies were found to have American foulbrood, as diagnosed by the USDA Bee Laboratory in Beltsville, MD. If the bacterial disease had been found, the colony would have been destroyed to prevent the spread of this contagious bacterial disease into healthy colonies.

**Canine Training and Certification:** In 2015, the apiary program trained and certified a dog and handler to detect American foulbrood disease in honey bee colonies. Mack is a yellow Labrador retriever who has been trained to detect, and alert his handler to, the presence of American foulbrood



*Dog photos credit Cybil Preston, Dogs and Handler. Photos courtesy of Bryanna Jeannette Ostendorf.*



disease. Mack works to reduce the incidence of American foulbrood in Maryland bee colonies during fall and winter when the weather is below 45 degrees, and the bees are dormant. A trained dog can inspect 100 honey bee colonies in 10 minutes; an average human inspector can inspect 50 colonies in one day. Early detection of the disease will save Maryland beekeepers substantial monetary loss due to eradication of diseased colonies and destruction of infected equipment. Mack inspected 1140 colonies in 2021. Tukka, our second detection dog, a Springer Spaniel, certified in mid-December 2018, and was able to inspect 1144 colonies in 2021. A total of 2,284 colonies were inspected and certified free of American foulbrood disease by the disease detector dogs.

**Varroa mite (*Varroa destructor*)** populations were again very high in Maryland in 2021; brood problems and hive death were attributed to this pest. One of the serious problems caused by varroa mite is the transmission of viruses, which can be fatal to the hive. Ten prevalent honey bee viruses have been discovered, and the majority have an association with varroa mites. The second serious issue with having high numbers of varroa in your colony is the fact that varroa feeds on the fat body of the honey bee, considerably shortening the lifespan of the bee. Therefore, controlling varroa populations in a hive controls both the associated viruses and symptoms of the viral diseases, and will also help the honeybee live their normal lifespan.

**Africanized honey bees (AHB):** MDA is working with the Apiary Inspectors of America (AIA) to provide information to the general public about emergency incidents, and information on the control of AHB movement through natural spread. MDA continues to work with the Port of Baltimore with onsite eradication of all swarms.

The small hive beetle (*Aethina tumida*) was detected in packaged bees and 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 the wetter colder spring, summer and fall, there was a marked increase in small hive beetle found in Maryland beekeepers' hives.

**Apiary Inspection Permits:** Movement of beehives into and out of the state of Maryland in 2021 was back to normal from a bit of COVID-19 slowdown. 3,789 honeybee colonies were moved into Maryland. 2,400 of those colonies were moved in

for overwintering from a northern state and 1,389 colonies were brought in by beekeeper purchases. Exit permits were issued for 2,684 honeybee colonies to move out of Maryland, primarily for pollination services. For the fourteenth year, Maryland beekeepers have sent colonies to California for almond pollination; 2,400 were transported to California in winter 2021 for the 2022 almond pollination season.

**Surveys:** Apiary Inspection assisted with one full survey in 2021, the USDA/APHIS National Honeybee Survey. We were able to complete all 24 samples. We also participated in the Giant Asian Hornet/Invasive Survey. Information can be found in the Pest Survey section of this report.

**Asian Giant Hornet Concerns and Actions:** During 2021 there were confirmed sightings, finding of, and eradicating the invasive Asian giant hornet in Washington State and Canada. Due to the massive media coverage of these events, Maryland residents were hyper-vigilant looking for this pest. We responded to 450 emails and voicemails from concerned Maryland residents requesting identification of all types of large yellow and black insect species. Thankfully none of them were Asian giant hornets. We did however identify more than a dozen other insect species that partially resemble the Asian hornet pest.

## NURSERY INSPECTION AND PLANT QUARANTINE

The Maryland Nursery Inspection Program serves the state's nursery and greenhouse industry which continues to be a leading component of Maryland's number one industry, agriculture. The most recent survey (2018) estimated gross sales exceeding \$1.37 billion.

A primary goal of state 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 Maryland Department of Agriculture Plant Protection & Weed Management, Nursery Inspection Program 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 regularly to ensure that plant material they produce is free of dangerously injurious plant pests. Additionally, plant dealers are inspected to ensure that plant materials are received from suppliers in a healthy and pest-free condition, and maintained in that condition for wholesale and retail sale.

In 2021, the Maryland Nursery Inspection Program licensed 306 nurseries, as well as 1,422 plant dealers and plant brokers.



In 2021, 11,454 acres of nursery stock and 12,886,463 square feet of greenhouse production were certified. Plant Protection & Weed Management staff performed routine inspections at 1,467 Maryland locations.

In general, the health of Maryland-produced nursery stock was found to be excellent. Additional certification activities for 2021 involved shipment-specific inspections. These included 137 state phytosanitary certificates issued to 14 states and U.S. territories. Phytosanitary inspection and certification is performed to ensure Maryland agriculture and green industry compliance with established U.S. and state domestic quarantines and phytosanitary requirements for Maryland produced plant material and grain commodities. In 2021, 42 shipment specific inspections were performed, and federal phytosanitary certificates were issued to export Maryland grown plant material to 5 foreign countries, ensuring that Maryland produced agricultural commodities meet international quarantine regulations. Additionally, PP&WM staff continue to keep up with hemp regulations in anticipation of those licensed facilities requesting phytosanitary certification for shipping in the future.

One of our ongoing challenges has been trying to keep up with the fast paced nature of online sales in the nursery trade. Our team continues to help educate businesses interested in ecommerce, on the rules and regulations/restrictions of other states. This has led to the development of some specifically tailored compliance agreements allowing the quicker movement of nursery stock without inspections per shipment, when permitted by the receiving state. Regulation of the online sales market looks to be a hot topic in 2022.



**Nursery Inspection staff continued efforts to prevent further introduction to, and slow the possible spread of, boxwood blight, *Cylindrocladium buxicola* (syn. *Calonectria pseudonaviculatum*) in the Maryland nursery and landscape industry. Staff were again involved in the process of inspecting for evidence of the disease at the majority of establishments visited, and were also engaged in issuing Stop Sale Orders when potentially infected plant material was found. Program staff participated in a group inspection with UMD Extension plant pathologists at one of the larger nurseries in Maryland to help confirm the absence of this disease. Photos courtesy of Nursery Inspection Staff.**



A new pest of boxwood plants was confirmed in the U.S. in 2021. USDA alerted Maryland inspectors to a possible trace forward of the box tree moth, *Cydalima perspectalis*. Inspectors performed inspections and eradication methods of potentially infested plant material at two homeowner sites in Maryland. Although the pest was not found during trace forward activities, trapping will continue and likely increase across the state in 2022.

Nursery Inspection staff once again participated in the *Phytophthora ramorum* survey for the plant pathogen which causes Sudden Oak Death. A total of 44 sites were surveyed and inspected with all samples confirmed to be negative.





NI Staff ready for a boxwood blight inspection. Photo courtesy of Jaime Tsambikos.

A great deal of effort was put forth in the spring of 2021, during trace forward activities for *Phytophthora ramorum*, to help alert retailers to possible disease pathways both on site and prior to shipment arrivals. Staff continue to be part of USDA bimonthly calls to provide updates and gather pertinent information.

MDA PP&WM staff continued their role evaluating federal (USDA) permits to move plant material (post entry quarantine) 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 site visits and follow-up inspections.

Staff continue to be vigilant, and participate in inspections and surveys aimed at early detection and slowing the spread of other serious pests and diseases. This year the Lebbeck mealybug (*Nipaecoccus viridis*) was reported at one Maryland location leading to the destruction of plants at



Maryland nursery boxwood. Photo courtesy of Basudev Sharma-Pokhrel

a Maryland nursery. Also, threats such as: Asian longhorned beetle (*Anoplophora glabripennis*), spotted lanternfly (*Lycorma delicatula*), and Beech Leaf Disease are considered high risk in this regard. This year PP&WM staff used the sUAS remote imagery capability to detect spotted lanternfly presence in trees, and assist department staff with detection of possible bark beetle damage to forests.

Distribution of information to the green industry and enforcement of invasive plant regulations that took effect in 2016 has proven to be an additional challenge for program staff due to significant investment of hours and effort dedicated to education and outreach about, inspection for, and enforcement of these regulations. Three enforcement letters were created in 2021 to help support ongoing efforts to get compliance from non-compliant retailers. Online sales pose a different challenge with invasive plant regulation enforcement, and this will likely be addressed in years to come. Program staff continue to participate in virtual Maryland Invasive Species Council meetings.

In addition, staff members participated in other virtually held trainings and meetings, including the first ever National Horticultural Inspection Society meeting. Also, two newly introduced online formats were put in use in 2021: the state phytosanitary certification process and the administration and grading of the Certified Professional Horticultural exams are now fully online. Nursery Inspection and other PP&WM Staff have spent a great deal of time working to get our program online and are looking forward to advancing in 2022. Field and clerical staff work year round to enforce Maryland laws and regulations.

## PEST SURVEY

The Cooperative Agricultural Pest Survey (CAPS) and Plant Protection Act (PPA) §7721 surveys are joint projects between MDA and USDA's Animal and Plant Health Inspection Service (APHIS), and USDA Plant Protection and Quarantine (PPQ). The USDA recommends specific pests of quarantine export significance as survey priorities and provides funding for these surveys. These cooperative programs provide necessary data used to certify Maryland products for export to many countries. They also allow for continued outreach and education.

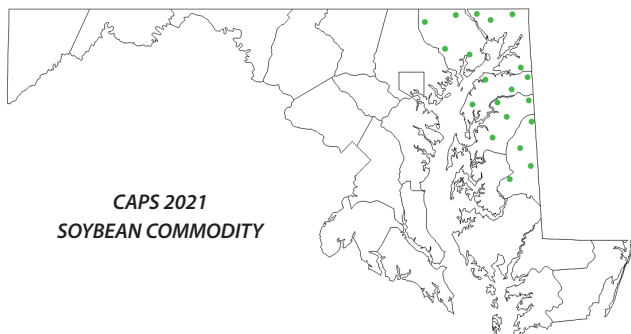
CAPS and PPA §7721 surveys document the presence or absence of exotic pests in Maryland, support PPQ exotic pest survey activities, and provide state-specific data for exotic pests in the United States. Early detection of exotic pests before they become established aids in eradication or control

efforts, and protects Maryland agriculture, nursery stock, and the environment, from potential devastating losses. Federally funded CAPS surveys include: exotic wood borers, soybean commodity, and imported red fire ant (*Solenopsis invicta*); for PPA §7721 surveys, MDA Plant Protection was focused on the invasive spotted lanternfly (*Lycorma delicatula*).

In 2021, MDA deployed and monitored 229 insect traps and collected 1,873 samples from these various traps. There were six extensive surveys targeting 29 exotic pests that impact apiaries, fields, forests, orchards, and nursery stock.

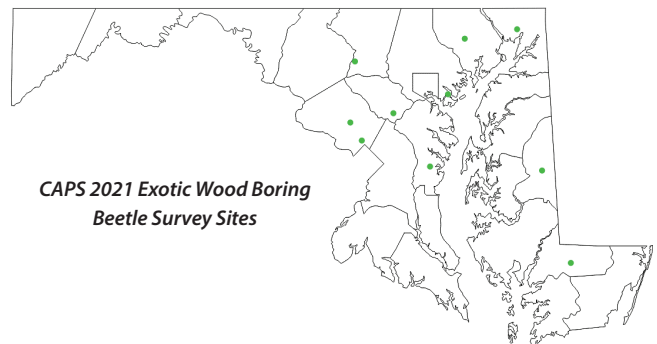
### COOPERATIVE AGRICULTURAL PEST SURVEY (CAPS)

**Soybean Commodity** - Soybeans are one of the most valuable crops grown in Maryland, second only to corn. For this reason, ensuring that our state is free of exotic pests of this commodity is of enormous importance. This survey was conducted from June through October in five counties known to have high production rates of soybeans, 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 in any of the traps. In addition to these pests, a visual survey for the bean plataspid (*Megacopta cribraria*), also known as the kudzu bug, a species of concern in Maryland, was conducted. This survey was done in conjunction with the moth trapping survey, and this bug was not found at any of the sampling sites.



**Exotic Wood Boring Beetles** - USDA regulations require all wood packaging material on imports to be treated, in order to kill any pest insects living in the wood. However, some packing material may not be properly treated, which can allow exotic wood borers to be shipped to the US, and then introduced into our state. Bark beetles can be extremely destructive and, in parts of the world, have been known to destroy many acres of forests. In 2021, ten sites that receive goods packed with wood dunnage were surveyed for bark beetles and other exotic wood boring pests. Traps were placed around these areas targeting nine exotic wood boring pests (eight beetles

and a horntail wasp). In addition, a visual survey for spotted lanternfly (*Lycorma delicatula*), an invasive insect of concern, was also completed. This survey ran from early April until November. During the trapping period, a single specimen of velvet longhorned beetle (*Trichoferus campestris*) was found. This relatively new pest is native to Asia and has been found in ten US states since 2010. Trapping for this pest will continue in subsequent years to determine the extent of any possible population in Maryland. In addition, spotted lanternfly were found at two of the trapping sites; however, both sites were located within areas where spotted lanternfly were previously known to have populations, so this was not unexpected. All other trap samples were negative for the species being targeted.



**Red Imported Fire Ant** - The red imported fire ant (IFA), a stinging insect native to South America, is currently found in the southern United States. Despite a quarantine which requires a wide variety of commodities to be treated and 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 United States. In 2021, 114 sites were surveyed and one was found positive for IFA. The positive site was issued an MDA eradication treatment order; they have completed the treatments, have been resurveyed, and were found free of IFA. Additionally, we responded to three citizen reports of possible imported fire ants, but all of these reports were found to not be the pest species.

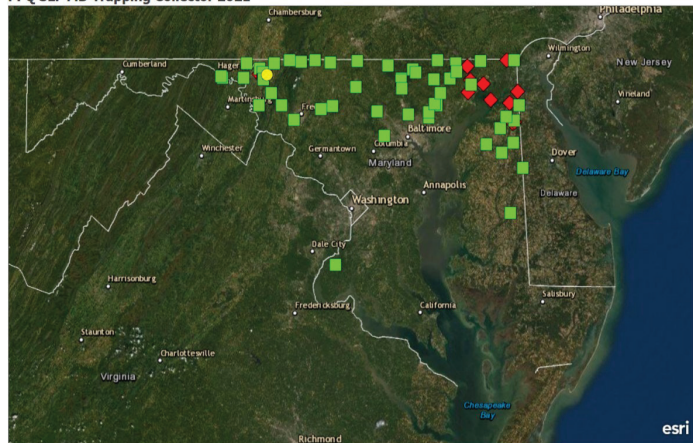
### PPA §7721 SURVEYS

**Spotted Lanternfly Survey** - Spotted lanternfly (SLF), an invasive planthopper native to Asia, is a voracious pest with a wide variety of hosts, including many economically important crops in Maryland, such as grapes, hops, and tree fruits. The SLF survey was conducted from April through December at 70 sites covering twelve counties. These sites were chosen because they were either 1) located in close proximity to



known populations of SLF in neighboring states; 2) located in areas which receive large amounts of visitor traffic; or 3) areas from which positive reports were received from Maryland citizens. The survey was conducted via visual inspection, in addition to the use of modified circle traps to capture the pests. Of the 70 sites monitored, SLF populations were found at 12 of these sites.

PPQ SLF MD Trapping Collector 2021



Collector map for PPQ 2021 trapping surveys for Spotted Lanternfly (SLF) in Maryland.

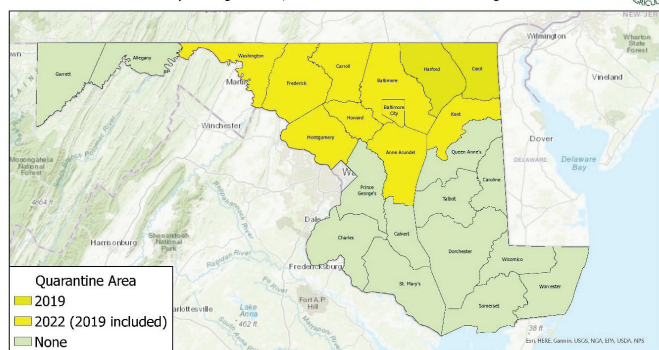
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community | Esri, HERE, Garmin, (c) OpenStreetMap contributors | Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Additionally, as part of the survey for SLF, inspection surveys were conducted at areas where Maryland citizens reported to MDA that potential pests were observed. From June through December 2021, MDA responded to over 5000 reports of spotted lanternfly, of which there were approximately 1180 phone reports and 3850 email reports. In addition, a new online reporting tool was created, which received 6175 reports of SLF. Most of these reports were in the vicinity of previous reports in Cecil, Harford, Kent, and Washington counties, but specimens were also recovered from Anne Arundel, Baltimore, Carroll, Frederick, and Montgomery counties. Due to these findings, Maryland made the decision to expand the SLF quarantine to include these counties.



#### Spotted Lanternfly Quarantine

MD Dept. of Agriculture, Plant Protection and Weed Management



Designed by: Kenton Sumpter -MDA- Created: 1/10/2022

## DIAGNOSTIC LABORATORIES

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

In 2021, the Entomology Lab processed a number of specimens of note as bycatch from the year's survey trap samples. Since this was the predicted, much anticipated, emergence year for Brood X *Magicicada* species – periodical cicadas, most traps of all types from much of Maryland yielded many, many adults (A.), nymphs, and just-hatched young (B.). Survey traps also captured other species of note, including: *Megacocta cribraria* (Hemiptera: Plataspidae), a pest of soybean; *Euthyrhynchus floridana* (Hemiptera: Pentatomidae) – the Florida predatory stink bug, a colorful true bug moving northward; a male *Merope tuber* (Mecoptera: Meropeidae) – an earwig fly; and several *Ithycerus noveboracensis* (Coleoptera: Brentidae) – the New York weevil, which is not often collected. Other finds included: *Fulgoraacia exigua* (Lepidoptera: Epipyropidae) – a small moth whose larvae are parasites on planthoppers, and that spin a cocoon which resembles the Sydney Opera House; one adult *Cuterebra* sp. (Diptera: Oestridae) – robust bot or warble flies, which are parasites of rodents; and *Leucospis affinis* (Hymenoptera: Leucospidae) – a parasite of bees.



Just hatched *Magicicada* sp. nymph. *Magicicada* sp. in bush. Photos courtesy of G. Williams.

An alert homeowner collected several adult *Cacoxenus indagator* (Diptera: Drosophilidae) – the so-called Houdini fly from around his mason bee straw and reed bundles. This fly's larvae eat pollen stored for the bee larvae. These are an apparent Maryland state record. See link: [treefruit.wsu.edu/article/usda-alert-houdinifly](https://treefruit.wsu.edu/article/usda-alert-houdinifly)

**Plant Pathology Laboratory:** The plant pathology laboratory provides testing, analysis, and recommendation services for problems caused by abiotic factors (water, soil, chemical, and

management) and biotic pathogens (fungi, bacteria, viruses, and nematodes), to support MDA programs, especially the regulatory mission of Plant Protection and Weed Management, and Maryland's horticultural industry. The plant pathologist also reviews and suggests changes to import permits for plant pathogens and genetically modified plant materials as part of state regulatory responsibility. The diagnostic lab's primary responsibility is to test for and detect pathogens, disease and damage problems encountered during inspections of plant materials in nurseries, landscapes, and retail stores throughout Maryland.

During 2021, PPWM worked with the University of Maryland's Plant Diagnostic Lab (director and diagnostician Dr. Karen Rane) to analyze and diagnose samples submitted by MDA's nursery inspectors through mid-October of 2021, when MDA filled the plant pathologist position. Dr. Rane's lab processed 12 samples submitted by two MDA nursery inspectors during routine inspections in 2021, including 4 boxwood samples and a variety of samples from herbaceous and woody ornamental plants such as Camellia, Hosta, redbud, and Fraser fir. No pathogens of regulatory concern were detected in any of these samples.

In one case, a significant number of boxwood plants were held on stop sale due to concerns about a regulated pathogen. In that case, boxwood blight, a destructive disease caused by the fungus *Calonectria pseudonaviculatum*, was highly suspected but could not be verified due to a recent fungicide application to the crop. However, because the plants expressed symptoms consistent with that disease (Fig. 1), and due to the overwhelming abundance of an additional disease, *Volutella* blight (*Volutella buxi*; Fig. 2), more than 50,000 plants were ultimately destroyed.



(Fig. 1, Left) *Volutella* blight of boxwood exhibiting characteristic salmon colored sporodochia on the leaf margin (magnified inset)—not to be confused with boxwood blight caused by *Calonectria pseudonaviculatum*.  
(Fig. 2, Right) Symptoms highly suggestive of boxwood blight. Photos courtesy of K. Rane, UMD.

