

2006 Annual Report

Maryland Department of Agriculture

preserving farmland, protecting consumers, promoting profitable agriculture





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.



Governor
Robert L. Ehrlich, Jr.



Lt. Governor
Michael S. Steele



Secretary
Lewis R. Riley



Deputy Secretary
John R. Brooks, D.V.M.



Wayne A. Cawley, Jr. Building
50 Harry S. Truman Parkway, Annapolis, Maryland 21401-7080
Baltimore/Annapolis (410) 841-5700 • Washington Metro Area (301) 261-8106
MD Relay Service (TTY Users) (800) 735-2258
Toll Free (800) 492-5590 • Fax (410) 841-5914
www.mda.state.md.us



Maryland farmers are on the national forefront of efforts to protect the environment, expand profitability through new market development, respond to emergencies, and address increasing pressures of competing land uses and escalating land values.

During 2006, we made remarkable progress in preserving farmland—reaching a landmark 250,000 permanently preserved acres of through the Maryland Agricultural Land Preservation Program. The Maryland Agricultural Commission developed a strategic plan to guide state policy and the future of farming and delivered it to Governor Robert L. Ehrlich, Jr. An implementation committee now is in place to see that recommendations in the plan move forward.

Working closely with horse owners and the Maryland Jockey Club, MDA was instrumental in containing an outbreak of equine herpes virus-1 that threatened to devastate the state's horse industry. This is the third year in a row that this disease, which seems to be more prevalent around the country recently, has been reported and confirmed in Maryland. As a result of these outbreaks, MDA formed a Horse Health Advisory Committee of the Maryland Horse Industry Board to review animal health policies and make recommendations to help horse owners better protect their animals and MDA respond to emergencies.

Thanks to funding made available by the Chesapeake Bay Restoration Fund and the Governor's commitment to agriculture, farmers signed up a record number of acres for the cover crop program. By year's end, 94 percent of farmland was in compliance with the Water Quality Improvement Act, something for which I thank each and every farmer.

We are pleased that because of MDA's education, regulation, promotion, service and preservation activities, Marylanders can expect a safe and healthy food supply and environment, fairness in the marketplace, and that agriculture will remain a strong economic force.

It is a privilege to serve the citizens of Maryland, the Executive Branch, and the General Assembly. Working together we are creating a very bright future for agriculture and for all Marylanders.

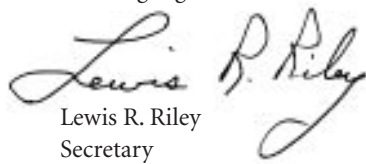

Lewis R. Riley
Secretary

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Cover: Two-time Secretary of Agriculture, Lewis R. Riley, tends his strawberry patch at home in Parsonsburg.
 Photo: Jeff Moreland

The Maryland Agricultural Commission

An advisory body to the Secretary and Deputy Secretary of Agriculture, the commission consists of 29 members representing various industries within Maryland agriculture, and includes both a consumer and a University of Maryland representative.

In 2005, the Secretary of Agriculture requested that the commission to develop a strategic plan for the industry. To develop the plan, the commission focused its efforts during the year on sponsoring the 2006 Governor's Agricultural Forum. The forum, fine tuned information gathered from farmers attending eight listening sessions that were held across

the state in 2005. In August, Agriculture Secretary Lewis R. Riley presented "A Statewide Plan for Agricultural Policy and Resource Management" to Governor Robert L. Ehrlich, Jr. To ensure follow-through on the plan, various commission members are serving on the Implementation Committee, along with representatives from agricultural and conservation groups. The committee members are charged with moving the recommendations in the plan forward. The whole process was intended to be a grassroots effort since this is a road map outlining the future of Maryland Agriculture.

Office of the Attorney General

Staff of the Office of the Attorney General (OAG) represents the department on behalf of the State Office of the Attorney General and provides legal representation and advice. The office routinely provides legal assistance to the boards and units within the department, reviews regulations proposed by various units within the department for legal sufficiency, and assists in producing educational programs for department staff.