Dr. Rane also processed samples for two targeted surveys performed by MDA personnel. One survey, performed by MDA Nursery inspectors, targeted *Phytophthora ramorum*. This federally regulated plant pathogen causes Sudden Oak Death, the disease responsible for the loss of more than 100,000 mature trees in California over the past several decades. *Phytophthora ramorum* affects many hosts in addition to oak trees and can be vectored unintentionally, but very effectively, by people moving host plants in the nursery trade. This survey specifically targeted several of these alternate hosts which are common in Maryland nurseries, including Rhododendron, Camellia, Pieris, and lilac. Of 7 samples submitted to Dr. Rane's lab by two inspectors, three tested positive for *Phytophthora* in a serological screening assay that screens at the genus level. Subsequent molecular assays performed at Penn State determined that these *Phytophthora* isolates were not species *ramorum*, and thus no regulatory action was taken.

Dr. Noah Adamo assumed the vacant plant pathology position at MDA in early October. With the assistance of other Plant Protection and Weed Management personnel, Dr. Adamo brought the plant pathology laboratory facilities into working order and was able to begin accepting samples and conducting field visits within the month. However the molecular diagnostic (i.e. PCR) capacity of the MDA labs is still being determined, and individual assay methods must be refined (in what can be a painstaking process) for diagnostic use once the hardware is deemed in working order and generic reagents have been procured. As such, and very graciously, Dr. Rane will continue to support Dr. Adamo and MDA in 2022.

Twelve samples from 10 different host plant species were submitted to the MDA Plant Pathology lab by MDA personnel in late 2021. The plant pathologist also accompanied inspectors on 4 occasions, visiting 7 different growers in several counties in central Maryland and the Eastern shore. A variety of host plants such as boxwood, azalea, lilac, blue holly, white pine, and Douglas fir were submitted or collected for analysis. No diseases of regulatory significance were recovered from the submitted material, although several interesting pathogens were recovered, including *Rhizobium* sp. (formerly *Agrobacterium*) inducing galling on dwarf weeping Barbados cherry (Fig. 3).

Many of the samples submitted to the MDA lab later in 2021 exhibited symptoms associated with heat and water stress that occurred in the preceding summer. Seasonally unusual, extreme, and highly variable weather conditions, along with other abiotic stressors, may predispose plants to damage by organisms that are typically secondary or 'weak' plant



pathogens on a given host. In one case, a large block of blue holly experienced heat and water stress in two preceding summers, which initiated a decline (Fig. 4). This abiotic stress was exacerbated by the presence of several genera of relatively benign and ubiquitous plant pathogenic nematodes.



(Fig. 3, Left). Gallings and abnormal growth on weeping Barbadon cherry induced by the same pathogen associated with crown gall, a bacterium in the genus *Rhizobium*. (Fig. 4, Right) Blue holly decline associated with periods of unusually hot and dry weather in preceding summers, in this case apparently exacerbated by soil borne plant pathogenic nematodes. Photos courtesy of D. Hayes, MDA.

**Greenhouse:** Greenhouse production for 2021 produced over 600 knotweed plants that were produced for the integrated pest management and biological control program for insect colonies that require food and plant material.

The MDA greenhouse propagated and maintained enough knotweed (*Fallopia japonica*) to sustain the start of Maryland's knotweed psyllid (*Aphalara itadori*) colony, which is a biological control agent that may help control invasive knotweed. This new biocontrol was started in April of 2021 in the MDA biocontrol facilities. MDA plans to make initial releases on limited sites in Maryland in the spring of 2022.

The greenhouse facilities also provide support for regulatory actions when pathogens or pests are detected in Maryland's nursery industry. Additional support for the 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 knotweed and dispose of quarantined nursery material. The facility contains an industrial autoclave to destroy high volumes of plant material.

In 2021 an infestation of the pink hibiscus mealybug (*Nipaecoccus viridis*) was found on *Portulacaria afra* in a retail Maryland plant business, and all infested plant material was brought to the MDA autoclave to be disposed of. This destructive pest is a threat to ornamental and citrus crops and is a federally regulated insect that does not normally occur in Maryland.



Knotweed plants in production at the MDA greenhouse. Photo courtesy of C. Stragar.

## PLANT CERTIFICATION

The **Maryland Ginseng Management Program** protects American ginseng, *Panax quinquefolius*, by monitoring the harvest, and by licensing diggers and dealers of wild, wild-simulated, woods-grown and cultivated ginseng. MDA conducts a management program in cooperation with the U.S. Fish and Wildlife Service (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-harvest. 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 fresh (green), are highly prized, especially in China and Korea, for properties that putatively promote good health. During the 2020-2021 season, the program licensed 11 ginseng dealers and 132 ginseng collectors in the state. For the 2021-2022 season, 11 dealers and 107 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 1 and the sales season ends March 31 of the following year. Harvest numbers reported are for the program season beginning September 1, 2020 and ending March 31, 2021.



*Ginseng root and plant. Photos courtesy of S. Bell.*

Over the 2020-2021 harvest and sales season, the program inspected, collected size and age data from, and weighed and certified 28.99 pounds of dry wild ginseng root, 7.53 pounds of green (fresh) wild ginseng root, 8.87 pounds of wild simulated dry ginseng root, and 135.0 pounds of wild simulated green ginseng root. No cultivated or wood grown ginseng root was certified for the 2020-2021 harvest season. For the purpose of this report, both artificially propagated (cultivated and woods-grown) and wild simulated ginseng harvests are recorded as artificially propagated. Both artificially propagated and wild simulated ginseng (distinctions recognized by the U.S. Fish and Wildlife Service and CITES) are being grown as alternative agricultural crops in Maryland.

As compared to numbers recorded for 2019-2020, the 2020-2021 harvest and certification numbers were down about 46% for dry wild ginseng but remained steady for artificially

propagated dry ginseng. The amount of wild green ginseng root certified in the 2020-2021 season represents about a 47% increase as compared to 2019-2020. For wild simulated green root, there was a decrease of approximately 43% compared to 2019-2020. Fluctuations in the amount of Maryland ginseng certified and sold likely reflect demand and pricing on the international market, (and more recently, a specialty sector in the domestic market) and do not necessarily directly reflect the status or abundance of wild American ginseng in Maryland. Many ginseng collectors and growers refuse to sell ginseng in a depressed market, preferring to wait until the price increases with a market rebound. As is done each year, harvest and sales data were gathered and reported in accordance with U.S. Fish and Wildlife Service (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 wild simulated ginseng certified by the Department outpaced 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 wild simulated ginseng.

Responses to annual questionnaires mailed to ginseng collectors and dealers at time of licensing were modified in 2021 to gather currently pertinent information regarding program participants' concerns and opinions. Several respondents stated that out-of-season poaching of wild ginseng in Maryland continues to be a problem. Many also expressed their concern that, by preventing legally licensed collectors from harvesting ginseng on state managed lands, there are fewer active, responsible harvesters present to report potentially illegal poaching activity.

Most participants in the Maryland Ginseng Management Program continue to view themselves as stewards and protectors of a natural heritage. The continued cooperation between the MDA Ginseng Management Program, the US Fish & Wildlife Service, and the many licensed and permitted stakeholders is key to the future sustainability of this valuable, potentially threatened native plant in Maryland.

## IPM WEED AND BIO CONTROL PROGRAM

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

at providing biological control for certain targeted weed species on SHA right of ways. In 2021, weed IPM research and pre-suppression activities were conducted on SHA right of ways, using funding from SHA and the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine (USDA /APHIS/PPQ). MDA weed management programs and projects that support biological control research have been conducted over each of the past 22 years, and at various times have involved cooperation with the Maryland State Highway Administration, the Howard County Department of Recreation and Parks, the Maryland National Capital Park and Planning Commission, the Maryland Department of Natural Resources, the U.S. Department of Agriculture (both the Agricultural Research Service (ARS) and APHIS), the U.S. Forest Service, The U.S. Fish and Wildlife Service, the U.S. Geological Survey and, in certain cases, private Maryland businesses, nonprofit organizations and individual landowners.

Currently MDA is preparing to release a new biological control agent for the management of invasive knotweed species in Maryland. During the past year, MDA has successfully reared the knotweed psyllid, *Aphalara itadori*, for release in the 2022 season. During 2021, the MDA biological control lab raised approximately 8,000 psyllids and refined rearing techniques for this tiny plant lice. Sites for knotweed suppression were identified and surveyed. These will be initial release sites and will be monitored for establishment of the psyllid. Funding for rearing the psyllid and initiating the knotweed program is provided by SHA. The knotweed program is also partially funded by a federal grant for 2022 releases of the psyllid.

The mile-a-minute (MAM) weevil release program was successfully concluded in early spring with the end of SHA



*Knotweed psyllid, Aphalara itadori, nymphs feeding on knotweed in the Maryland bio control lab colony. The nymphs are actively excreting lerp or crystallized honeydew. Photo courtesy of N. Adamo and D. Smith.*



*Emerging knotweed, Fallopia japonica, growing in the MDA greenhouse.*

and APHIS funding. The last releases in Maryland were made in 2020 since the MAM weevil, *Rhinoncomimus latipes*, is now established in Maryland. The program began in 2007 with four release sites in Howard County. Between 2009 and 2011 MDA began raising weevils to release in sites across the state. Roughly 90,000 weevils were released and monitored in the state on 129 sites in 20 of Maryland's 23 counties. As with all successful establishments of biological control agents, the mile-a-minute weevil will continue to control mile-a-minute weed (*Persicaria perfoliata*) in Maryland for decades to come, continuing to feed, even as the formal release program has ended, thus decreasing the cost and impact of herbicides on the landscape. Counties in Maryland with release sites and MDA established MAM weevil populations: Allegany, Anne Arundel, Baltimore County, Calvert, Caroline, Carroll, Cecil, Charles, Frederick, Garrett, Hartford, Howard, Montgomery, Prince George's, Queen Anne, St. Mary's, Somerset, Talbot, Washington, and Wicomico.



## NOXIOUS WEED MANAGEMENT

The purpose of this program is the control and eradication of designated noxious weeds to reduce their economic and aesthetic impact on farmers and landowners. Noxious weeds (Johnsongrass, shattercane, palmer amaranth, tall waterhemp & four thistle species) could cause losses in excess of \$25 million annually to Maryland agriculture, due to reduced yields and quality of crops and forages, and increased control costs. Increased maintenance expenses are also incurred for natural areas, roadsides and non-crop property management.

The Noxious Weed Law was amended in 2020, to include the adoption of regulations. The regulations added palmer amaranth and tall waterhemp to the existing six noxious weed species and added new administrative penalties which can require department/landowner hearings. Palmer amaranth has become a serious problem for Maryland growers in the last few years, and a priority for control with a zero-tolerance due to its rapid spread and difficulty with control.

The Multi-flora rose management law was repealed in 2021, as agricultural infestations are no longer the issue they had been, and the law had not been utilized in more than 15 years.

The Noxious Weed Law has a provision that the Maryland Department of Agriculture 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 16 participating counties, a weed control advisory committee with representatives from farming organizations, governmental agencies, local farmers, 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. To better serve the farmers and landowners, the noxious weed control program is in the process of creating noxious weed advisory boards in the remaining 7 counties which do not have programs.

In 2021, an increased contact and inspection initiative was implemented, resulting in noxious weed advisory notices being sent to 646 managers of property infested with noxious weeds. Generally, these notices were effective in obtaining compliance. When notifications are unsuccessful, the Department may take legal action.

In addition to the noxious weeds, the weed control program responds to citizens' requests for technical assistance in controlling invasive, difficult to control, persistent weeds such as *Phragmites*, kudzu and mile-a-minute. The program also provides control assistance for the invasive *Ailanthus* trees (Tree of Heaven) which can be an alternate host for the spotted lanternfly. The weed control program also monitors infestations of giant hogweed (*Heracleum mantegazzianum*), a federal noxious weed, that was first detected in Maryland in 2003. It exists on sites in Baltimore, Harford and Garrett counties. In 2020, two sites were treated in Garrett County and two 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 treats infestations at the landowners' expense.

The weed control staff partnered with the Maryland Department of Natural Resources (DNR) for the nineteenth year in providing a *Phragmites* management program. Upon request from landowners or managers, program staff supplies technical and spraying assistance for control. The DNR provided herbicides which were applied in the nine Eastern Shore counties for *Phragmites*.



## PLANT PROTECTION AND WEED MANAGEMENT SUMMARY OF ACTIVITIES

Activity	CY 2019	CY 2020	CY 2021
Beekeepers Registered	2,119	2,160	2,335
Honey Bee Colonies Registered	14,415	16,494	18,592
Honey Bee Colonies Inspected (Human Inspectors)	1,438	1,805	1,971
Honey Bee Colonies Inspected (Canine Inspectors)	1,831	2,089	2,284
Ginseng Dealers Registered	14	11	11
Ginseng Collectors Licensed	134	132	107
Nurseries Certified	300	297	306
Plant Dealers and Brokers Licensed	1,435	1,456	1,422
Phytosanitary Certificates Issued	592	180	179
Plant Pest Surveys-Number of Target Pests	54	26	29
Plant Pest Surveys-Number of Samples Processed	3,101	1,727	1,873
Target Pests Detected	11	9	10
Number of Noxious Weed Advisory Notices Issued	243	176	646

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

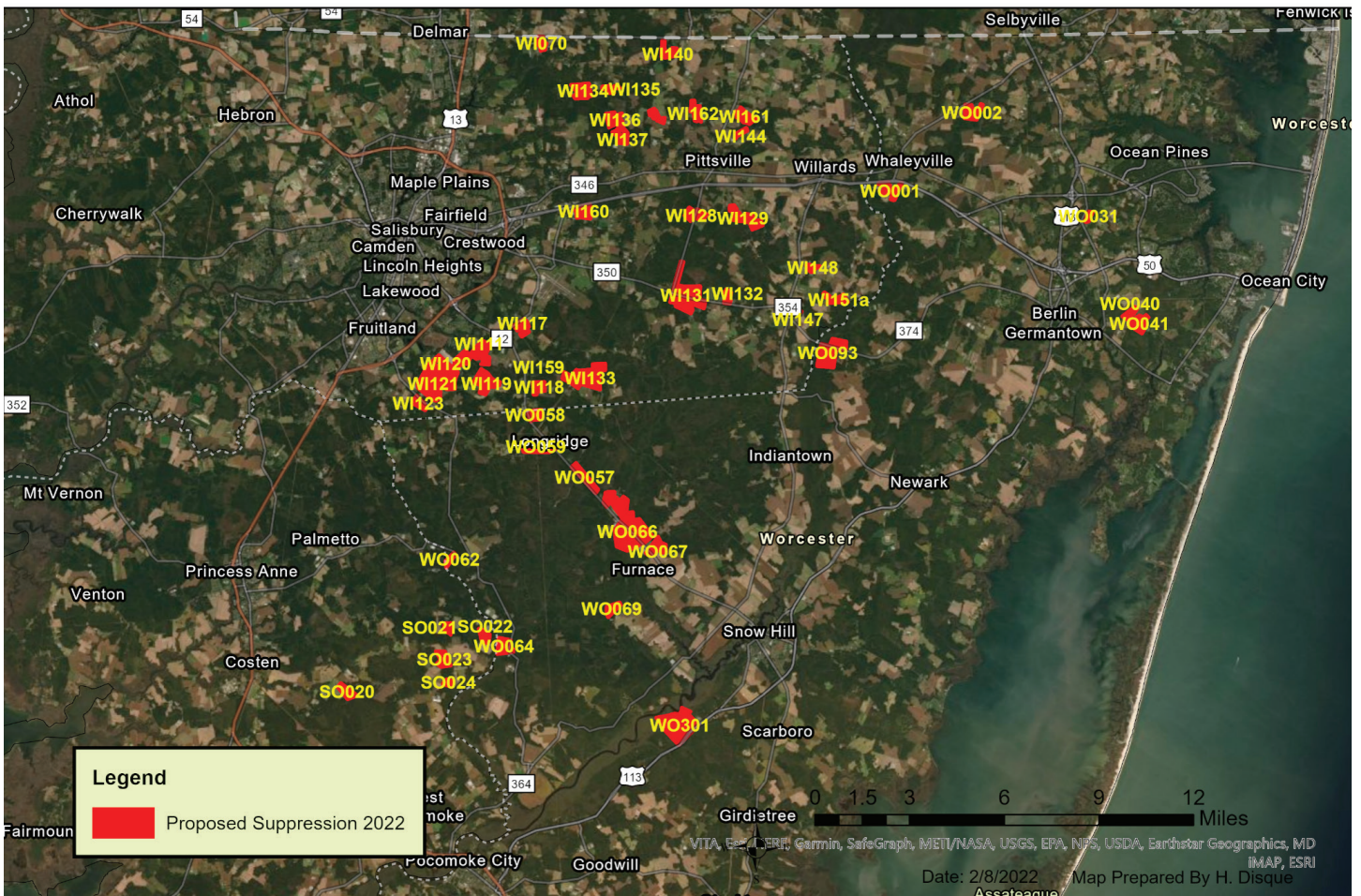
## FOREST PEST MANAGEMENT

### FOREST PEST DETECTION, MONITORING, & SUPPRESSION

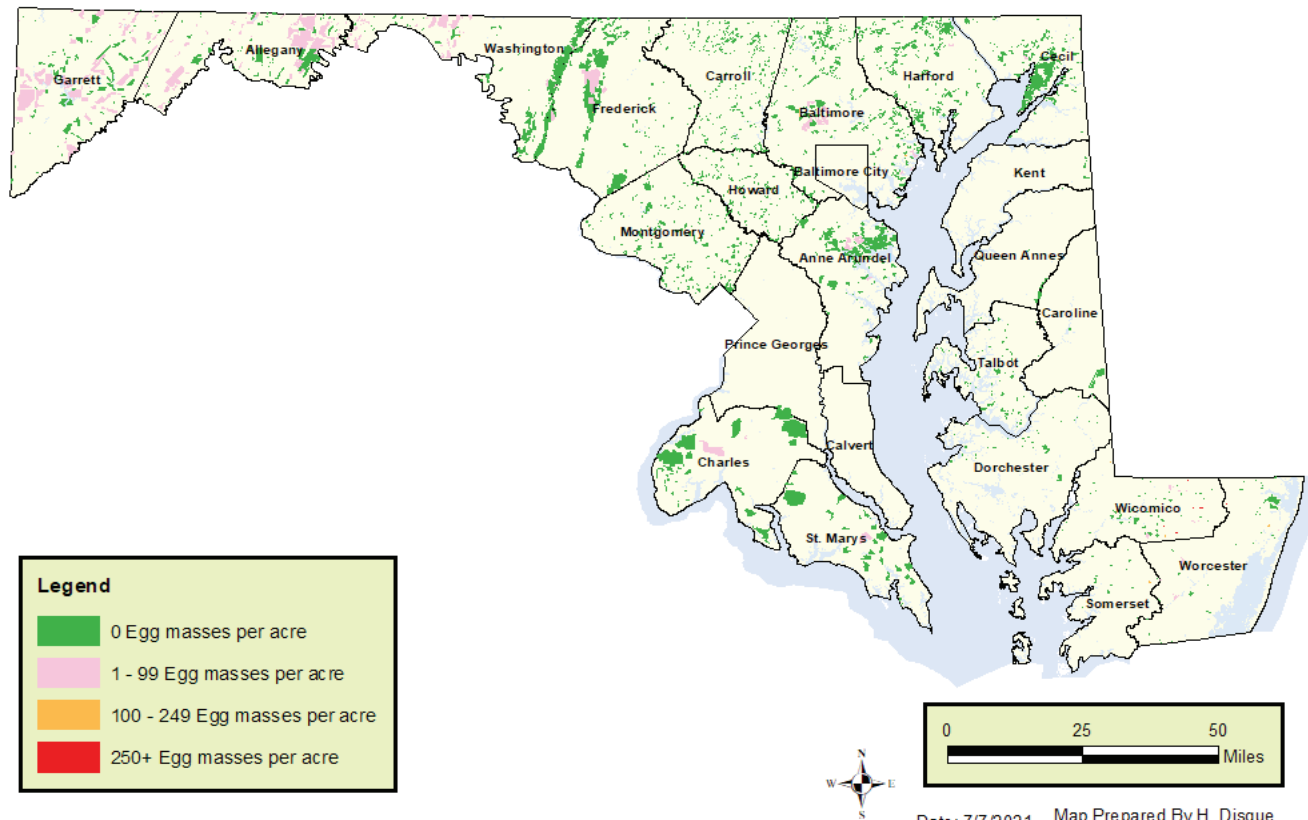
*Lymantria dispar dispar* (LDD): LDD, the insect formally known as European gypsy moth, is the most serious threat to oak forests in the United States. The first eggs were detected in Maryland in 1971, and the first extensive defoliation occurred in 1981. Each fall and winter, the department conducts an extensive survey for LDD egg masses to determine potential areas of defoliation. From August 2021 through March 2022, MDA's Forest Pest Management personnel conducted LDD egg

mass surveys on 509,038 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 7,436 acres in 2022. In May 2022, 7,411 acres located on the lower Eastern Shore were sprayed with *Bacillus thuringiensis*. In 2022, LDD defoliation totaled 20,513 acres on the lower Eastern shore.

#### MDA FPM 2022 MDA PROPOSED LDD SUPPRESSION (GYPSY MOTH) SUPPRESSION



## MDA FPM 2020-2021 LDD EGG MASS SURVEY RESULTS



Date: 7/7/2021 Map Prepared By H. Disque



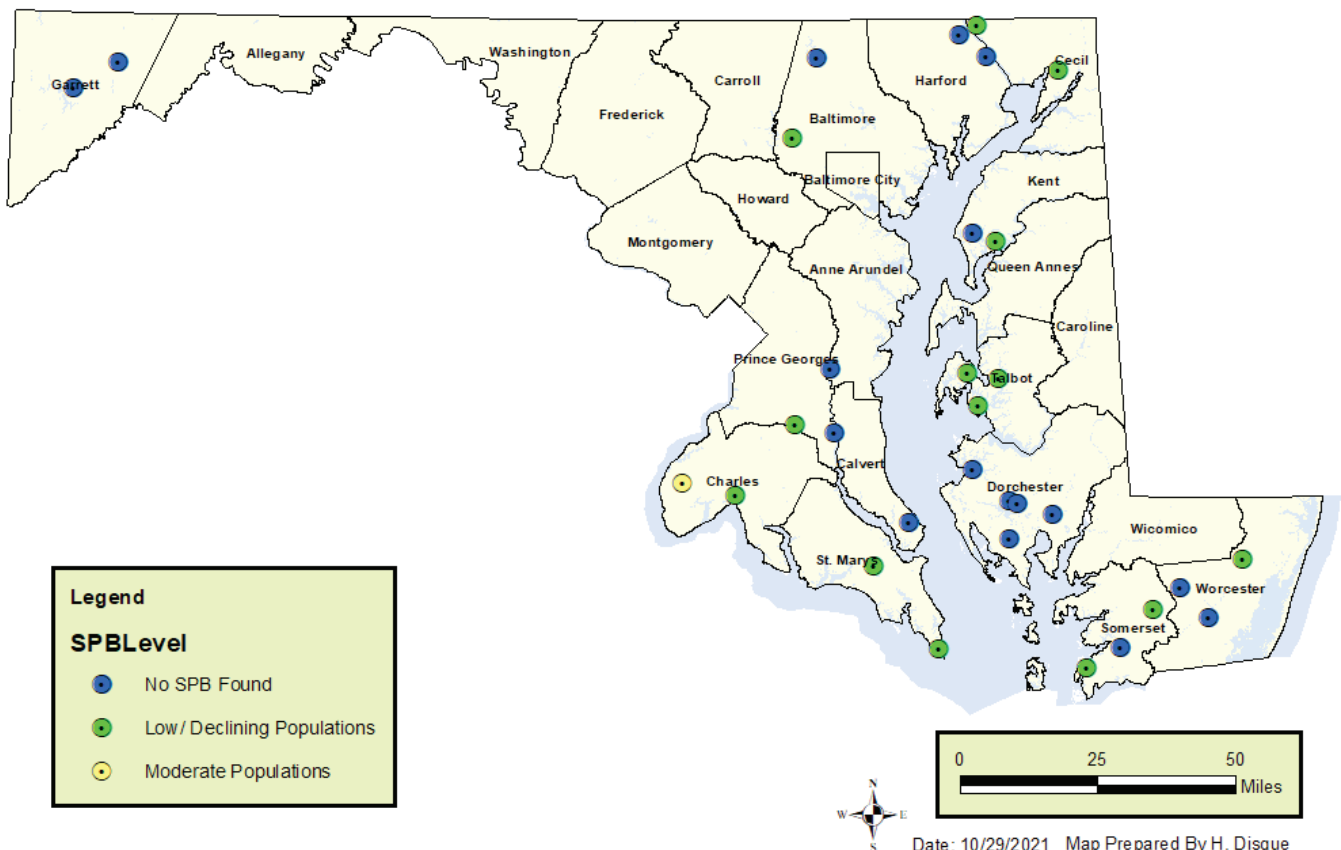
**Southern Pine Beetle (SPB).** SPB is one of the most destructive insect pests of pines. Maryland is at the northern edge of its range and is commonly found on the lower Eastern Shore and in southern Maryland. Since 1989, Maryland has participated in a multi-state SPB survey throughout the southern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

Traps were set up in 13 counties across Maryland. All traps collected showed low/declining populations of SPB or no presence of SPB, with the exception of one trap in Charles County, which collected moderate populations of the beetle.

At the site in Charles County, ground survey and an aerial drone survey were completed. No mortality or declining trees were found. The traps were set up shortly after the time of redbud bloom.

The Dorchester County area that had experienced an SPB outbreak from 2015 to 2017, has shown no additional tree mortality due to SPB. Many trees in this area and southern Dorchester County are exhibiting chlorotic needles due to flooding and salt-water intrusion.

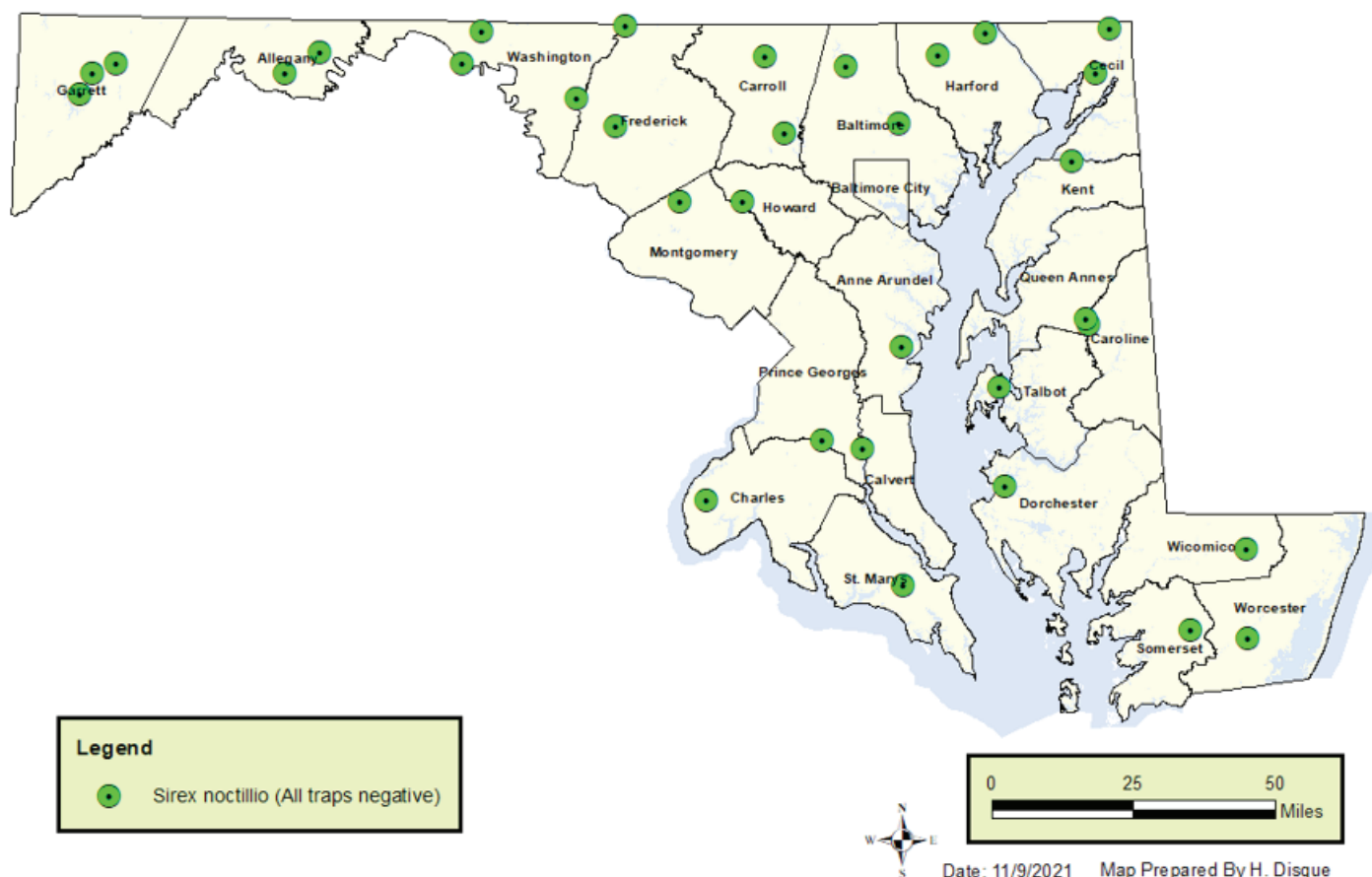
## MDA FPM 2021 SOUTHERN PINE BEETLE TRAP RESULTS



**Woodwasp (*Sirex noctilio*).** *Sirex noctilio* 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. *Sirex noctilio* has not been detected in Maryland, but is known to be in

Pennsylvania. To detect this insect, the department placed two traps per county on northern tier counties and one trap for all other counties, totaling 33 traps in pine woods. All traps were negative during CY21. Two native woodwasps were collected. *Urocerus cressoni* was found in Anne Arundel, Cecil, and Harford counties. *Sirex nigricornis* was found in Charles and Allegany counties.

## MDA FPM 2021 *SIREX NOCTILIO* TRAP RESULTS

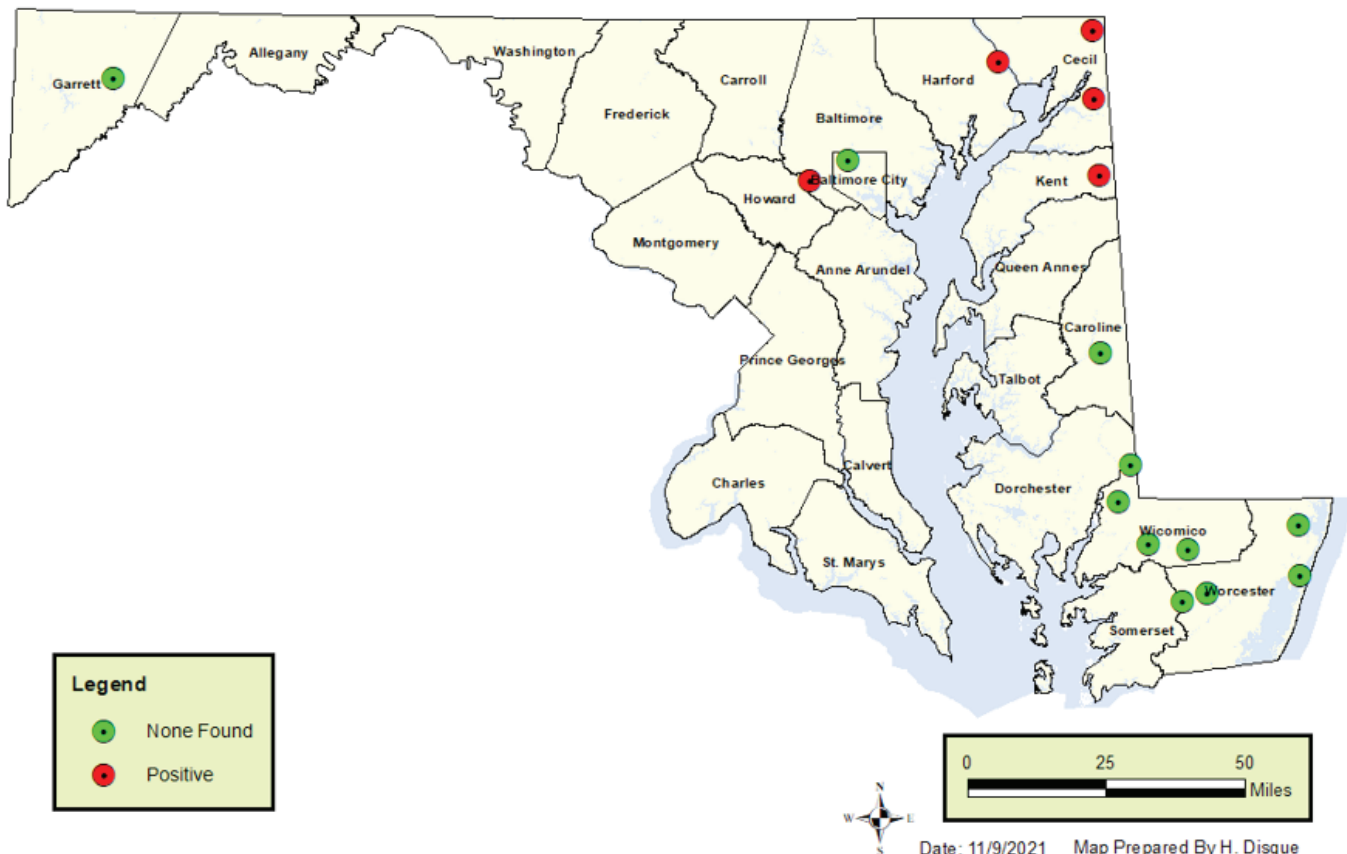


**Emerald Ash Borer (EAB).** MDA's Forest Pest Management put up 16 green funnel traps in non-positive counties around the state and in the parasitoid release areas to monitor for EAB. EAB was found in Harford, Cecil, Kent, and Baltimore counties. Large-scale, rapid tree die off has begun at the Harford, Cecil, Kent, and Caroline parasitoid release locations. Rural forests along the upper Eastern shore are beginning to see tree mortality as well. During the 2021 field season Forest Pest Management released 15,003 parasitoids of EAB. The parasitoids were released at four state park locations, one state forest and one arboretum.

These parasitoid release sites were located in Garrett, Harford, Baltimore, Cecil, and Caroline counties as well as Baltimore

City. MDA's Forest Pest Management released 800 *Oobius agrili* as pupae in 8 vials. At one site 1,241 *Tetrastichus planipennisi* were released in 9 bolts. Two species of *Spathius* were released, 8,705 *Spathius agrili* as adults and 4,257 *Spathius galinae* pupae in sticks. In addition, Forest Pest Management staff supervised treatments of ash trees around the state. This work was done at parks and wildlands in cooperation with DNR, the Blackwater National Wildlife Refuge, and the Maryland Conservation Corps (MCC). In total 282 ash trees, 3,462" diameter at breast height (DBH) were treated using 21,410 ml of Tree-age, emamectin benzoate. The wildland trees treated were in riparian areas targeting rare tree species in order to provide seed for future regeneration.

## MDA 2021 EMERALD ASH BORER TRAP RESULTS

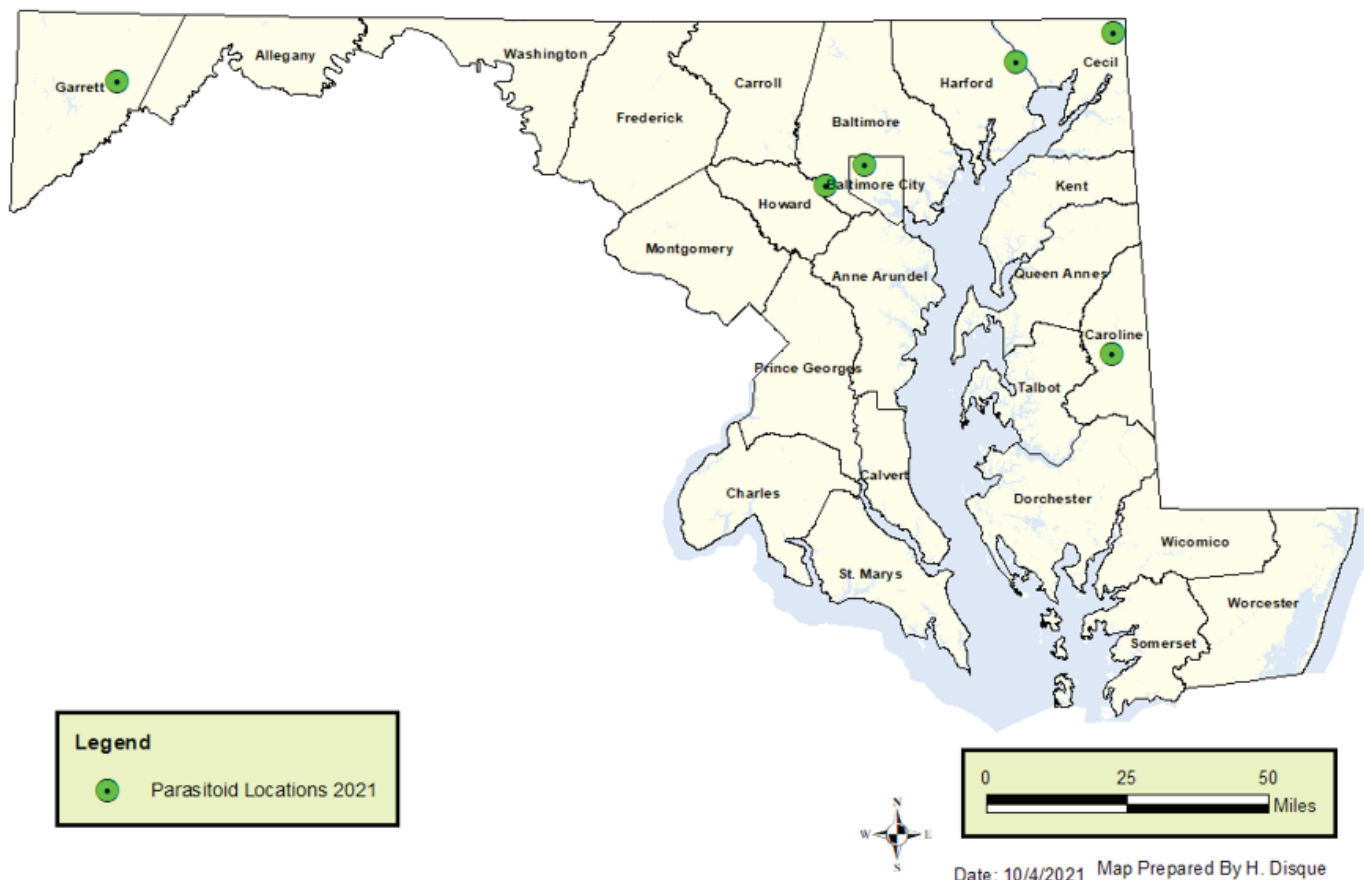




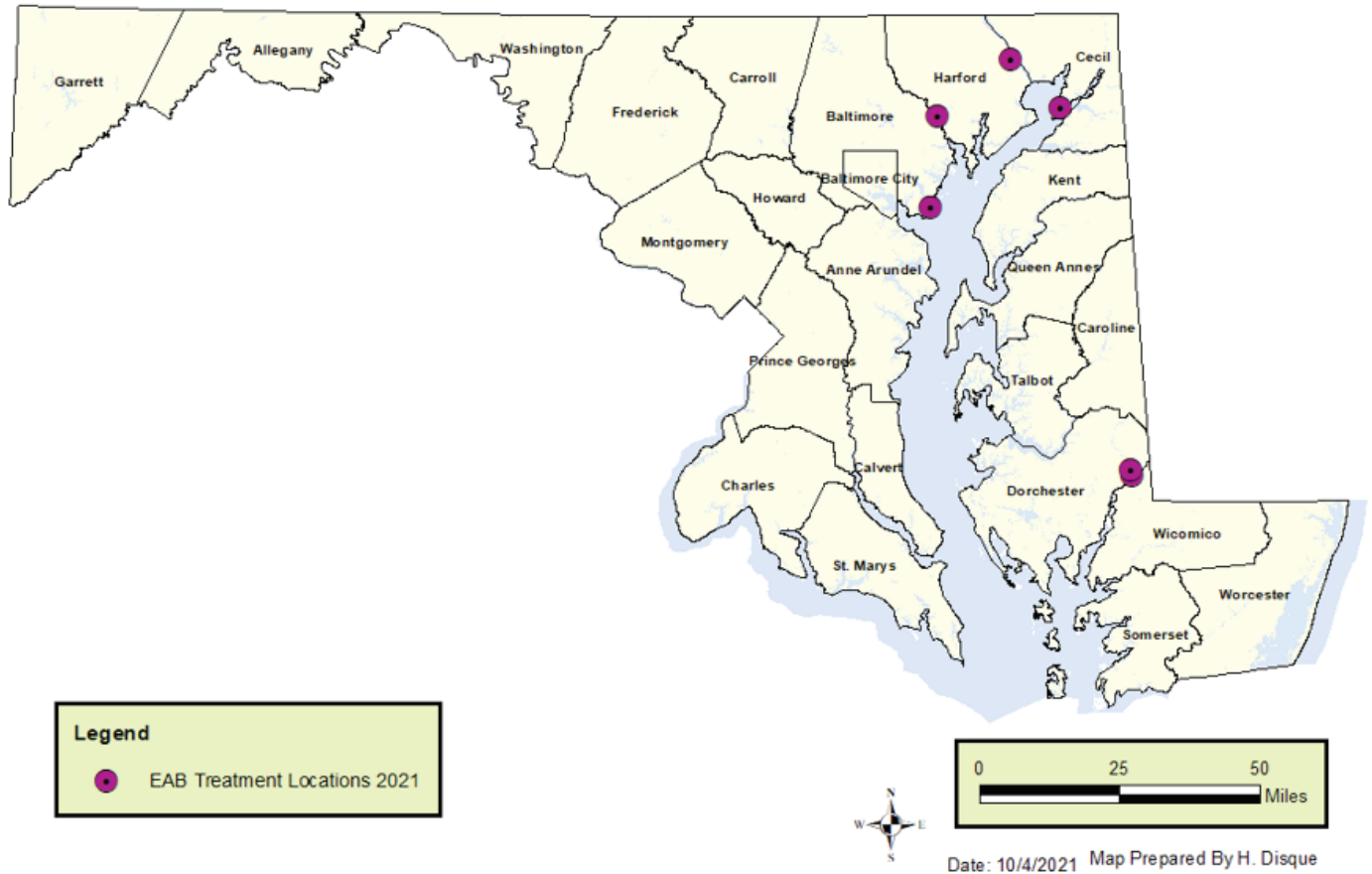
### MDA 2021 EMERALD ASH BORER PARASITOID RELEASE SUMMARY