In 2006, the office:

- Assisted the department in the imposition and enforcement of a quarantine order against a farmer and slaughter house operator in Carroll County. The case also involves USDA, the Department of Justice, DHMH, the Environmental Crimes Unit, and other local government offices.
- Provided legal services to the Maryland Agricultural Land Preservation Foundation. With over 1,800 land preservation easements (covering 250,330 acres) held statewide, this important program faces an ever growing number of problems

that call for legal services, including issues over the termination of easements, easement enforcement and easement arbitration appeals before the local Property Tax Assessment Appeals Board.

- Assisted the State Board of Veterinary Medical Examiners in licensing and disciplinary matters; its case load has increased 22 percent over the past year (91 complaints up from 71).
- Assisted the Nutrient Management Program in its effort to bring farmers into compliance with the program. This program regulates about 12,000 farmers who are required by state law to have nutrient management plans for their farms or be subject to civil penalties that the department collects. The office handles any appeal hearings before the Office of Administrative Hearings, or further appeals to a court.
- Provided staff support in litigation over the National Tobacco Grower Settlement Trust.

Maryland Agricultural Land Preservation Foundation

The Maryland Agricultural Land Preservation Foundation (MALPF) was created by the Maryland General Assembly in 1977 to preserve productive agricultural land and woodland that provides for the continued production of food and fiber for the present and future citizens of the state. Preservation of agricultural land and woodland helps to curb the expansion of random urban development, protects wildlife and preserves the environmental quality of the Chesapeake Bay and its tributaries.

In order for landowners to participate in the foundation's program, they must first establish an Agricultural Land Preservation District. If the property meets the minimum criteria as established by MALPF, the landowners sign a voluntary agreement stating that the land will be maintained in agricultural use for a minimum of five years. The agreement further states that the land will not be subdivided for residential, commercial or industrial use while under district status.

Once land is in a district, landowners are eligible to apply to sell an agricultural land preservation easement (easement) to the Maryland Agricultural Land Preservation Foundation. During FY 2006, the Foundation approved 211 new districts, representing 21,762 acres belonging to landowners who voluntarily restricted their land for at least five years. As of June 30, 2006, there were 432,627 acres enrolled in the program.

Due to an increase of state transfer tax funds in FY06, 81 easement offers were accepted, covering 8,468 acres. As of June 30, 2006, MALPF has purchased agricultural preservation easements on a cumulative total of 1,817 properties, permanently preserving 250,370 acres.

The 2005 General Assembly passed legislation which will require MALPF and the Maryland Department of Planning to establish a Critical Farms Program to provide interim or emergency financing for the acquisition of agricultural preservation easements on critical farms at risk for being sold for non-agricultural uses.

The General Assembly also passed legislation that will require all counties, when issuing approvals of building permits, subdivisions, and non-agricultural uses or activities, to only issue those approvals on MALPF easement and district properties after an approval has been secured by the landowner from MALPF for the building permit, subdivision, use or activity.

MALPF also partners with other state agencies and local governments to meet a legislative goal (SJ 10, 2002) of preserving 1,030,000 acres of agricultural land by 2022. As of June 30, 2006, Maryland has preserved over 500,000 agricultural acres under MALPF, Rural Legacy, GreenPrint, TDR's and local land preservation programs.



Edwin Remsburg

The Dell's Cranberry Meadow Farm in Carroll County is in farmland preservation.

The Office of Administrative Services

The Office of Administrative Services manages all technical and support services for the department. It is comprised of three sections—Central Services, Fiscal Services, and the Human Resource Office.

The department has approximately 460 permanent and seasonal employees and the Human Resource Office facilitates the recruitment, training, appropriate compensation, and retention of qualified individuals. Programs and services for employees include risk management and total quality management, employee leave bank, teleworking, wellness, and blood drives, training and employee recognition.

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. The office is also responsible for the maintenance and repair of 340,000 square feet of facilities on 44.5 acres of owned and leased facilities throughout the state. The maintenance staff implements energy-saving projects wherever possible. A recycling program uses compost piles to transform

organic waste into mulch, which is utilized in landscaping projects at MDA and other state agencies. The motor pool provides quality maintenance and repairs of the department's 285 vehicles in addition to semi-annual inspections on all vehicles. The MDA fleet traveled more than 2.6 million miles last year.

Central Services provides procurement assistance throughout the department; continues to improve management practices and automated data concerning motor vehicle operating costs, telephone costs and billing, inventory control and minority procurement; and continues to incorporate the financial management information system to improve monitoring, ordering, and delivery of goods and services.

Fiscal Services handles all centralized accounting transactions for the department. This encompasses all phases of the budget, grants management, accounts receivable, accounts payable, payroll and leave management. The office has continued its fine record of paying MDA bills 99 percent of the time, as defined by the State "on-time" guidelines.

Information Technology Services Annual Report 2006

The Office of Information Technology (IT) is responsible for the creation, maintenance and upgrading of the data processing systems at the Maryland Department of Agriculture. During 2006, the network, programming and technical support sections all made significant progress toward the goal of providing both effective and efficient service to the department and ultimately the public that we serve.

Network staff is in the process of upgrading the entire network infrastructure. This will involve both hardware replacement and major software upgrades. To date, new electrical service has been added to the computer room, core network switches have been replaced with Cisco 4507 switches, and new rack mounted servers have been installed. The network software upgrades including file, print and e-mail services will begin early in 2007.

The legacy frame-relay circuit to the Annapolis Data Center (ADC) was replaced with an ATM circuit on Maryland's Statewide Government Intranet (SwGI). This migration has resulted in a significant increase in application performance as well as a significant increase in security. The Cisco ASM firewall that was installed as part of this new circuit will ultimately be used to provide a connection for improved Internet access over networkMaryland and provide a secured area for improved Internet accessibility to MDA resources. The new server network will also have an independent 1GB subnet dedicated to backup processes, reducing the traffic load on the production network at night and during the early morning hours.

The Multi Router Traffic Grapher (MRTG) an open source software package for network traffic volume monitoring was installed in 2006. In addition to monitoring the volume of Internet traffic, this software enabled network staff to identify bottlenecks in our daily backup routines which significantly reduced backup times.

Two security and productivity limiting issues became increasingly important in 2006—SPAM and spyware. SPAM is the term used to refer to unsolicited e-mail. In addition to putting an increased load on the e-mail processing and storage systems, SPAM can also contain viruses, Trojans and “phishing” scams (attempts to collect personal information by misrepresentation). By the end of 2006, greater than 90 percent of all incoming Internet e-mail was identified as SPAM and the daily volume of e-mail more than doubled in a six month period. On several occasions the mail system was completely overwhelmed with the volume. In response to this, MDA is now using an external service to “pre-screen” incoming e-mail and remove a large percentage of SPAM and virus infected e-mail. This has enabled our internal system to further filter out unwanted mail and efficiently handle the reduced volume of incoming messages. In addition, a shared mailbox folder was created for e-mail users as a place to move SPAM that still evaded the filters. This SPAM is routinely collected from this shared folder and used to “train” both SPAM filters to recognize messages that are still getting through to prevent similar messages from getting through in the future.

Spyware is software that is installed on personal computers, usually without the consent of the user, for the purpose of tracking user activity in one way or another. It is often installed on systems as the result of visiting certain websites or responding to carefully crafted SPAM e-mail. This software uses system resources, and in cases where multiple installations of spyware have occurred, significantly reduces performance and presents a potential security problem. Our Technical Support staff received numerous calls about poor system performance due to the presence of spyware during 2006. The IT office evaluated a number of different anti-spyware packages to combat this problem. While no single package proved to be effective alone, the combination of two—Windows Defender and the Anti-Spyware module for McAfee VirusScan were shown to be fairly effective. These two products have now been installed on all personal computers and are automatically updated on a daily basis.

Installing software patches in a timely and efficient manner effectively protects personal computers and the network in general from attacks based on newly discovered vulnerabilities. Updates are also important to fix known problems with the normal operation of system and application software. The IT staff upgraded the Windows Update Services Server in 2006 to the new version which can push out both security patches and application software service packs (e.g. for the Microsoft Office Products).

The configuration of MDA’s Wide Area Network (WAN) changed dramatically in 2006. Primarily due to funding limitations, two thirds (21 Locations) of our remote sites were shut down. Of the remaining sites, all of the Animal Health Laboratory circuits were upgraded to full T-1’s. In addition to the Animal Health Laboratories, all of the Nutrient Management regional offices are connected to the WAN.