Site Name	Latitude	Longitude	Oobius agrili (vials)		Spathius agrili		Spathius galinae		Tetrastichus planipennisi	
			# vials	Total	# females	# males	# females	# males	# bolts	Total
Cylburn Arboretum	39.3513	-76.6537			2902	1437	654	218		
Savage River State Forest	39.6004	-79.1522	8	800			655	82	9	1241
Martinak State Park	38.86002	-75.8415					654	217		
Susquehanna State Park	39.61383	-76.151					677	225		
Patapsco Valley State Park	39.29593	-76.7836			2992	1374				
Fair Hill State Park	39.70282	-75.8288					656	219		
		Totals	8	800	5894	2811	3296	961	9	1241

### MDA 2021 EMERALD ASH BORER PARASITOID RELEASE LOCATIONS



## MDA 2021 EMERALD ASH BORER TREATMENT LOCATIONS

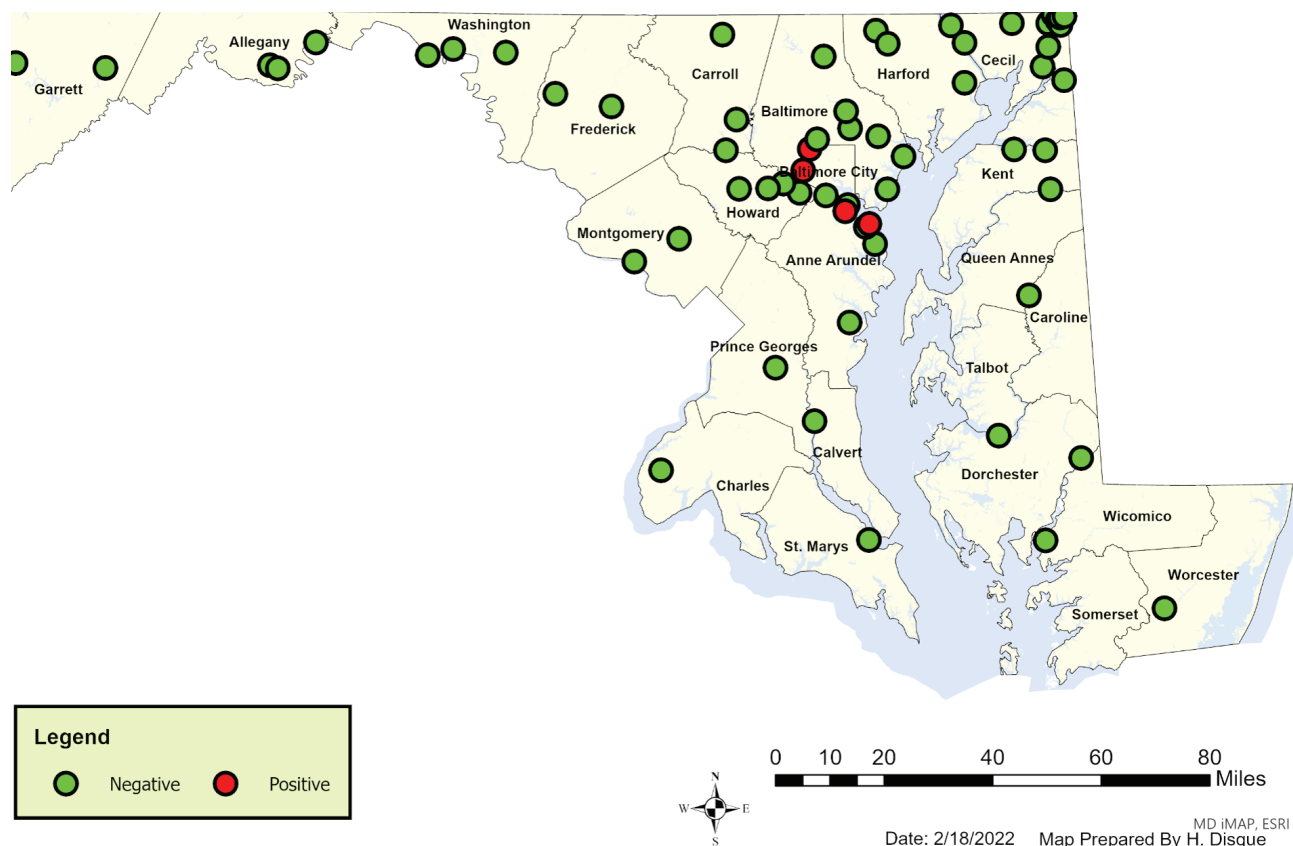


**Thousand Canker Disease (TCD) in Black Walnut Trees and Walnut Twig Beetles (WTB):** TCD was first recognized in 2008 as a complex consisting of the WTB (*Pityophthorus juglandis*) and the fungus *Geosmithia Morbida*. TCD is blamed for widespread mortality of eastern black walnut trees planted in the 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 including 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 WTB 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

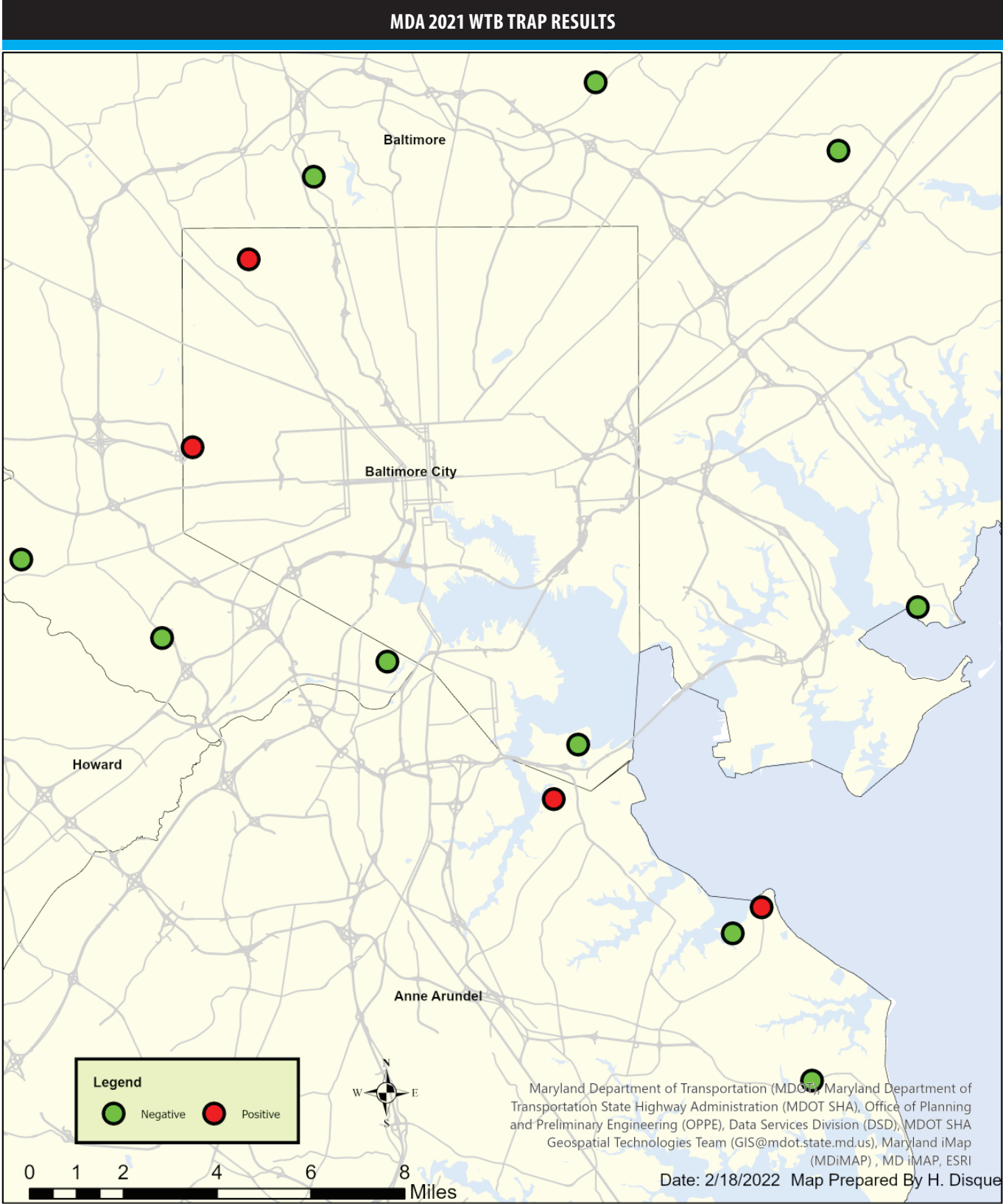
and part of Baltimore County. This new quarantine was signed on May 1, 2019, by the Maryland Secretary of Agriculture. In 2021, Forest Pest Management staff set 64 Lindgren funnel traps baited with the WTB lure across 22 counties and in Baltimore City. Of these traps, 29 were set near previously positive 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 2021. Trees at the original positive site have shown no evidence of decline. One trap in Anne Arundel County and four traps in Baltimore City were found to be positive. The trees are being monitored for decline and samples will be taken when TCD symptoms develop.

## MDA 2021 WTB TRAP RESULTS



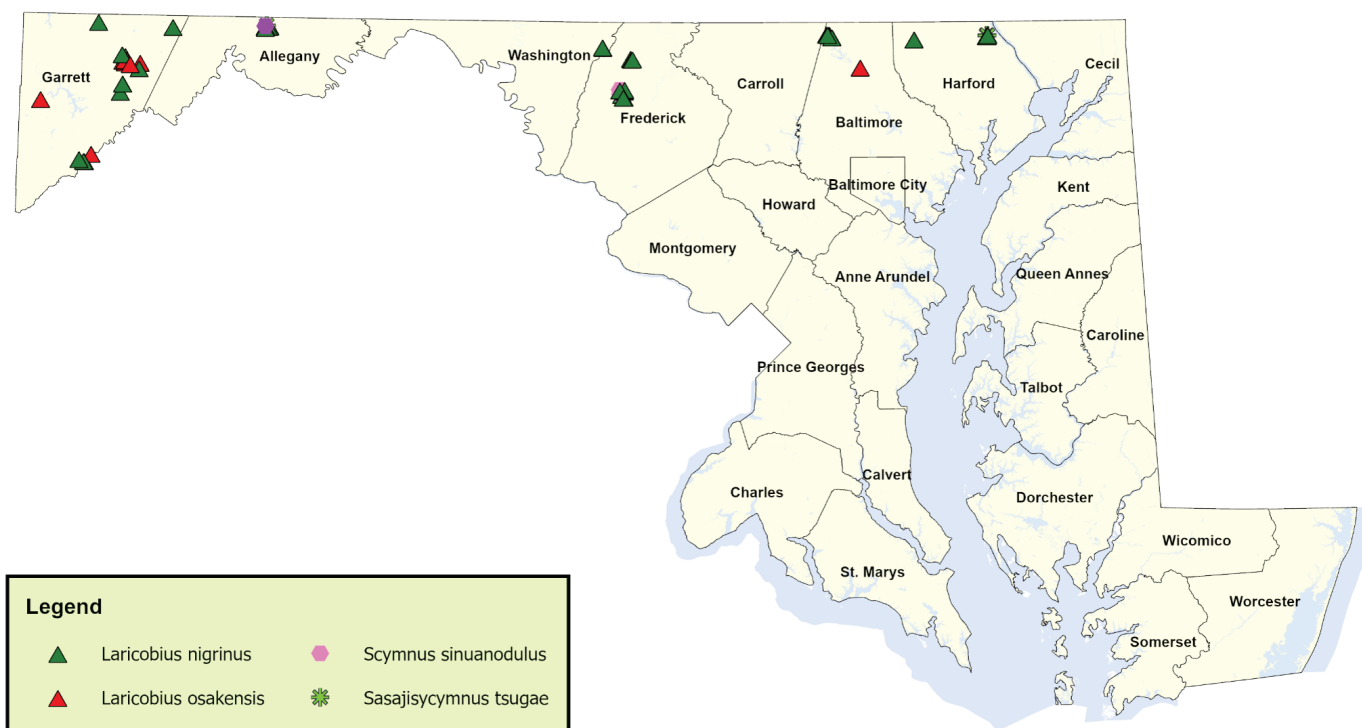




**Hemlock Woolly Adelgid (HWA) Suppression:** The HWA remains the major threat to the health of eastern hemlocks. Infested hemlocks are present in the metropolitan area between Baltimore and Washington and in natural stands from Cecil to Garrett counties. In 2003 to 2004, a joint task force composed 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, either 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 10,875 hemlock trees and 122,342" DBH were treated in Maryland between July 1, 2021, and June 30, 2022. Of this total, 1,291 trees or 13,982" DBH were trunk injected and 9,145 trees or 107,825" DBH were soil injected. CoreTect was used to treat 377 trees totaling 377" DBH. A foliar application was used on 62 trees or 158" DBH.

## MDA HEMLOCK WOOLLY ADELGID PREDATOR RELEASES IN MARYLAND HEMLOCK STANDS 2003-2021



### Legend

- ▲ *Laricobius nigrinus*
- ▲ *Laricobius osakensis*
- *Scymnus coniferarum*
- *Scymnus sinuanodulus*
- ★ *Sasajisycymnus tsugae*

0 5 10 20 30 40  
Miles



Maryland Department of Transportation (MDOT), Maryland Department of Transportation State Highway Administration (MDOT SHA), Office of Planning and Preliminary Engineering (OPPE), Data Services Division (DSD), MDOT SHA Geospatial Technologies Team (GIS@mdot.state.md.us), Maryland iMap (MDiMAP), MD iMAP, ESRI

Date: 2/22/2022 Map Prepared By H. Disque

**HWA Predator Releases:** Over 58,597 HWA predators have been released in Maryland since 1999. In 2021, 2,192 *Laricobius nigrinus* and 1,933 *Laricobius osakensis* were released at 7 sites in Baltimore and Garrett counties.

**HWA 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 2020-2021, efficacy surveys were done at treatment sites in Baltimore, and Garrett counties.

**Maryland Department of Agriculture  
Forest Pest Management  
Maryland Hemlock Woolly Adelgid Predator Releases 2003 - 2021**

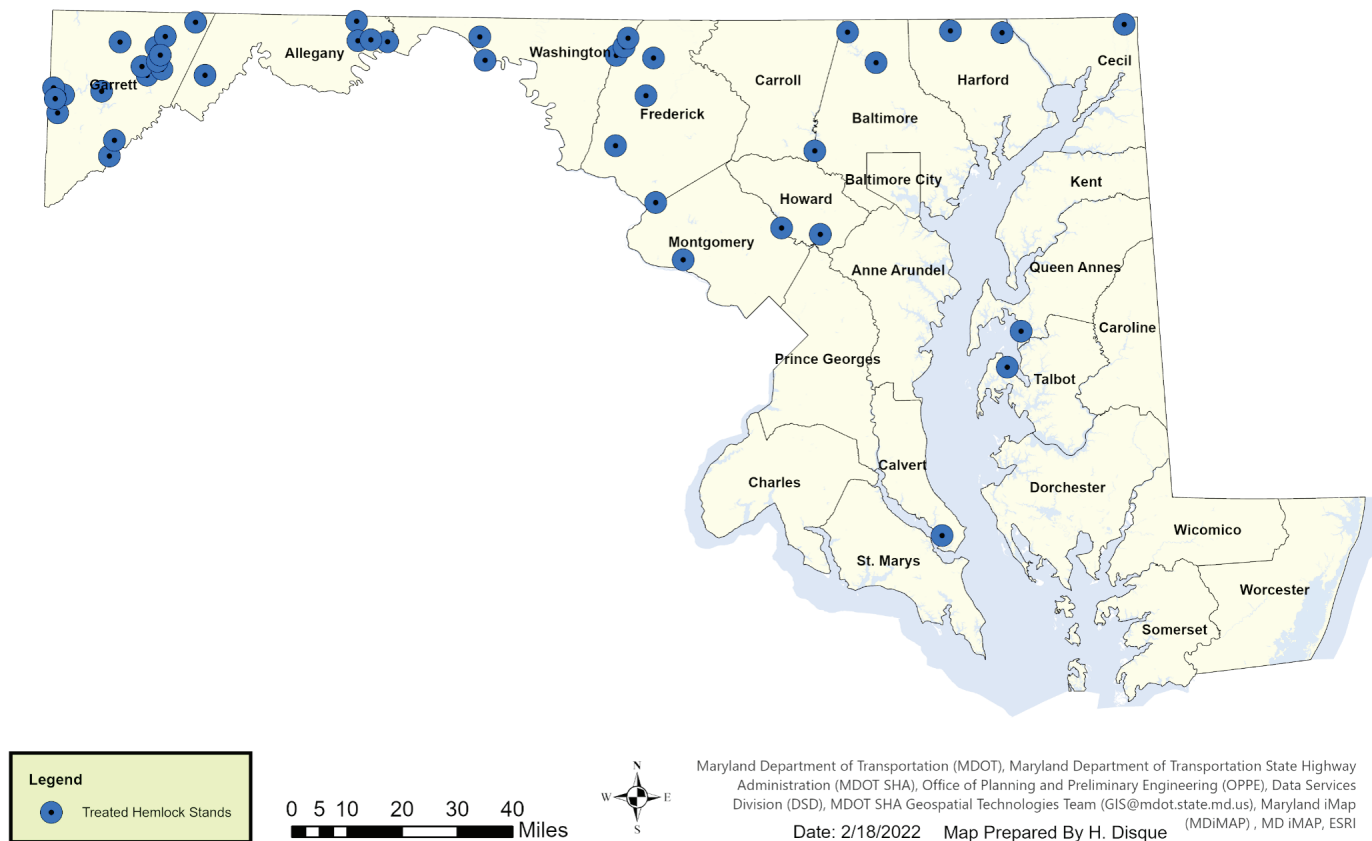
Hemlock Stand	County	<i>Laricobius nigrinus</i>	<i>Laricobius osakensis</i>	<i>Scymnus coniferarum</i>	<i>Scymnus sinuanodulus</i>	<i>Sasajiscymnus tsugae</i>
Rocky Gap State Park	Allegany	3476	0	105	0	5000
Prettyboy Reservoir	Baltimore	4186	0	0	0	0
Cunningham Falls State Park	Frederick	1320	0	0	0	0
Frederick City Watershed	Frederick	3383	0	0	945	0
Broad Creek Scout Camp	Harford	3120	0	0	0	15410
Rocks State Park	Harford	1924	0	0	0	0
Hagerstown Watershed	Washington	1409	0	0	0	0
Big Run (Savage River State Forest)	Garrett	1685	0	0	0	0
Big Run State Park	Garrett	1003	0	0	0	0
Dry Run (Savage River State Forest)	Garrett	150	0	0	0	0
Frostburg Watershed	Garrett	300	0	0	0	0
Laurel Run (Potomac State Forest)	Garrett	2215	0	0	0	0
Lostland Run (Potomac State Forest)	Garrett	1857	500	0	0	0
Poplar Lick (Savage River State Forest)	Garrett	2848	2532	0	0	0
Elk Lick (Savage River State Forest)	Garrett	1691	500	0	0	0
Gunpowder Falls State Park	Baltimore	0	1521	0	0	0
Swallow Falls State Park	Garrett	0	912	0	0	0
Puzzley Run (Savage River State Forest)	Garrett	605	0	0	0	0
<b>Total</b>		<b>31172</b>	<b>5965</b>	<b>105</b>	<b>945</b>	<b>20410</b>

**2021 HWA Predator Releases**

Location	Species	# of beetles
Puzzley Run (Savage River SF)	<i>L. nigrinus</i>	605
Big Run SP Insectary	<i>L. nigrinus</i>	678
Laurel Run (Potomac SF)	<i>L. nigrinus</i>	531
Prettyboy Reservoir	<i>L. nigrinus</i>	329
Poplar Lick (Savage River SF)	<i>L. nigrinus</i>	49
Poplar Lick (Savage River SF)	<i>L. osakensis</i>	510
Gunpowder Falls SP	<i>L. osakensis</i>	511
Swallow Falls SP	<i>L. osakensis</i>	912