The Sigma 5 Applicant Management System was installed by IT staff in 2006 to be used by the Human Resources office as an aid in the employee application and testing process. This system replaces an earlier version of the database that was character-based and no longer supported. It is compatible with Maryland Department of Budget and Management’s system and is necessary for inter agency communication.

The IT office is working with the Maryland Agricultural Land Preservation Foundation (MALPF) to establish a Geographical Information System (GIS) to manage and map agricultural land that is under this program. The workstations to be used in this project have been installed and networked. The GIS data will be stored on a centralized workstation, with independent backup. Eventually the system will be configured to incorporate the tabular data residing in MALPF’s Oracle databases.

The Oracle database behind MDA’s local, web-based FMIS Reporting System was modified to reflect changes in the primary key structure of the centralized AdHoc Reporting database, located at ADC, which is the data source for MDA’s system.

The IT office hosts, supports and assists in the maintenance of MDA’s main website, www.mda.state.md.us. In addition IT Technical Support staff maintains the Maryland Seafood website, www.marylandseafood.org. This website features a searchable database of Maryland seafood producers/retailers, information about seafood festivals, and promotes the sale and use of Maryland seafood products. The website for the Maryland’s Best program, www.marylandsbest.org, is currently being re-designed and when put on-line in 2007 will also feature a searchable database of Maryland’s Best producers/retailers. This website will be on a new hardware/software platform that is consistent with MDA’s other websites and will be maintained by the IT office.

The next generation of the PC based Windows operating system, Vista, was released in November of 2006. Technical Support staff has been evaluating this product throughout 2006, beginning with the first publically available Beta release of the product.

Although migration to this operating system is in the future, we are working with it now to be able to deploy this system securely and efficiently. Concurrently, we are evaluating the latest release of Microsoft Office (2007). Both the operating system and the office suite present a completely new interface to the user which mandates an effective training program be in place to ease the transition from our current environment.

A Microsoft Access database was developed in-house during 2006 to assist in the tracking of service calls, IT equipment purchasing, and to provide a problem solution database. Nearly 1,600 staff hours were dedicated to “Help Desk” calls in support of both field and headquarters personnel during 2006. The IT Technical Support staff is responsible for virtually all IT related equipment/software purchases at MDA. This includes researching hardware/software requirements, as well as most of the bidding, purchase order generation, receiving, and inventory. Most of these purchases involve installation and configuration as well. These processes consume 1,500 hours of additional staff time. Finally, routine software updates, virus/spyware disinfection, and general troubleshooting of workstations account for hours of staff time.

The Technical Support staff are also responsible for MDA’s IT user training program. In 2006, courses were held providing

training in various components of the Microsoft Office Suite (including Word, Excel and PowerPoint) as well as GroupWise e-mail system. Courses at both the beginning and advanced levels were offered. Developed and given in-house, these courses have saved MDA thousands of dollars in outside training expenses.

The IT Programming staff completed a new Oracle database for the Marketing section which will be used to track members of the Maryland’s Best program. An additional module for Veterinary Hospital inspections was developed for the Animal Health section’s suite of Oracle applications and is now in production. A new Cover Crop Oracle database for the Resource Conservation section was successfully developed and installed. IT Programming staff are also working with Resource Conservation and the U.S. Department of Agriculture to develop a protocol for extracting data from USDA databases that is currently not a part of existing MDA Conservation Planning and Nutrient Management Oracle databases. Modifications to Oracle databases within the State Chemist, Turf & Seed, and Egg Inspection sections were effectively incorporated and implemented. As in previous years, a large number of data extractions were regularly performed for both the Board of Veterinary Medical Examiners and Weights & Measures sections.

Public Information and Outreach Offices

The Public Information and Outreach offices reach out to the media, general public, government agency peers, elected officials, the agriculture industry, and to MDA employees with the intent of strengthening the appreciation and understanding of the importance of agriculture and MDA activities to the everyday lives of Marylanders. A Schaefer Center Survey states that the public has an increasingly positive view of many of the agency's priority activities—farmland preservation, purchase of local products and environmental stewardship by farmers—an indicator that public relations efforts at MDA may be having impact over the long term.



Visitors to the Maryland Department of Agriculture's Open House learn about honey bees and honey extraction.