## MDA MARYLAND HEMLOCK STANDS TREATED FOR CONTROL OF HEMLOCK WOOLLY ADELGID 2004-2021

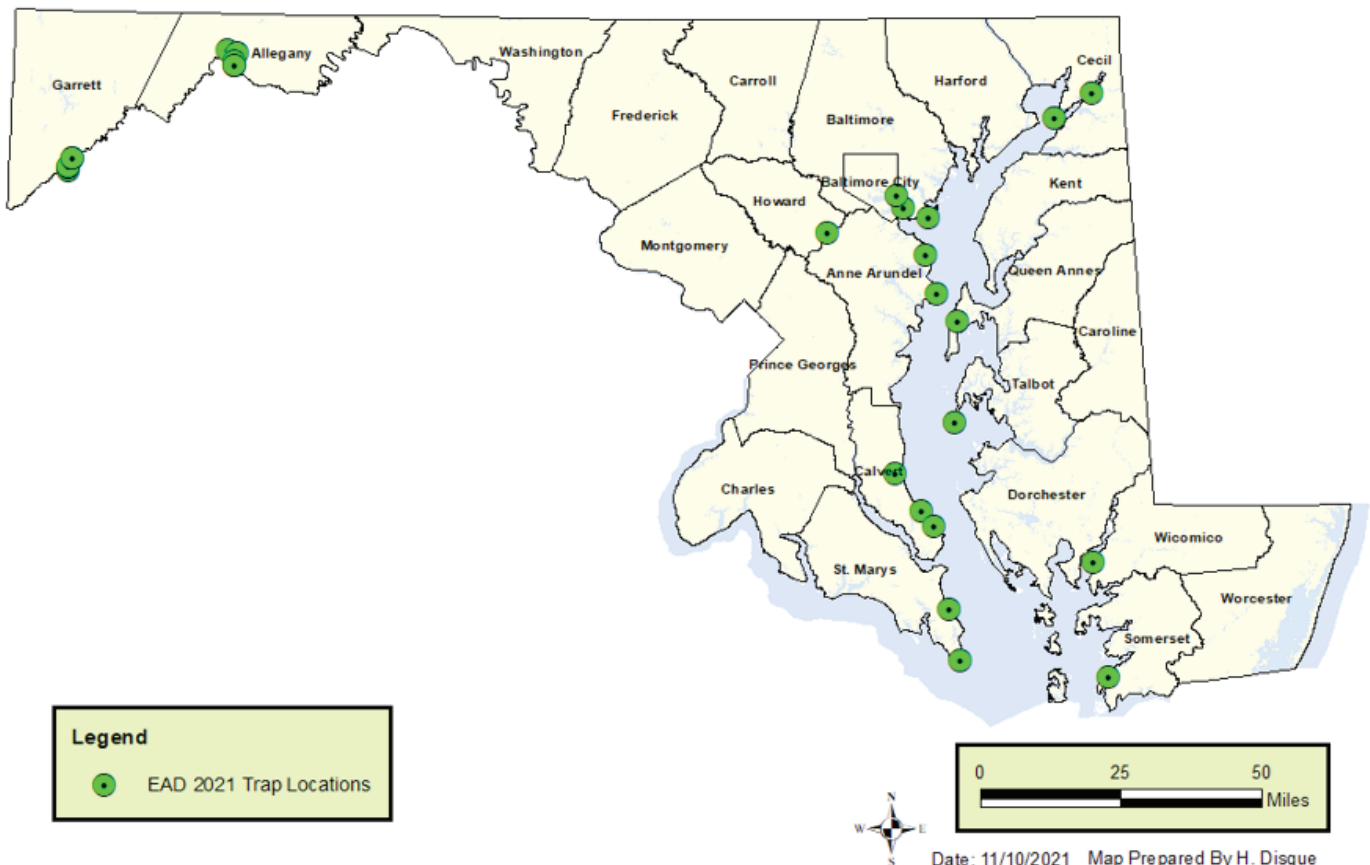


**Exotic Asian Defoliator Survey:** A comprehensive exotic Asian defoliator survey was proposed and funded through the Farm Bill for 2021. This survey increases the likelihood that these harmful invaders can be detected early and that an appropriate eradication response can be mounted to protect Maryland's 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 19 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 *Lymantria dispar asiatica/japonica* traps were found positive for LDD. The specimens were sent to the USDA's Otis Laboratory for genetic testing and species determination. All specimens were determined to be spongy moth, LDD.

## MDA 2021 EXOTIC ASIAN DEFOLIATOR SURVEY TRAP LOCATIONS

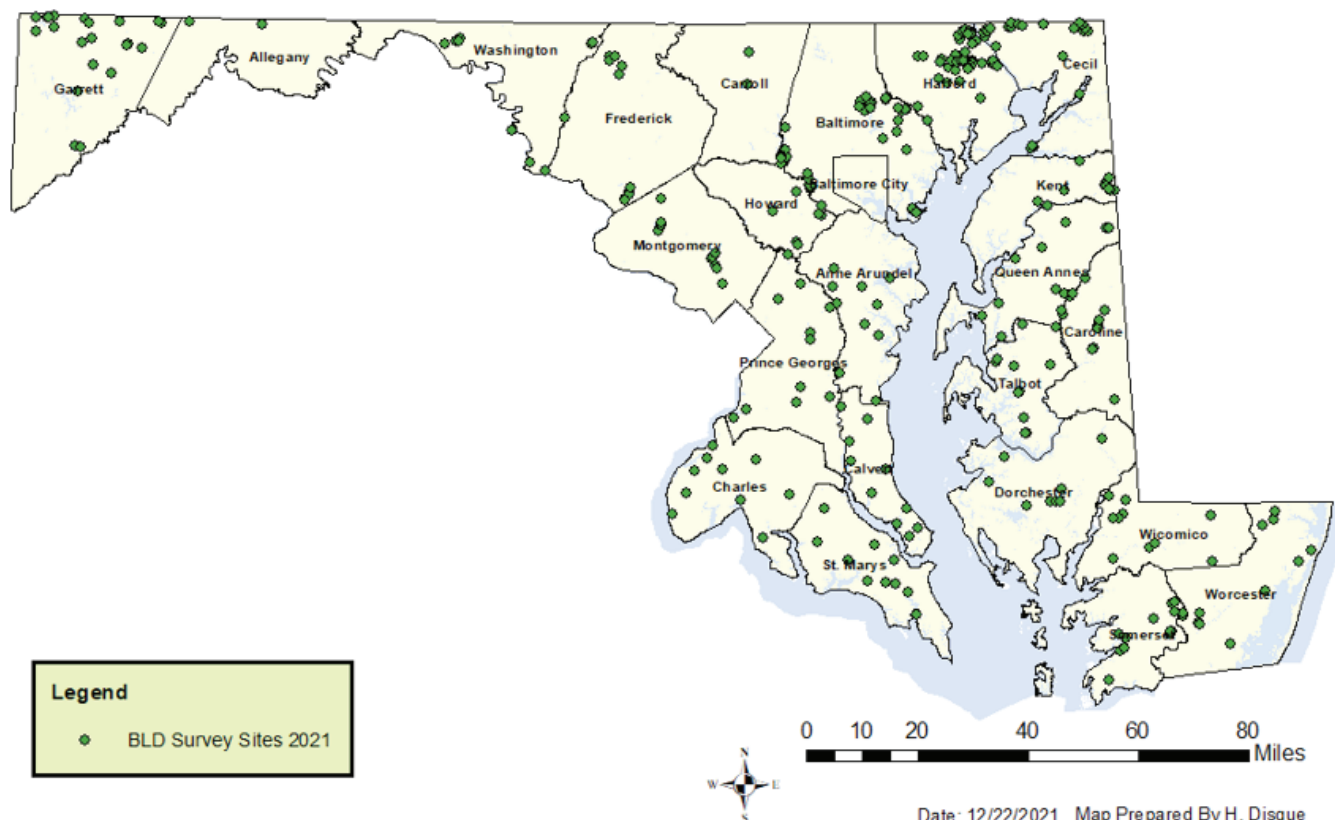


**Beech Leaf Disease (BLD):** BLD was first discovered in declining American beech trees in Ohio in 2012. It has since been found in Pennsylvania, New Jersey, New York, Connecticut, West Virginia, Virginia, and southern Ontario, Canada. This disease, which is linked to the nematode *Litylenchus crenatae mccannii*, causes mortality of understory American beech saplings and seedlings, and severe decline in mature, overstory trees. Forest Pest Management staff set

up and monitored 17 permanent plot locations for BLD and conducted 312 site surveys. All sites have been negative for BLD.

The survey sites had trees in the following size class: 4-12 inches had 129 surveys, 12-25 inches had 94 surveys, greater than 25 inches had 38 surveys, and under 4 inches had 51 surveys.

## MDA 2021 BEECH LEAF DISEASE PERMANENT PLOT LOCATIONS





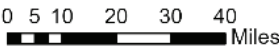
# 2020 MDA OAK DECLINE SURVEY RESULTS - BACTERIAL LEAF SCORCH



**Legend**

**Xylella**

- Negative
- Positive
- Not Tested



Maryland Department of Transportation (MDOT), Maryland Department of Transportation State Highway Administration (MDOT SHA), Office of Planning and Preliminary Engineering (OPPE), Data Services Division (DSD), MDOT SHA Geospatial Technologies Team (GIS@mdot.state.md.us), Maryland iMap (MDiMAP), MD iMAP, ESRI

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**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

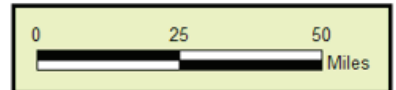
established. Permanent plots were visited in 2020 for the detection of BLD. During BLD surveys, BBD was found in the Frostburg watershed for the first time.

## MDA BEECH LEAF DISEASE PERMANENT PLOT LOCATIONS



### Legend

● BLD Permanent Plot Locations (No BLD Detected)



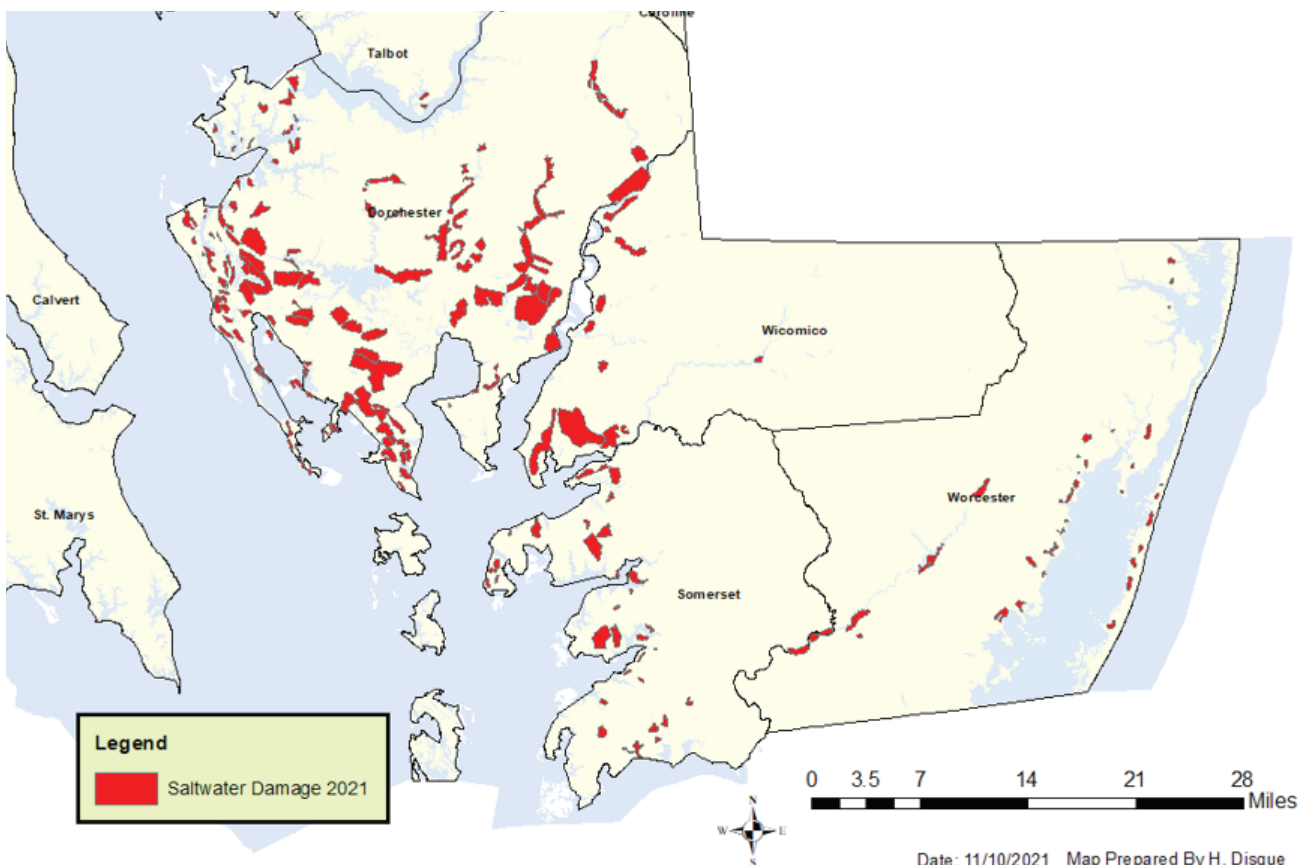
Date: 3/22/2021 Map Prepared By H. Disque

**Saltwater Intrusion:** In July 2021, a saltwater intrusion delineation flight was flown across the lower Eastern Shore. This flight mirrored one taken since 2017 in order to determine which areas are affected by saltwater intrusion and to map those changes. In total, 84,381 acres of forest were found to be affected by saltwater intrusion. The affected acres were spread across the lower Eastern Shore. Dorchester, Somerset, Worcester, and Wicomico counties were affected by saltwater intrusion. This is in contrast to 2020 when 50,365 acres were found to be affected by saltwater intrusion. The large majority of the mapped forests were either very severely or severely affected by saltwater intrusion.

### MDA Forest Pest Management Saltwater Intrusion Flight Summary

County	Acres Affected
Dorchester	60,575
Somerset	8,249
Wicomico	9,799
Worcester	5,758
<b>Total</b>	<b>84,381</b>

### MDA 2021 SALTWATER INTRUSION AFFECTED AREAS

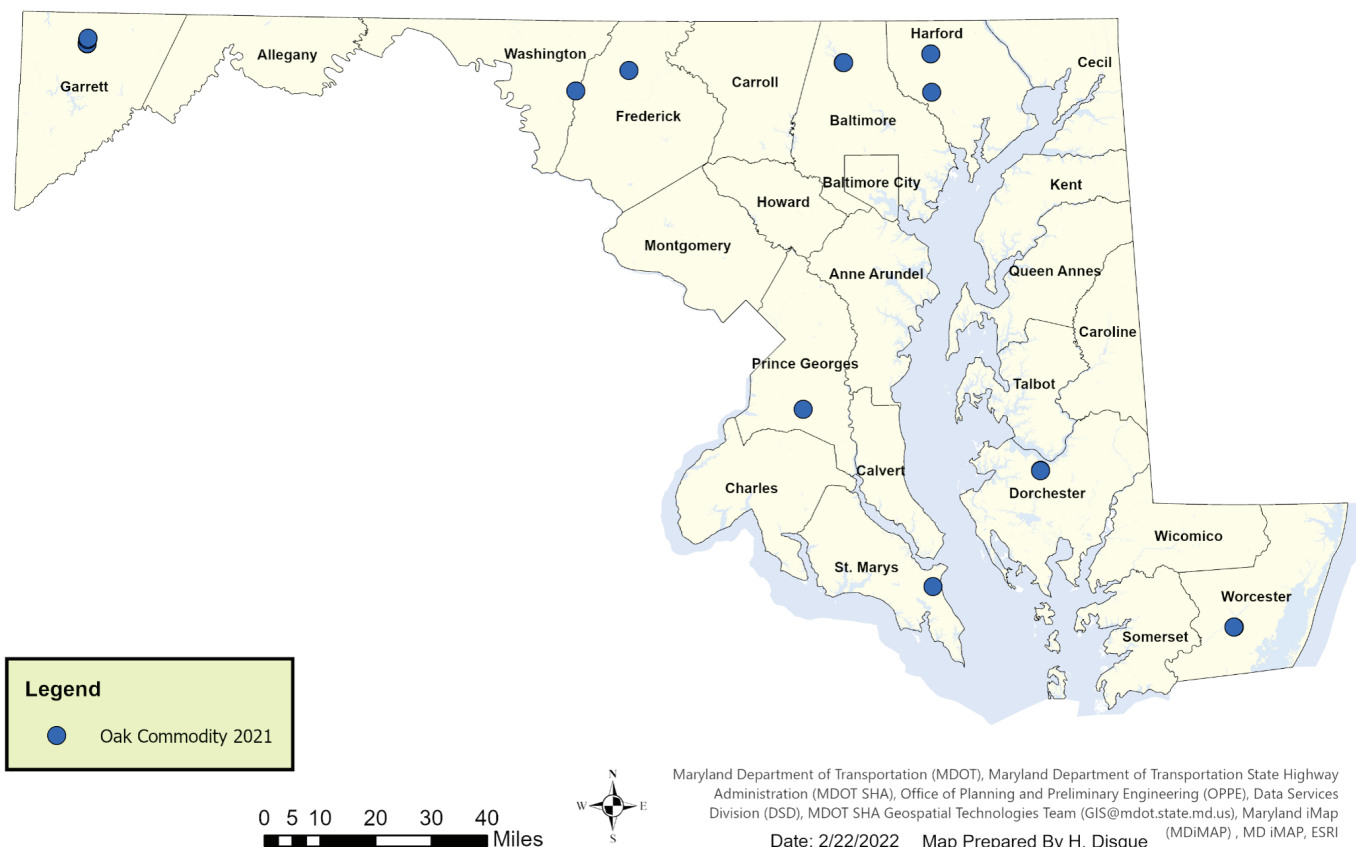




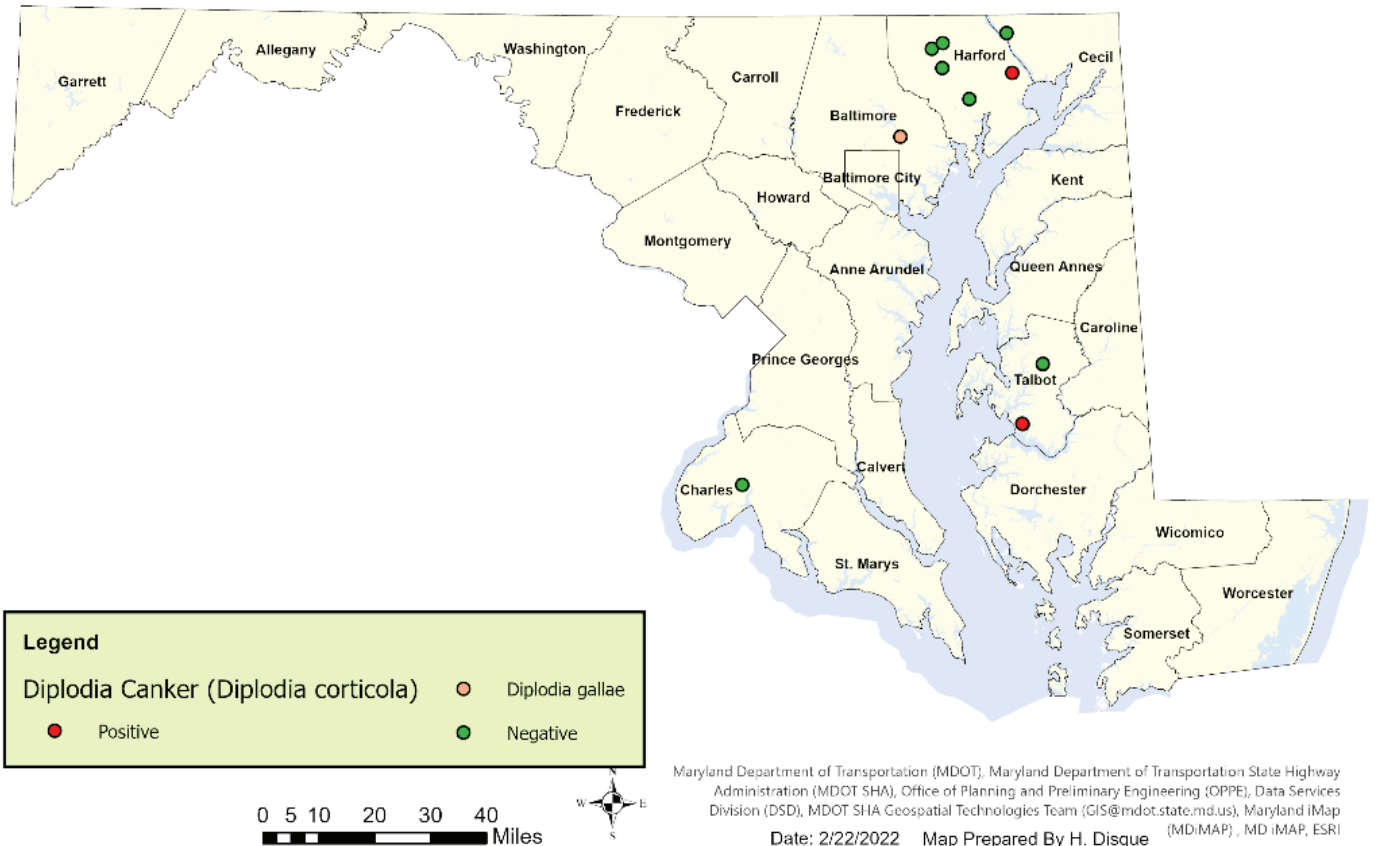
**Oak Issues:** In Maryland there are significant numbers of mature oak trees in decline and dying. Secondary pests are present, but likely not the cause of mortality. An oak wilt survey has begun and samples are being processed at the UMD Plant Diagnostic Laboratory. Over 35 sites were visited in the summer of 2021, and samples were collected at 12 sites. Samples were taken from leaves, branches, bole, roots, and the

soil as available and transported to the UMD Plant Diagnostic Laboratory for testing. The UMD Plant Diagnostic Laboratory tested for Oak Wilt and several other fungal and bacterial tree pathogens. Lab results found no positive sites for Oak Wilt (*Bretziella fagacearum*). The results did indicate several other pathogens were found including *Diplodia corticola*, *Diplodia gallae*, and *Xylella fastidiosa*.

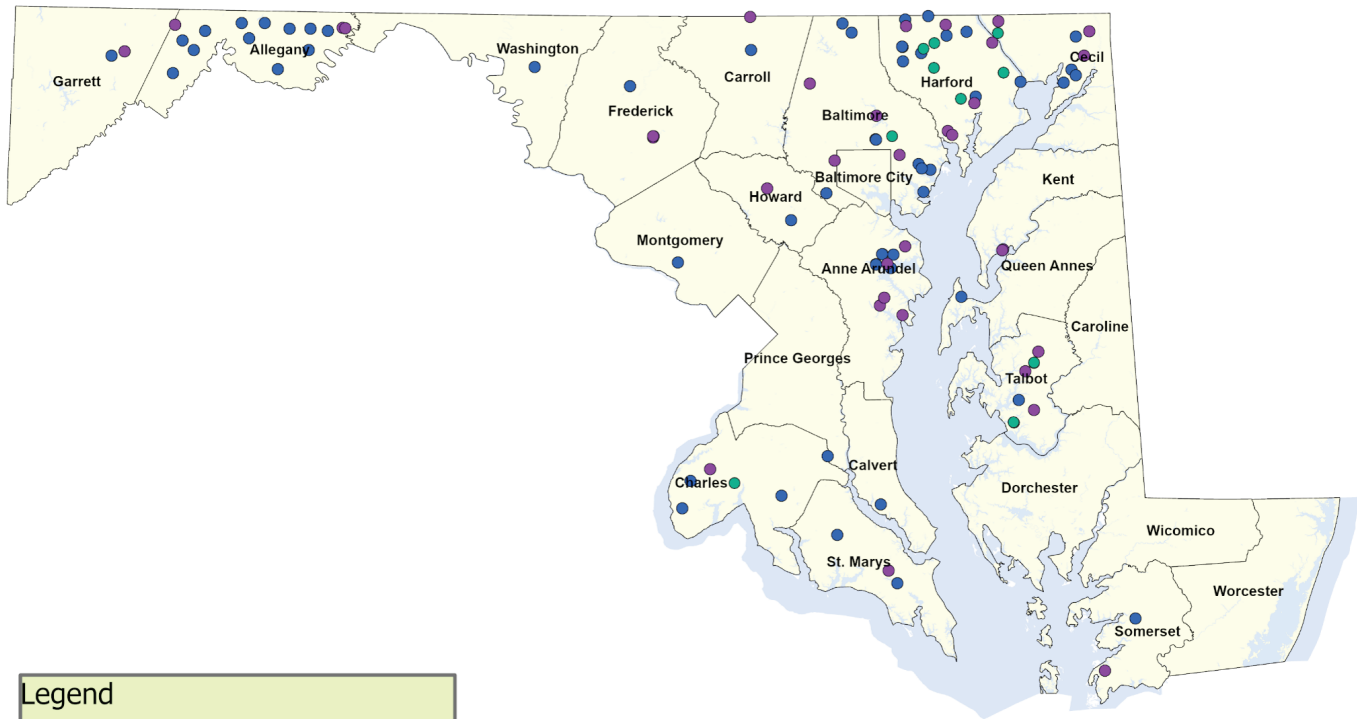
## MDA 2021 OAK COMMODITY SAMPLING LOCATIONS



## MDA 2021 OAK DECLINE SURVEY RESULTS – *DIPLODIA CORTICOLA*



## MDA 2019 - 2021 OAK DECLINE SAMPLING LOCATIONS



### Legend

- Oak Decline Sites 2021
- Oak Decline Sites 2019
- Oak Decline Sites 2020

0 5 10 20 30 40 Miles

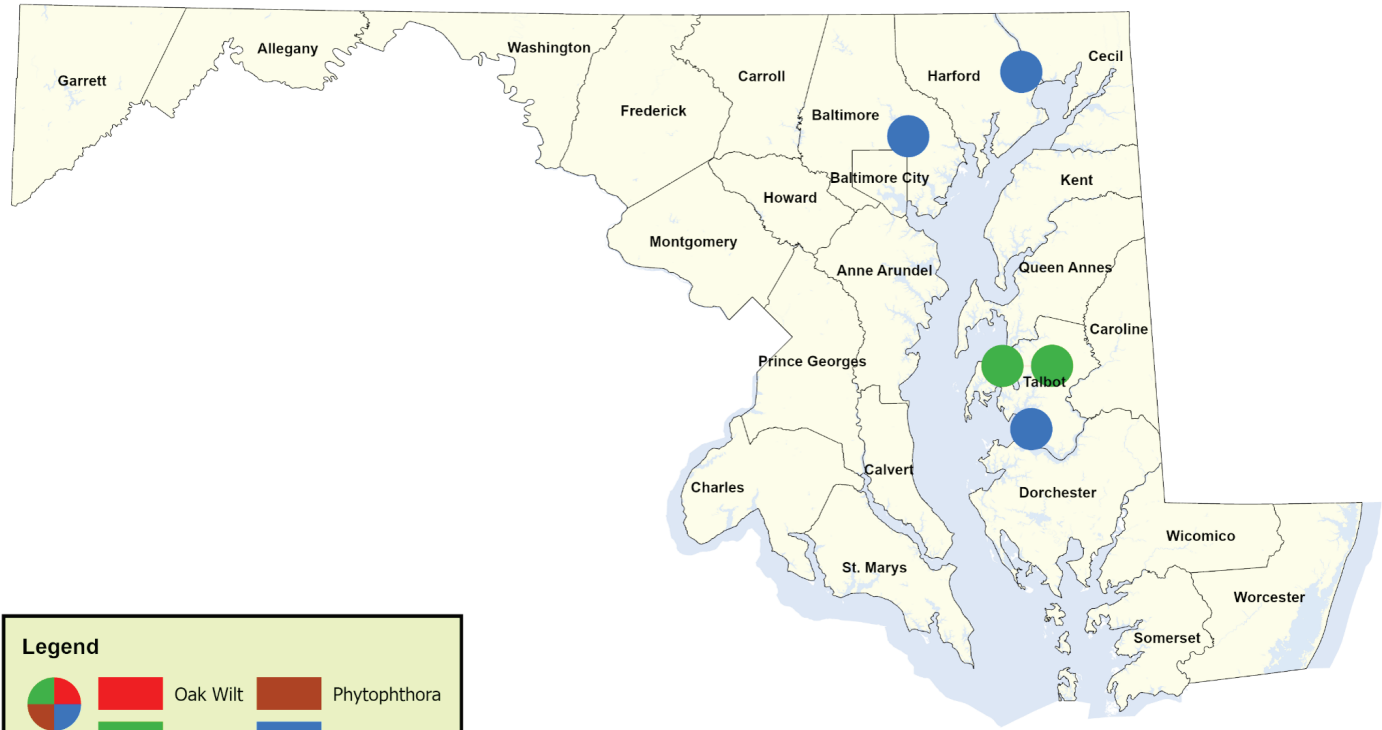


Maryland Department of Transportation (MDOT), Maryland Department of Transportation State Highway Administration (MDOT SHA), Office of Planning and Preliminary Engineering (OPPE), Data Services Division (DSD), MDOT SHA Geospatial Technologies Team (GIS@mdot.state.md.us), Maryland iMap (MDiMAP), MD iMAP, ESRI





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# MDA 2021 OAK DECLINE SURVEY RESULTS



**Legend**

	Oak Wilt		Phytophthora
	BLS		Diplodia

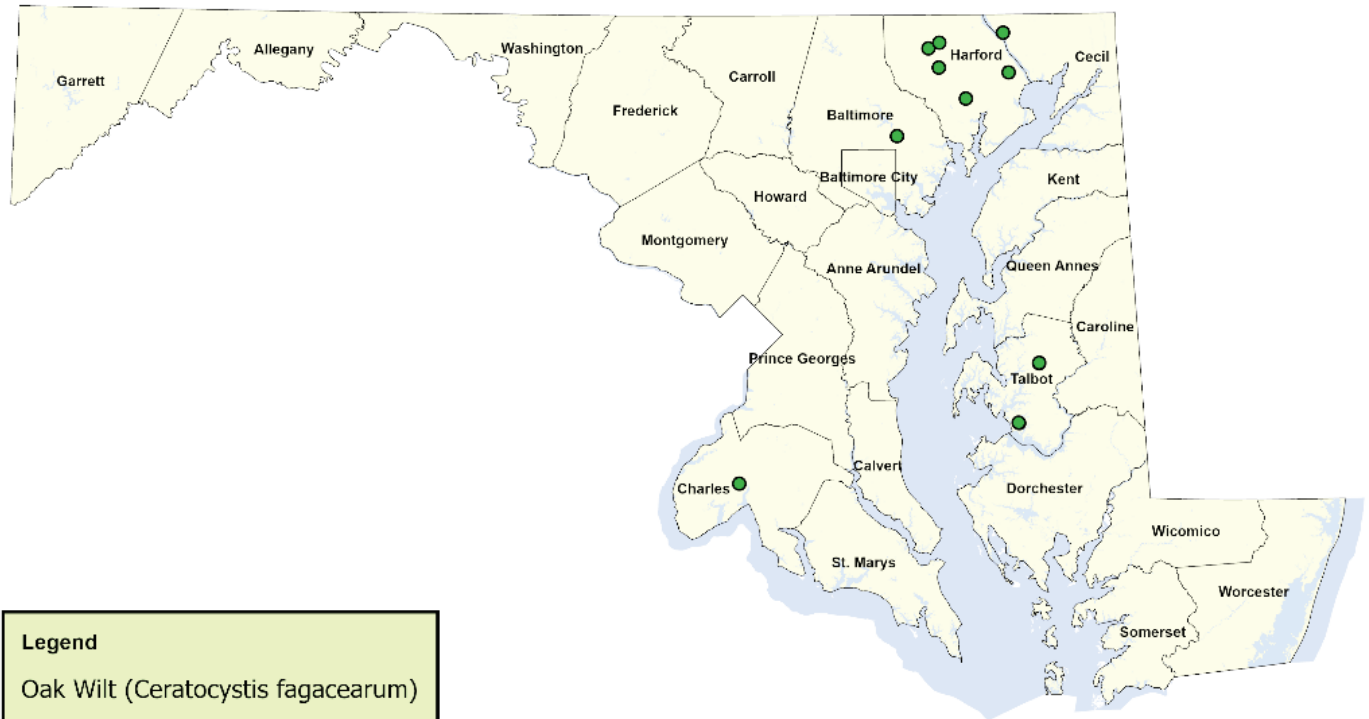
0 5 10 20 30 40 Miles



Maryland Department of Transportation (MDOT), Maryland Department of Transportation State Highway Administration (MDOT SHA), Office of Planning and Preliminary Engineering (OPPE), Data Services Division (DSD), MDOT SHA Geospatial Technologies Team (GIS@mdot.state.md.us), Maryland iMap (MDiMAP), MD iMAP, ESRI

Date: 2/22/2022 Map Prepared By H. Disque

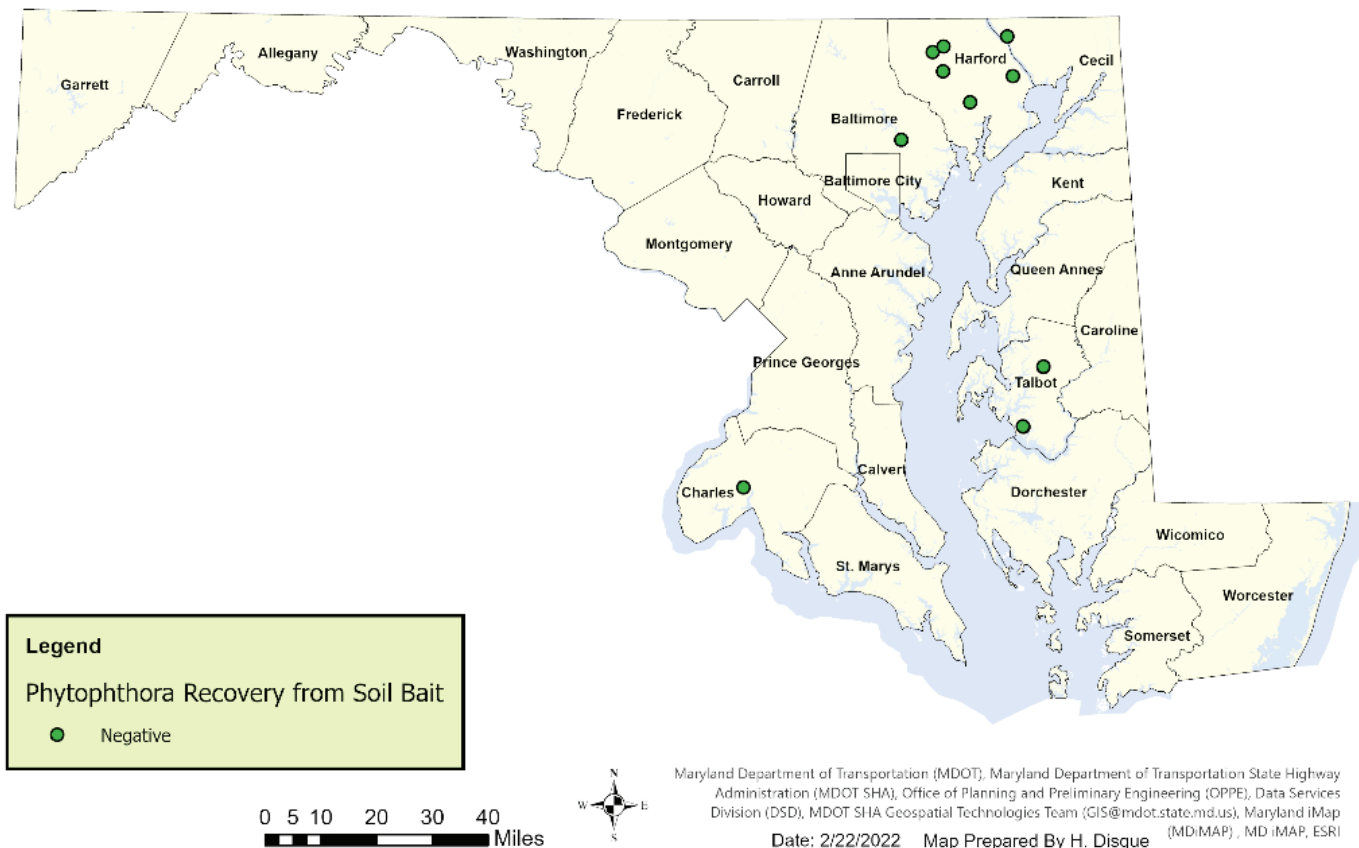
## MDA 2021 OAK DECLINE SURVEY RESULTS – OAK WILT



Maryland Department of Transportation (MDOT), Maryland Department of Transportation State Highway Administration (MDOT SHA), Office of Planning and Preliminary Engineering (OPPE), Data Services Division (DSD), MDOT SHA Geospatial Technologies Team (GIS@mdot.state.md.us), Maryland iMap (MDiMAP), MD iMAP, ESRI

Date: 2/22/2022 Map Prepared By H. Disque

## MDA 2021 OAK DECLINE SURVEY RESULTS – *PHYTOPHTHORA SP*

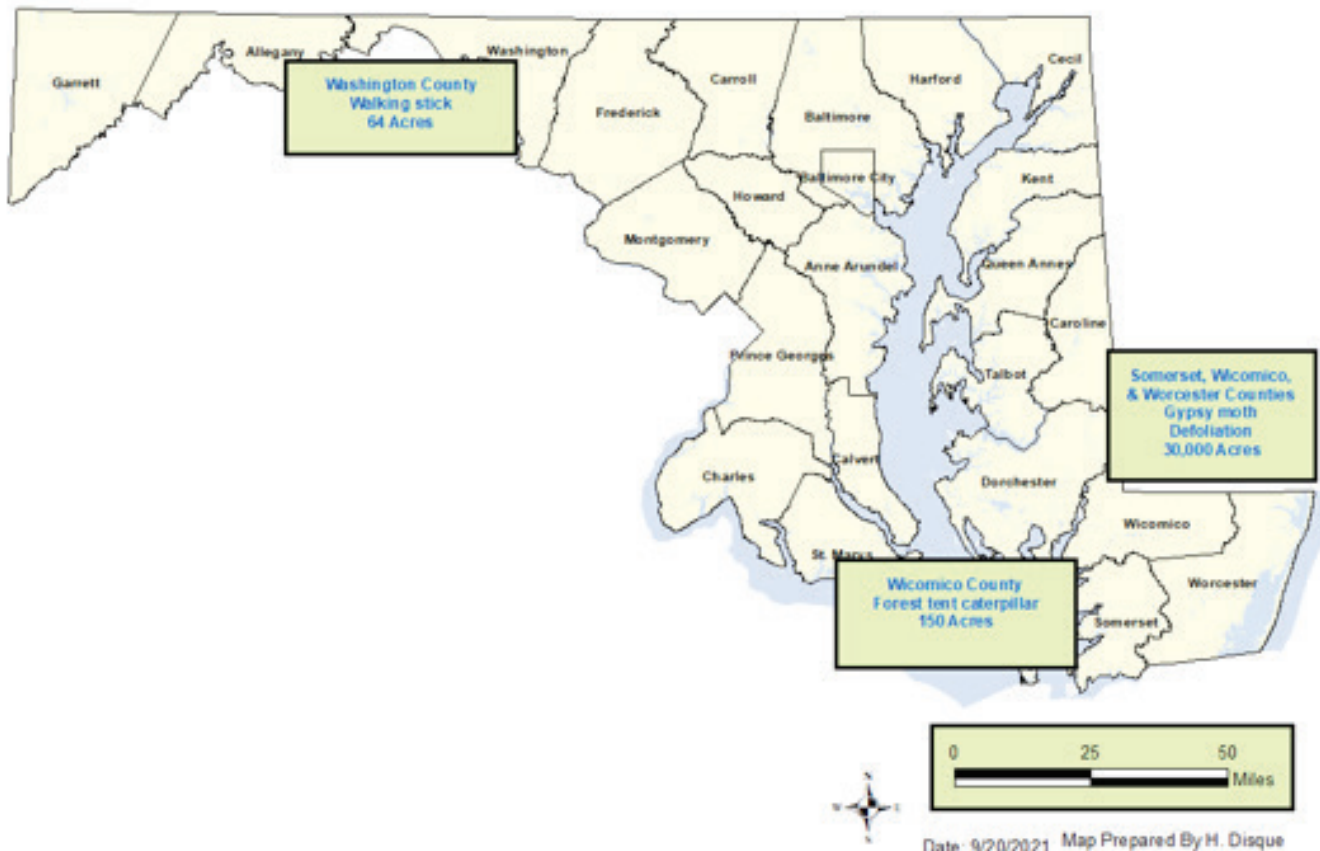




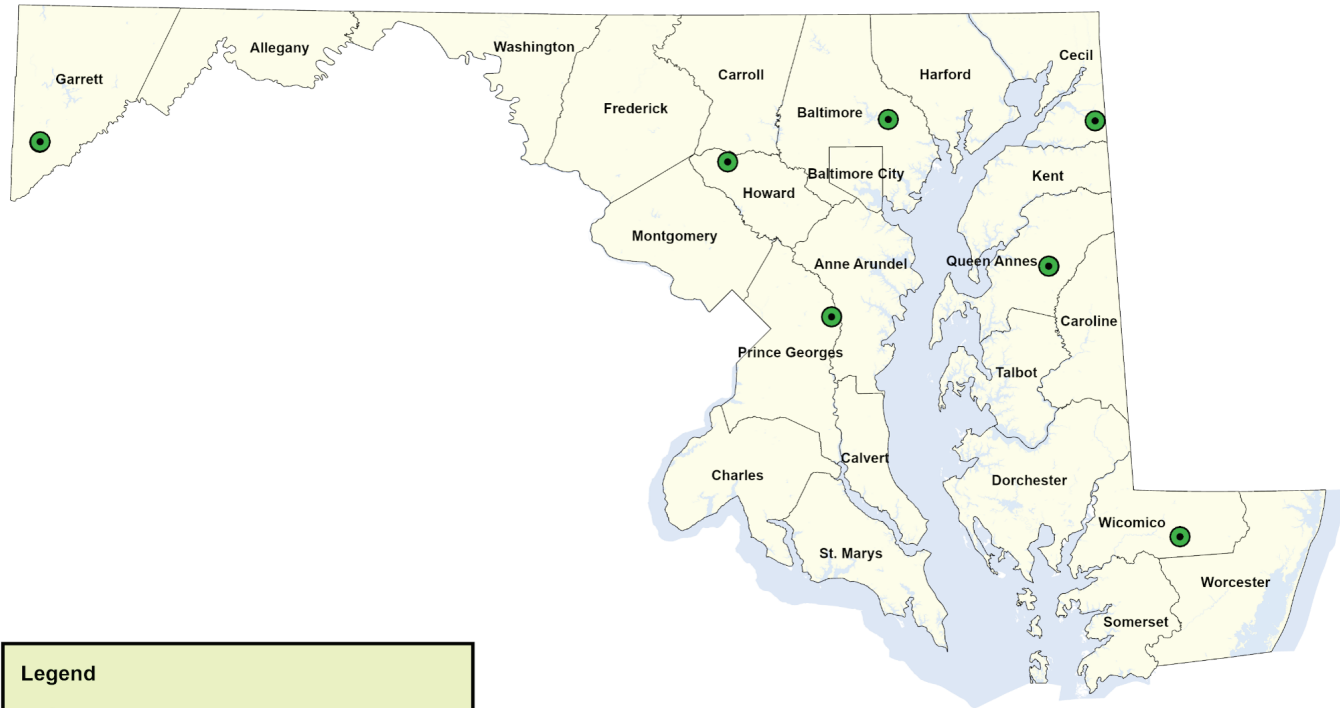
**Additional Forest Pest Surveys:** Three additional surveys were conducted by Forest Pest Management. These included a survey for redbay ambrosia beetle, an oak pest commodity

survey, and a survey for *Phytophthora ramorum* using a stream bait technique. None of these pests or diseases were found in Maryland in 2021.