Two of the most prominent public events produced by the Public Information and Outreach offices are the agency's Open House in March and its "exhibits" at the Maryland State Fair in August. Both of these events showcase the agency to thousands of people and require the involvement of dozens if not hundreds of employees. In addition, the office produced the prestigious Century Farm and Governor's Agriculture Hall of Fame awards programs. The offices represented MDA at a number of events such as the Delmarva Chicken Festival, and the Maryland Municipal League, Maryland Association of Counties, and the Maryland Farm Bureau conventions.

During FY2006, staff distributed 242 news releases to approximately 150 news outlets, which generated approximately 635 calls from the media. A new media monitoring system was implemented at MDA and other agencies through a state contract.

During the year, the Public Information Office increased the agency's presence on the Internet, making it the first point of agency contact for more and more people. There were approximately 700,000 unique visits during the year. Without a designated agency web master, a team representing the Information Technology and Public Information offices and the Plant Protection and Weed Management Section keeps the site up-to-date and meets regularly to determine ways to expand and improve it.

Some of the biggest news stories handled by the information office in 2006 were a neurologic equine herpesvirus outbreak at the Pimlico and Laurel race tracks and a private farm in Kent County, the Governor's Agricultural Forum, regulatory action taken at a Carroll County livestock operation, and the Maryland Agricultural Land Preservation Foundation's accomplishment of permanently protecting 250,000 acres of farmland.

Other high-profile media inquiries included the expansion of the cover crop program as a result of consistent funding through the Bay Restoration Fund; successful nutrient management compliance rates; and agricultural bio-security.

Planning for emergency communications in the event of plant and animal disease outbreaks is an important component of the program. The Public Information Office was actively involved in a first-of-its-kind multi-state, multi-agency effort (Delmarva Poultry Industries—Health Departments Joint Task Force) to develop response and communications plans in the event of avian influenza outbreak on the Delmarva Peninsula.

The MDA's outreach office is heavily involved in the Center for Agro-Security and Emergency Management (CAEM), a collaborative effort between MDA and the University of Maryland College of Agriculture and Natural Resources, to coordinate emergency communication and education efforts for the farm/rural community and to help ensure the agricultural and food security of the state and the nation.



The Hutchison brothers of Talbot County were inducted into the Governor's Agriculture Hall of Fame in February 2006.

USDA/National Agricultural Statistics Service

The Maryland Field Office of the U.S. Department of Agriculture's (USDA) statistical agency, the National Agricultural Statistics Service (NASS), provides the public data relating to the production of most crops grown and livestock raised in the state. In addition, annual information is provided on the general economic well being of the state's agricultural sector. NASS statistics are used to administer and support USDA farm programs that benefit Maryland farmers, to determine the feasibility of new ventures affecting our state's farmers, and to direct program research and development.

In 2005—the most recent year that statistics are available for this report—agriculture generated more than \$1.6 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 broilers, greenhouse/nursery products, milk and dairy products, corn, and soybeans. The Maryland Field Office of USDA-NASS estimated there were 12,100 farms in 2005 with an average size of 169 acres. Total land in farms in Maryland was 2.04 million acres, one-third of the state's entire land area.

Maryland experienced good growing conditions for crops early in 2005, resulting in excellent yields for small grains and hay. Hot, dry weather in August and September reduced corn yields and damaged soybean crops, bringing production levels of both crops down. Vegetable farmers had a very good year with both production and prices up. While livestock production and prices remained strong, prices for milk products declined from 2004

To obtain a copy of the complete Agriculture in Maryland 2005 Summary or the 2002 Census of Agriculture, call 410-841-5740 or visit the website at www.nass.usda.gov/md. The Census of Agriculture is conducted once every five years and provides detailed agricultural data down to the county level. Other reports available through NASS include state-level studies on the Maryland nursery and landscape industry and the state's equine industry.



USDA's National Agricultural Statistics Service Maryland Field Office Staff.

Office of Resource Conservation Highlights

The Maryland Department of Agriculture's (MDA) Office of Resource Conservation (RC) works closely with Maryland farmers to plan and implement conservation practices and programs that balance crop and livestock production with the need to protect natural resources. RC provides a range of educational, financial, technical assistance and regulatory programs to support Maryland agriculture and protect natural resources for future generations. The Office works with a number of local, state and federal agencies, while implementing policies established by the State Soil Conservation Committee. Four key areas—Program Planning and Development, Conservation Grants, the Nutrient Management Program, and Conservation Operations—comprise the Office of Resource Conservation.