## MDA FOREST HEALTH MONITORING PEST DAMAGE MAP



## MDA 2021 *PHYTOPHTHORA RAMORUM* STREAM BAIT SAMPLING LOCATIONS



Maryland Department of Transportation (MDOT), Maryland Department of Transportation State Highway Administration (MDOT SHA), Office of Planning and Preliminary Engineering (OPPE), Data Services Division (DSD), MDOT SHA Geospatial Technologies Team (GIS@mdot.state.md.us), Maryland iMap (MDiMAP), MD iMAP, ESRI

Date: 2/22/2022 Map Prepared By H. Disque

## MOSQUITO CONTROL

The Mosquito Control Program provides an important public health and quality of life service to Maryland residents in 2,014 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 65 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. Exemptions are available to all citizens through our website. Our best efforts go toward honoring these requests.

### MOSQUITO-BORNE DISEASE SURVEILLANCE

**West Nile Virus (WNV):** WNV continues to be the mosquito-borne disease of greatest public health importance in Maryland. In 2021, four human cases of WNV were reported by the Maryland Department of Health (MDH). In addition to these human cases, 49 pools of mosquitoes tested positive for WNV. We incorporated a more sensitive trap, so these numbers went way up. Human morbidity from WNV is very cyclic. There were four cases of WNV in 2021. There has not been a high number of cases since 2018.

**Eastern Equine Encephalitis (EEE):** Eastern Equine Encephalitis (EEE) is one of the most severe mosquito-borne diseases in the United States. In 2021, EEE was detected one mosquito pool. No human cases of EEE were reported in Maryland in 2021. EEE has an average mortality rate of 33% and most survivors experience significant brain damage.

**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 in 2016. 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

should a person come into Maryland infected with Zika after having traveled to the tropics. There were no travel-related cases of Zika virus in the summer of 2021. 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 2021, the total area managed by source reduction projects was 51 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

Another effort to control mosquito populations is MDA's Integrated Pest Management program. One component of the program is the use of the native mosquito fish 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 mosquito fish 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 first inspected by MDA personnel to determine if the introduction of the mosquito fish 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 2021 mosquito season, 2,975 mosquito fish were stocked in closed pond habitats. The department will continue to monitor and inspect suitable sites to determine where future mosquito fish stocking is necessary.

## **PUBLIC EDUCATION**

Our public education efforts during the 2021 mosquito season were split between media, social media, school, professional associations, and general presentations. We typically put out two press-releases at the beginning of mosquito season, 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. These messages along with others about protecting yourself from mosquito-borne and tick-borne illnesses were posted on the MDA's social media pages throughout the season. 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 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 2021 with applications of biorational larvicide to 4,932 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 2021, 60,932 acres were treated by aircraft, the majority for control of adult mosquitoes. This number is down from previous years, mostly because the saltmarsh remained flooded, which allowed fish to eat developing mosquito larvae. 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. Within the aerial spray program, we looked for additional pesticides that could be used, as our main product, Trumpet, is under an EPA review.



## MOSQUITO CONTROL ACTIVITY SUMMARY: CY 2019 – 2021

Activity	CY 2019	CY 2020	CY 2021
Communities Participating in Mosquito Control Program	2,491	1,951	2014
Number of Light Trap Nights	2,381	2,051	2038
Percent of Light Trap Nights Below Threshold	66.36%	1,359	1425
Number of Landing Rate Counts Performed	18,738	16,401	15373
Percent of Landing Rate Counts Below Action Threshold	33.25%	33.68	4535
Number of Public Service Requests	3,133	2,298	3684
Number of Inspections by Request	962	945	1125
Number of Mosquito fish Stocked	4,610	4,440	2,975
Acres Managed by Open Marsh Water Management	647	369	51
Acres Treated with Insecticide	1,230,684.35	1,021,610.1	1,337,400.52
Acres Treated for Mosquito Larvae	617.95	6,056.54	5,200.84
Acres Treated for Adult Mosquitoes	1,230,246.4	1,015,557.17	1,331,228.81
Acres Treated by Aircraft	82,597	115,718	60,932
Acres Treated by Ground Equipment	1,263,080.36	905,892	1,276,468.56
Number of Mosquitoes Tested for Arboviruses*	18,401	4,440	17,989
Number of Human Cases of West Nile Virus Statewide	6	1	4
Number of Cases of Arbovirus in Domestic Animals	1	0	0
Number of Mosquito Pools Positive for Arbovirus**	11	3	50

\*This number went down in 2020 because of hiring difficulties.

\*\* This number went way up because we started using a much more sensitive trap.

## 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 FY22, MDA's Pesticide Regulation accomplished the following:

- Certified 118 new private applicators for a three-year period. These new private applicators passed a closed book examination administered by section personnel.
- Renewed 2,670 private applicator certificates; 4,756 Commercial, Public Agency and Consultant applicator certificates; 1,776 business licenses; 331 public agency permits; 179 dealer permits and registered 8,712 pesticide applicator technicians.
- Approved 764 continuing education courses for private and commercial applicators and monitored 40 recertification sessions performed by the University of Maryland Extension, MDA, or the pesticide industry.
- Certified 1031 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.

In FY22, there were 4,756 commercial, public agency applicators, and consultants. Eighteen exam sessions were

held, during which more than 2400 exams were administered to 965 applicants. 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 764 recertification training sessions for commercial and private pesticide applicators that were conducted by the pesticide industry, the University of Maryland Extension, or MDA.

During FY22, Pesticide Regulation licensed 1,776 commercial, consultant and not-for-hire businesses to apply pesticides and to perform pest control services. The section issued 331 public agency permits to government agencies that apply pesticides. A total of 8,712 registered employee identification cards were issued in FY22. The employees of pesticide businesses and public agencies are registered to apply pesticides under the supervision of certified applicators. The section issued 179 dealer permits to businesses that sell restricted-use pesticides.

At the end of FY22, 439 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, pesticide misuse investigations and EPA referrals are also conducted by Pesticide Regulation inspectors. In FY22, the Section's four field inspectors conducted 741 routine inspections. In addition, 39 complaint investigations were performed. Of the inspections conducted, 267 violations were cited. Five civil penalties were issued to unlicensed businesses.

### PESTICIDE TECHNICAL INFORMATION COLLECTION AND DISSEMINATION

A list of pesticide sensitive individuals was first compiled in 1989. During FY22, MDA registered 109 individuals. These individuals receive advance notification of pesticide applications made to adjacent properties by commercial mosquito, 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. During FY22 PRS Inspectors conducted 88 IPM inspections at Maryland public schools. Since 2002, more than 1,100 schools have been inspected for compliance.

### **TRAINING EVENTS**

During FY22, Pesticide Regulation's enforcement and compliance staff attended the EPA Region 3 Pesticide Inspector's Workshop hosted by MDA and held in Ocean City. The agenda for this meeting included health and safety information regarding pesticides as well as respirator fit testing. In addition, PRS Entomologist and Inspector Manager attended a Pesticide Regulatory Education Program sponsored by EPA. In addition, one of the PRS Inspectors attended

EPA's Week In Residence training. Many of these trainings are required for MDA's Pesticide Regulation inspectors and supervisors to maintain their federal credentials per the operating agreement with EPA Region 3.

### **OTHER ACTIVITIES**

In FY22, 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 FY22, there were 220 registrations accepted, 161 honeybee colonies and 59 sensitive crops.

The pesticide container recycling program is conducted June through October and provides farmers, pesticide licensees and permittees an opportunity to recycle their clean empty pesticide containers. PRS Inspectors host drop-off events in Frederick, Harford, Kent, Montgomery, Talbot, Washington and Wicomico counties. In addition, MDA works with around 23 private cooperators to collect empty pesticide containers. These containers are collected by a contractor provided by the Agricultural Container Recycling Council. During FY22, more than 50,000 clean empty pesticide containers were collected, yielding 35,000 pounds. Since the program's inception in 1993, the Department has collected over one million containers yielding nearly 1.3 million pounds of plastic.

The Pesticide Regulation Section also conducted its unwanted/unusable pesticide disposal program during FY21. This program is free to ag producers across Maryland. On-farm pick-ups ended in FY22 with 38 participants in 19 counties throughout Maryland. 44,196 total pounds of unwanted/unusable pesticides were collected.

## 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 CY22, the section registered: 13,347 pesticides products; 13,161 commercial feeds; 4,176 fertilizers; 428 fertilizer/pesticide mixtures; 111 liming materials; and 193 soil conditioners. MDA inspectors also brought 225 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 CY22, the State Chemist Section inspectors performed 830 on-site inspections. *Please see Table 2.*

### STATE CHEMIST SECTION ONLINE REGISTRATION PORTAL

The Maryland Department of Information Technology (DoIT), NIC Maryland, and MDA's 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 90% of pesticides were renewed through the NIC portal. There are still some registrants that cannot renew online. The online renewal percentage for animal feeds is approximately 80%. The system, both what registrants use and what the State Chemist staff use, are constantly being improved for better efficiency and usability. The remaining commodities will be put in the pipeline when most bugs in both systems are worked out. 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 state and federal agricultural and environmental laws. The laboratory also provides support to MDE, DNR, 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 16 registrants.

## 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 27 check sample rounds involving highly toxic materials, four of which are among the deadliest 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 FDA's Baltimore-District Office as an overflow capacity laboratory. The department currently maintains preparedness by participating in 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 2021, 42 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 CY22, MDA scientists and technicians routinely screened 62 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 principal 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 62 samples analyzed, there were no positives found.

### **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. 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:** 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 FY22, 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 UMD's Honey Bee Lab, the State Chemist Section has been supporting the lab through the analysis of pesticides in bee pollen. The UMD Honeybee 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 UMD Honeybee 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 six 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 complying and will issue stop sale orders for those that are not. Lawn fertilizer labels without the restriction language may lead to overapplication, 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 CY22, 10 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 2022: REGISTRATION AND ENFORCEMENT**

<b>Registration</b>	
Pesticides	13,347
Fertilizers	4,176
Soil Conditioners	193
Fertilizer/Pesticide Mixtures	428
Liming Materials	111
Feeds	13,161
<b>Total</b>	<b>31,578</b>
Companies with Registered Products	2,251
Registrants	2,078
<b>Enforcement - Non Registered Notices Brought Into Compliance</b>	
Pesticides	35
Fertilizers	15
Soil Conditioners	30
Fertilizer/Pesticide Mixtures	0
Liming Materials	5
Feeds	145
<b>Total</b>	<b>225</b>
<b>Enforcement - Non Registered Stop Sales</b>	
Pesticides	35
Fertilizers	15
Soil Conditioners	30
Fertilizer/Pesticide Mixtures	0
Liming Materials	5
Feeds	145
<b>Total</b>	<b>225</b>

**TABLE 2—CY 2022: INSPECTIONS**

Product Manufacturing Sites Visited [Plants, Warehouses, Retailers]	830
FDA Regulation Ruminant Tissue [BSE] Feed Inspections	5
FDA cGMP Inspections	15
USDA/MDA Pesticide Data Program Sites Visited	266
USDA/MDA Pesticide Data Program Samples Collected	525

**TABLE 3—CY 2022: REGULATORY ACTIONS**

<b>Regulatory Action Stop Sales</b>	
Active Ingredient Deficiencies	
Pesticides	7
Fertilizers	19
Feeds	2
Active Ingredient Over Formulations	
Pesticides	1
Fertilizers	0
Feeds	2
Mycotoxins in Feeds	0
Label Violations	22
Phosphorus Levels in Turf/Lawn Fertilizers	0
<b>Regulatory Action Warnings</b>	
Active Ingredient Deficiencies	
Pesticides	0
Fertilizers	0
Feeds	0
Active Ingredient Over Formulations	
Pesticides	0
Fertilizers	0
Feeds	0
Mycotoxins in Feeds	0



**TABLE 4—CY 2022: LABORATORY ANALYSES PERFORMED**

	Samples Collected	Number of Analyses
Pesticides	33	45
Fertilizers	152	197
Liming Materials	12	24
Feeds and Pet Foods	159	786
Feed – Microbiology	62	186
Broiler Feeds for Phytase	16	16
Livestock Feeds – Drugs, Additives, Mineral Supplements, Ingredients	120	145
Toxic Metal Screen	32	480
Maryland Bee Pollen Survey	12	2,376
EPA (Pesticide Regulation – Maryland)	45	50,898
Food Emergency Response Network of Federal & State Laboratories	16	160

**TABLE 5—CY 2022: PRODUCT SALES IN TONS**

Fertilizers	457,129
Fertilizer/Pesticide Mixtures	6,602
Soil Conditioners	266,429
Compost	19,790
Liming Materials	146,503
<b>Total</b>	<b>896,453</b>

## 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) have 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 seeds planted along Maryland's highways. Maryland farmers participating in the department's 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 seeds submitted by farmers, veterinarians, health officials, other government agencies, and the public. The laboratory conducts Round-upR Ready testing of seeds for authorized seed producers to assist with their quality control programs. Additionally, the laboratory 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 U.S. 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 seeds 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 are 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 UMD in the production and distribution of Maryland foundation seed. Much effort is spent maintaining the genetic purity of foundation seeds 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 UMD 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 FY22, industrial hemp was grown in Maryland for general commercial activity and 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 2022 growing season, two farmers had research projects with two different institutions to grow and conduct research on industrial hemp.

### **MARYLAND HEMP FARMING PROGRAM**

Maryland's State Plan for Hemp Farming was approved by the USDA, allowing MDA to license farmers to grow hemp without a research project. In addition, the Plan established hemp as an agricultural crop. In order to grow hemp a farmer must be licensed by MDA and register their fields. During the 2022 growing season, 66 farmers registered under the Hemp Farming Program.

### **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 businesses to remain successful in the seed market.

## TURF AND SEED ACTIVITIES: 2020 - 2022

	2020	2021	2022
<b>Field Inspections</b>			
Acres of Turf Inspected	3,617	3,312.9	5104
Acres of Crop Seed Inspected	4,037	3,778.9	4,850.05
<b>Supervised Mixing</b>			
Pounds of Seed Mixed	2,034,625	2,109,692	2,521,156
<b>Retail and Wholesale Seed Inspections</b>			
Number of Lots Sampled	364	234	386
Number of Regulatory Seed Tests Conducted	964	604	1,141
<b>Seed Testing</b>			
Samples Tested	2,790	2,758	2,288
Service Seed Tests Conducted	4,191	4,103	3,427





## Office of Resource Conservation

The department'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 manages the following program areas: the Nutrient Management Program, Conservation Grants, District Operations, Program Planning and Evaluation, and the SSCC. In addition, the program's Education and Outreach staff develops information and education programs to promote MDA's conservation services to a wide range of audiences.

In FY22, the Office developed a 5-year strategic plan to provide a road map for moving Maryland's agricultural conservation programs forward. Conservation programs and priorities were restructured to emphasize climate-smart farming practices, improve efficiency, preserve MDA's status as a trusted source of conservation services, and promote environmental justice for urban growers, small acreage farms, and historically underserved communities. The overall aim is to provide all Maryland farmers with the support they need to meet water quality goals, embrace carbon-friendly farming methods, and help build a resilient future for agriculture and food production. Three key priorities drive the plan:

- Chesapeake Bay Restoration
- Climate Resilience
- Environmental Justice

## MARYLAND NUTRIENT MANAGEMENT PROGRAM

The 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.

**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.

- **Electronic Reporting:** Approximately 30% of regulated farmers took advantage of electronic reporting in FY22. This was the second year that an electronic reporting option was offered through Maryland OneStop.

- **Phosphorus Management Tool (PMT):** Farmers with fields containing elevated soil phosphorus levels completed a multi-year transition to the PMT in July 2021. The majority of farmers with elevated soil phosphorus levels are in full compliance with the regulations.
- **PMT Transition Advisory Committee:** Chaired by the Maryland Secretary of Agriculture, the PMT Transition Committee will remain active until at least July 1, 2023, to ensure a smooth transition.
- **Soil Phosphorus Data:** State law requires soil phosphorus data to be collected every six years beginning in 2015. In September 2021, the program conducted a 2nd round of soil data collection from nutrient management consultants. Soil data was collected for 1,035,211 acres of regulated farmland. Approximately 20% of farm fields tested have soil phosphorus levels that require using the PMT. The program continues to target farms that have not submitted soil data for audits and inspections.

- **PMT Research:** Work continued on a five-year University of Maryland study of phosphorus loss risk assessment tools.
- **Soil Additives Study:** Research moved forward on an MDA-funded study to help determine the value of soil additives in preventing soil phosphorus losses. The UMD Center for Environmental Science is conducting the study.
- **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 UME advisors, certified private consultants, or farmers who are certified to develop plans for their own operations. The program's nutrient management specialists analyze Annual Implementation Reports and conduct site visits to verify that operators are following their plans.
  - o *Nutrient Management Plan Submissions.* New farming operations are required to submit copies of their initial nutrient management plans to the department. The program works to locate new farming operations and pursues enforcement actions against operators who have not met this initial requirement.
  - o *Annual Implementation Reports.* Farmers are required to submit Annual Implementation Reports to the department by March 1, summarizing nutrient applications for the previous calendar year. By the end of FY22, approximately 96% of regulated farmers managing about 1.25 million acres of land had submitted these reports. Fines were issued to 193 operators for late or missing reports. The program is working to bring these farms into compliance with reporting requirements.
  - o *On-Farm Audits and Inspections.* Enforcement specialists conducted 936 on-farm audits in FY22 representing 18.4% of regulated farms. Approximately 74% of audited farms were in full compliance at the time of inspection. Follow-up inspections determined that 78 farmers cited had corrected their violations, raising the compliance rate to 79% by the end of the fiscal year. The program is actively pursuing full compliance for all audited operations. In FY22, \$3,100 in fines were issued against 7 operators for violations.
- **Certification, Continuing Education and Licensing Programs:** The following activities took place in FY22:
  - o *Nutrient Management Exam.* During the year, 18 individuals passed the program's nutrient

management certification exam. These individuals are now certified to write nutrient management plans for farmers; an additional 73 certifications were renewed.

- o *UMD Consultant Program.* The program funded 20 UME advisors in FY22. These advisors provide farmers with nutrient management plans free of charge.
- o *Farmer Training and Certification.* During the year, 21 farmers were trained to write nutrient management plans for their own operations and 90 certifications were renewed.
- o *Nutrient Applicator Voucher Training.* The department partnered with UME to conduct a series of statewide voucher training sessions — 511 vouchers were issued or renewed.
- o *Continuing Education.* 118 continuing education events were attended by 2,031 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 nonagricultural properties. The law requires both homeowners and lawn care professionals to obey fertilizer application restrictions, use best management practices (BMPs) when applying fertilizer to lawns, observe designated fertilizer blackout dates, and follow University of Maryland fertilizer recommendations.

The following activities took place in FY22:

- **Reaching Out to Underserved Youth:** During the year, the Turfgrass Nutrient Management Program partnered with the University of Maryland Extension to launch a pilot Professional Fertilizer Applicator (PFA) certification program for high school students in Baltimore City. The pilot project aims to help underserved students pursue a career in turfgrass management by providing educational support and eliminating financial barriers to certification. Feedback from the pilot program is being evaluated. Once finalized, the NMP hopes to expand the program to students in underserved communities across the state—especially those who may find the cost of PFA certification restrictive until they can secure employment in the field.

- **Electronic Reporting:** Maryland businesses continued to take advantage of electronic reporting. In FY22, 69% of licensed companies filed their annual reports electronically through the Maryland OneStop portal during its second year of operation.
- **Certification and Licensing:** Nine professional fertilizer applicator exams were offered across the state and attended by 173 lawn care professionals. The program issued 829 business licenses and 1,383 Professional Fertilizer Applicator Certificates. An additional 1,501 lawn care company employees have been trained to apply fertilizer under the supervision of a certified professional.
- **Continuing Education:** To renew their certificates, professional fertilizer applicators are required to complete two hours of continuing education each year. Five virtual recertification classes were attended by 324 certified professionals in FY22. Additional training opportunities were offered by private industry and trade groups. Many of these training sessions were offered virtually.
- **Annual Activity Reports:** License holders are required to file an annual activity report with the program by March 1, covering the previous year. In FY22, the program received 814 activity reports representing a 98% compliance rate.
- **Enforcement Activities:** During the year, 220 record reviews were conducted, with 80% of the firms in compliance.
- **Homeowner Outreach:** The program continued to educate citizens about Maryland's Lawn Fertilizer Law through a partnership with the University of Maryland Master Gardeners and consumer outreach activities at public events.

## CONSERVATION GRANTS

The Conservation Grants Program is responsible for managing and distributing grants to Maryland farmers who install best management practices (BMPs) on their farms to address natural resource concerns and promote environmental sustainability. The program is funded through a variety of sources including general obligation bonds, the Chesapeake Bay Restoration Fund, the Chesapeake and Atlantic Coastal Bays Trust Fund, and federal grants that finance highly valued BMPs included in Maryland's Bay Restoration Plan.

In FY22, the program provided Maryland farmers with \$28.8 million in cost-share grants to install more than 2,000 conservation projects on their farms to prevent soil erosion, manage crop nutrients, and protect water quality.

**New Initiatives:** Launched in January 2022, the Small Farm and Urban Agriculture Program provides financial assistance to support small-scale agricultural operations in urban, peri-urban, rural, and suburban areas. It aims to increase community access to healthy foods by helping farmers improve their management of natural resources. As a result of the passage of HB 855 during the 2022 legislative session, the department also began work on the new Urban Agriculture Power and Water Infrastructure Grant. The grant will provide funding to install electrical and plumbing infrastructure from the public utility to agricultural operations. To facilitate the development of meaningful new programs and services, staff have networked with producers, attended farm tours, developed a needs assessment questionnaire, and participated in workgroups on small-scale farming topics.

### Maryland Agricultural Water Quality Cost-Share Program (MACS):

This 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 FY22, MACS provided Maryland farmers with \$3.6 million in grants to install 219 conservation projects on their farms. Farmers who received these grants invested more than \$656,000 of their own money into these projects. To further support Maryland's Phase III Watershed Implementation Plan (WIP) to restore the health and vitality of the Chesapeake Bay and its tributaries, the following changes were made to the MACS Program were made in FY22:

- **100% Cost-Share Reimbursement Introduced.** In August 2021, 23 high-priority conservation practices became eligible for up to 100% cost-share.
- **Cost-Share Ceiling Raised.** In May 2022, the program increased the cost-share ceiling for 34 BMPs to \$75,000 per project. The new rate applies to all eligible BMP components, which are based on approved flat rates.

**Maryland Cover Crop Program:** This is our largest and most popular cost-share program. Farmers use these grants to help offset seed, labor, and equipment costs to plant fall cover crops on their fields to control erosion, recycle unused plant nutrients, build healthy soils, and protect water quality in local waterways and the Chesapeake Bay. During the 2021-2022 planting season, Maryland farmers planted 435,628 acres of

traditional cover crops statewide using approximately \$22 million in cost-share grants. This figure does not include cover crops grown for harvest, which are currently not eligible for cost-share grants. The 2021-2022 planting was hindered by excessive rainfall and poor field conditions at planting time.

**Manure Transport:** This program provides grants to help farmers cover the cost of hauling poultry and livestock manure away from areas with high soil phosphorus levels. To qualify for reimbursement, the manure must be trucked to farms or alternative use projects that can use the product safely. During the year, the program experienced a significant increase in participation as farmers took advantage of favorable program changes, including an increase in the maximum payment rate to haul poultry manure. In FY22, the transport program provided Maryland farmers with \$2,580,681 in grants to transport a record 402,926 tons of manure to approved farms and businesses. Delmarva poultry companies contributed \$682,431 in matching funds to transport poultry manure.

**Manure Injection Program:** Injecting manure into the soil instead of spreading it on the surface helps prevent nutrient runoff, reduces odors, and preserves beneficial surface residue. In FY22, 28 farmers were awarded \$344,936 in cost-share grants to offset operating costs associated with this practice.

**Conservation Reserve Enhancement Program (CREP):** Now in its 25th year, Maryland CREP has helped thousands of Maryland landowners plant streamside buffers, establish wetlands, protect highly erodible land, and create wildlife habitat on their property. This program 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.

In FY22, MACS provided landowners \$65,926 in grants to install 12 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. To help Maryland meet its goal to plant 5 million trees by 2031—as required by the Tree Solutions Act of 2021—the signing bonus for new riparian forest buffers was raised to \$1,000 per acre in October 2021. Landowners were awarded \$317,497 in signing bonuses during FY22.

**Low Interest Loans for Agricultural Conservation (LILAC):**

Low-interest loans are available to help farmers install BMPs on their farms, purchase conservation equipment, and adopt new technologies that help protect natural resources and safeguard water quality in the Chesapeake Bay and its tributaries. In FY22, the program approved two applications totaling \$114,800 in loans. These loans were used to help Maryland farmers purchase manure-handling equipment to manage manure applications more efficiently.

**Conservation Buffer Initiative:** This pilot program complements CREP by offering farmers and landowners attractive incentive payments to plant streamside buffers on farms to improve local water quality. The program awarded a total of \$406,390 to Maryland farmers in FY22.

**Conservation Equipment Tax Break for Farmers:**

The Maryland Income Tax Subtraction Modification for Conservation Equipment allows farmers to subtract eligible equipment purchases from taxable income on Maryland individual and corporate tax returns. During the year, 74 farmers took advantage of the tax subtraction.

## DISTRICT OPERATIONS

This program provides operating funds and staffing support to the state's 24 soil conservation districts to promote soil conservation and water quality programs to the agricultural community.

**Support for Avian Influenza Response:** During the year, the office provided staffing support to assist MDA's state, regional, and federal partners in response to multiple cases of High Path Avian Influenza (HPAI) on farms in Maryland and Delaware.

**Technical Assistance:** In FY22, the program funded 131 technical positions in local soil conservation district offices located in every Maryland county.

**Soil Conservation and Water Quality Plans:** Technical staff

worked one-on-one with farmers to develop Soil Conservation and Water Quality Plans (SCWQPs) 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 SCWQPs as part of its Maryland Animal Feeding Operation (MAFO) permit requirements. In addition, SCWQPs are included in Maryland's Watershed Implementation Plan to restore the health of the Chesapeake Bay and its tributaries. In FY22, 806,518 acres of agricultural land were managed using SCWQPs.

**Best Management Practices:** SCWQPs include a menu of BMPs that can be installed to manage natural resources,



control soil erosion, and protect water quality. Examples include grassed waterways to control erosion, cover crops to recycle leftover nutrients and build soil health, and waste storage structures to manage manure resources. During the year, technical staff helped farmers install 2,091 BMPs on their farms. These 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. During the year, MDA and MDE worked jointly with soil conservation districts to investigate farm management complaints and act against polluters when warranted. In FY22, the program investigated complaints concerning odors, livestock, manure, sediment, wetlands/stream disturbance, and pond issues. All of the complaints were corrected or closed.

**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. District Operations coordinates the activities of PDAs to ensure that operation and maintenance plans are in good working order and protecting water quality.

**Permitting and Compliance Assistance:** During the year,

program staff helped farmers comply with the Maryland Department of the Environment's (MDE's) Animal Feeding Operation (AFO) permit. The General Discharge Permit for AFOs is revised and reissued every five years. The current permit became effective July 8, 2020 and will expire on July 7, 2025. In FY22, field staff prepared Comprehensive Nutrient Management Plans (CNMPs) for farmers; secured cost-share assistance to install BMPs; 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.

**Maryland Envirothon:** The State Soil Conservation Committee and soil conservation districts are primary sponsors of the Maryland Envirothon — an environmental education 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. This year's special environmental issue was Waste to Resources. Teams compete at the local, state, and national levels.

For a second straight year, a team of high school students from Montgomery County won the Maryland Envirothon competition. The Richard Montgomery High School team beat out teams from 13 counties with a winning score of 423 points out of 500 points. Teams from Anne Arundel County (388 points) and Harford County (386) placed second and third. The Montgomery team went on to finish 2nd at the National Envirothon competition held at Miami University in Oxford, Ohio. Forty teams from the United States, Canada, and China competed at the week-long natural resources competition.

## PROGRAM PLANNING AND EVALUATION

Plans, develops, and coordinates new programs and services, facilitates program advisory committees, works with conservation partners to achieve excellence in program delivery and oversees all accounting and reporting toward environmental goals. Programs managed include the Animal Waste Technology Fund, Maryland's Healthy Soils Program, Geographic Information Systems, and the Watershed Implementation Program. In addition, Program Planning and Evaluation provides staff support to the State Soil Conservation Committee (SSCC).

**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 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 FY22, the department published a request for research and evaluation proposals on Maryland-generated animal waste.

- The Fund received 2 bids in response to its annual proposal request. The bids were reviewed by a

seven-member technical review subcommittee and an advisory committee.

- The University of Maryland was awarded a \$714,000 grant to provide updated data on animal waste generated in Maryland, along with recommendations for the types of projects that the AWTF should support in the future. The research will be performed by a diverse project team. It will deliver recommendations to improve animal waste management strategies while meeting climate change and environmental justice goals. The study will be completed in 12 months.

**Maryland Healthy Soils Program:** Established by Maryland law in 2017, Maryland's Healthy Soils Program charges the Department to:

- Develop a road map to improve the health, yield, and profitability of soils;
- Increase biological activity and carbon sequestration in agricultural soils, and promote education and the adoption of healthy soil practices.

In FY22, the program accomplished the following:

- Submitted recommendations from the Healthy Soils Advisory Committee (SHAC) to Secretary Bartenfelder. The SHAC was charged with helping to develop the framework of Maryland's Healthy Soils Program to achieve its legislative charge.
- Based on these recommendations, the Department rolled out its Cover Crop+ Program in June 2022.
- Convened a workgroup to design and review the new Healthy Soils Competitive Fund application materials.
- Received grant funding from the U.S. Climate Alliance to improve the accuracy of its carbon accounting. MDA is working with its sister agencies to gain a greater understanding of the positive environmental effects that on-farm conservation practices provide.
- MDA staff continue to represent Maryland at the U.S. Climate Alliance. Staff have shared Maryland's progress with representatives across the country.
- Farmers across Maryland continued to show interest in the Healthy Soils Pilot Program, which is funded by the National Fish and Wildlife Foundation. An additional 1,200 acres were enrolled in the program in FY22. Farmers receive financial and technical assistance to implement qualifying conservation practices that promote soil health. Assessments were conducted to increase understanding of soil health measures.

**Geographic Information System (GIS):** GIS is a geospatial computer system that creates, manages, analyzes, and maps all data types. It connects data to a map and integrates it with various descriptive information. This provides a foundation for mapping and analysis to understand patterns, relationships, and geographic context. GIS also improves communication and efficiency and is a trusted resource for agricultural decision-making. In FY22, GIS staff:

- Processed the National Agricultural Statistics Service's (NASS) 2021 Cropland Data Layer for Maryland.
- Provided ArcGIS training sessions.
- Updated the Department's hosted spatial datasets and web map applications with the most current data and enhanced tools.
- Continued to provide technical assistance to MDA staff on GIS capabilities.
- Provided datasets and maps to MDA programs.
- Participated in ESRI's Massive Open Online Courses and the ArcGIS Online Early Adopter Program.
- Attended ESRI ArcGIS Pro training sessions and other GIS conferences and workshops.
- Participated in an inter-agency technical committee that implements policy on the transparency, availability, and quality of spatial data in Maryland.

**Watershed Implementation 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." Its aim is to ensure that pollution control measures needed to restore the health of the bay and its tributaries are in place by 2025.

- **Phase III WIP:** Maryland's Phase III Watershed Implementation Plan (WIP) was published on August 23, 2019. Nitrogen is the plan's primary focus because Maryland is on track to meet its 2025 phosphorus and sediment goals. A 2022 Addendum to Maryland's Phase III WIP accounts for additional nutrient pollutant loads due to climate change.
- In FY22, the program continued to support local

conservation efforts conducted by members of Maryland's Conservation Partnership. The Program provided guidance on documenting and reporting best management practices installed by Maryland farmers and submitted annual progress reports to the Chesapeake Bay Program.

- **Agricultural Representation:** Department representatives serve on several 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.
- **Nutrient Trading:** MDA and MDE continue to work together to foster a public market for nitrogen, phosphorus, and sediment reductions and voluntary, market-based solutions to promote nutrient, sediment, and carbon trading as a viable option for achieving the state's water quality goals. In FY22, the program worked to incorporate potential carbon sequestration benefits associated with conservation implementation into the trading tool.
- **Conservation Tracker:** This integrated database management system tracks agricultural BMPs installed on Maryland farms to protect and restore the bay. The system tracks both publicly and privately funded BMPs outlined in Maryland's WIP. Information obtained through Conservation Tracker is regularly reported to the Chesapeake Bay Program for use in assessing restoration progress.
- **Field Verification Team:** The Department's 9-member verification team provides an objective, third-party review of all BMPs installed on Maryland farms since 1985. Since 2016, the verification task force has reviewed approximately 21,750 BMPs. This represents 69% of all BMPs implemented since 1985. Of the BMPs evaluated, 82% continue to provide water quality benefits, approximately 15% are no longer present on the landscape, and 3% require maintenance.
- **Agricultural Certainty Program:** This program rewards farmers who install multiple BMPs 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 FY22, the department continued to promote the program to the farm community.
- **Research and Special Projects:** The Program manages several research and technical assistance grants. The projects demonstrate new and innovative ways to improve manure management, reduce nutrient runoff, control soil erosion, and safeguard water quality.

## 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. It develops, reviews, and refines policies on soil conservation and water quality issues and advises the Maryland Secretary of Agriculture on these matters. The SSCC serves as a forum for all agencies involved in protecting natural resources. In FY22, the SSCC:

- Received updates on the increasing number of programs and initiatives that support equine operations in Maryland. Outreach and engagement with these operations will be an important conservation opportunity.
- Received updates on Maryland's progress in meeting agricultural water quality goals for the Chesapeake Bay. These included reports on the status of nutrient loads and reductions required for Conowingo Dam and recruitment efforts for technical field staff.
- Received updates from USDA's Natural Resources Conservation Service (NRCS) on the status of cooperative agreements with soil conservation districts; continued discussions on new roles and responsibilities for districts in the small pond approval process administered by the Maryland Department of the Environment.
- Received an update on the state's Greenhouse Gas Reduction Act Plan and the agricultural sector's contribution toward climate change goals. Members were updated on the state's renewable energy goals; in-state solar installations were discussed along with concerns over farmland conversions to achieve these goals. Opportunities for dual use installations were reviewed.
- Facilitated a roundtable with members and soil conservation district managers to discuss conservation planning resources and improvements.



## OUTREACH AND EDUCATION

This program develops information and education outreach to promote MDA's conservation programs and services to farmers, soil conservation districts, lawn care professionals, educators, students, homeowners, and elected officials. It provides creative, editorial, and graphic production services to all program areas within the Office of Resource Conservation to achieve outreach goals. In FY22, program staff:

- Worked with the Assistant Secretary and program managers to produce the program's 5-year Strategic Plan
- Produced annual reports for the Office of Resource Conservation, Conservation Grants, and the Nutrient Management Program
- Initiated a new conservation video series highlighting Maryland farmers who have installed conservation practices on their farms to control erosion, protect local streams, and manage manure
- Supervised production and web page development of Soil Health Training videos and resources
- Developed farmer education and outreach programs to promote the Cover Crop Program, Conservation Grants, Manure Transport, manure injection grants, Maryland's Conservation Buffer Initiative, Conservation Reserve Enhancement Program (CREP), Maryland's Healthy Soils Program, Equine Outreach, the Animal Waste Technology Fund, and the Nutrient Management Program
- Developed a monthly electronic newsletter that is e-mailed to approximately 1,100 subscribers; produced the twice-yearly nutrient management newsletter that is mailed to 8,000 farmers, consultants, and urban professional fertilizer applicators
- Developed MDA's annual manure education program to help citizens understand how and why farmers use manure to fertilize crops
- Worked with the University of Maryland Home and Garden Information Center to develop a new fact sheet on climate-smart lawn and garden practices
- Promoted Maryland's Envirothon education competition for high school students



*Discussing wetland restoration and creation . Photo courtesy of Edwin Reminsberg.*



## MDA BUDGET ALLOCATIONS FOR FY22

### MDA BUDGET ALLOCATIONS FOR FY22

	GENERAL	SPECIAL	FEDERAL	BONDS	TOTAL
Operating	\$37,932,122	\$79,670,116	\$7,695,424		\$125,297,662
Capital		\$49,052,331			\$49,052,331
<b>TOTAL</b>	\$37,932,122	\$128,722,447	\$7,695,424		\$174,349,993
<b>BONDS</b>					
MACS				\$5,000,000	\$5,000,000
Animal Health Labs				\$0	\$0
<b>TOTAL</b>				\$5,000,000	\$179,349,993

## LONG SERVICE AWARDS

# MARYLAND DEPARTMENT OF AGRICULTURE HONORS EMPLOYEES FOR YEARS OF CONTINUED SERVICE

In October, MDA honored 52 employees for their years of dedicated service to the department and to the State of Maryland during an awards ceremony. Of the employees honored, 16 have 20 or more years of experience; nine have 30 or more years of service; and two have 40 years of experience. All together, these 52 employees represent 790 years of public service and over 1.6 million hours worked.

**The following is a listing of department employees who were recognized with service awards:**

- Susan Shephard- 40 years
- Bonita Sims- 40 years
- Lynn Kuhn- 35 years
- Paul Meyer- 35 years
- Stephen Spielman- 35 years
- Howard Callahan- 30 years
- Dianne Dorsey- 30 years
- Charles Hayes- 30 years
- Michael McMahon- 30 years
- Elvira Aisquith- 25 years
- Jason Keppler- 25 years
- Luzviminda Ramallosa- 25 years
- Cheryl Cook- 20 years
- Bryan Harris- 20 years
- Judy McGowan- 20 years
- Kathleen Newhouse- 20 years
- Tommy Phillips- 20 years
- Ricky Boldissar- 15 years
- Ryan Eisemann- 15 years
- Melissa Foster- 15 years
- Kimberly Hoxter- 15 years
- Jerel Spence- 15 years
- Katherine Starr- 15 years
- Alison Taylor- 15 years
- Jared Wagner- 15 years
- Charlotte Davis- 10 years
- Molly Gillingham- 10 years
- Patricia Gitlon- 10 years
- Kathleen Hall- 10 years
- John Hartman- 10 years
- Mona Lee- 10 years
- William Lyons- 10 years
- Luke Mudd- 10 years
- Byron Petrauskas- 10 years
- Catherine Scott- 10 years
- Jaime Tsambikos- 10 years
- Kassahun Belay- 5 years
- Britney Branch- 5 years
- Amanda Clevenger- 5 years
- Nicole Davis- 5 years
- Chelsea Dowell- 5 years
- Melanie Fisher- 5 years
- Chuks Iregbu- 5 years
- Stormy Keyes- 5 years
- Jessica O'Sullivan- 5 years
- David Parks- 5 years
- Broderick Pascual- 5 years
- Selina Preston- 5 years
- Colleen Robinson- 5 years
- Patrick Simons- 5 years
- Chelsea Tyson- 5 years
- Eric Von Paris- 5 years





CHANGING  
**Maryland**  
FOR THE BETTER

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