Wicomico County Soil Conservation District Manager, Kevin Keenan, staffs a soil conservation booth at the Maryland Association of Counties' Convention to help educate county officials about farming best management practices and policies today.

The highlights and accomplishments for 2006 include:

- **Nutrient Management Compliance Reaches 94 percent**—By the end of the calendar year, nutrient management plans aimed at protecting waterways from excess crop fertilizers and animal wastes were being used on approximately 94 percent of Maryland's farmland or 1.25 million acres. During calendar year 2006, MDA's six nutrient management specialists worked to bring 1,100 non-compliant farmers into compliance with program requirements. Contacts with the remaining 500 farmers who have not filed nutrient management plans with MDA are underway.
- **MACS Program Helps the Bay**—The Maryland Agricultural Water Quality Cost-Share (MACS) Program provided farmers with \$9.4 million in grants to install more than 1,600 projects on their farms to control soil erosion, manage nutrients and protect water quality in streams, rivers and the Chesapeake Bay. The projects will collectively prevent an estimated 1.2 million pounds of nitrogen and 13,500 pounds of phosphorus from entering Maryland waterways each year. Cover crops were responsible for 90 percent of the nitrogen savings.
- **Soil Conservation and Water Quality Plans Protect Waterways**—In 2006, soil conservation planners developed 950 comprehensive Soil Conservation and Water Quality Plans for 79,300 acres of Maryland farmland. Another 1,300 plans covering 148,700 acres were updated to ensure their continued effectiveness in protecting natural resources. Together, these plans contained 7,800 best management practices (BMPs) that will help control soil erosion, manage nutrients and protect water quality.
- **Conservation Grants Awarded**—In 2006, MDA received grant awards totaling \$933,000 from the Chesapeake Bay Targeted Watersheds Grants Program for two innovative projects to implement conservation practices on farms in the Choptank and Monocacy River watersheds. The projects are expected to reduce annual nitrogen pollution to Chesapeake Bay tributaries by more than 280,000 pounds.

- **Dairy Demonstration Project**—MDA also received \$1.2 million from USDA's Conservation Innovation Grants Program to demonstrate feed management strategies to reduce nutrients in cow manure and to provide incentives to dairies to transition to management intensive grazing systems.



- **Companies Pledge to Reduce Phosphorus Content in Home Fertilizer Products**—Following in depth negotiations with MDA, the University of Maryland, and other Bay partners—Scott's Miracle-Gro Company and Lebanon Seaboard Corporation—have pledged to cut in half the amount of phosphorus used in home fertilizer products by 2009. Together, the companies serve about half of the residential market in the Bay states.
- **Landmark Legislation Bodes Well For Agriculture**—In May of this year, the Maryland General Assembly passed the *Agricultural Stewardship Act of 2006*, a far reaching bill that will increase funding for agricultural conservation and farmland preservation programs in Maryland. Among the bill's provisions are modifications that allow farmers to harvest cover crops and additional funding for conservation practices financed through the Maryland Agricultural Water Quality Cost-Share (MACS) Program.
- **Hulless Barley Pilot Program Initiated**—In 2006, some Maryland farmers participated in a pilot program to enhance the environmental value of cover crops by growing a new variety of "hulless" barley that will serve a dual purpose of protecting water quality and serving as a feedstock for a proposed new ethanol plant in Maryland. The hulless barley incentive program, which is sponsored by the Maryland Grain Producers Utilization Board and funded under a USDA Conservation Innovations Grant, is expected to further bolster farmer interest in planting cover crops.

State Soil Conservation Committee

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

In 2006, the SSCC authorized or recommended:

- Changes to the eligibility guidelines for the 2006-2007 Cover Crop Program
- Regulatory and statutory changes to the MACS Program that raise funding caps for BMPs and per farm payment limits
- A one year MACS pilot project to evaluate the expansion of practice implementation associated with an imminent start up or situations where farmers plan to expand animal production
- A policy that requires all projects—regardless of cost—to be recorded on property deeds in order to address BMP maintenance issues that occur when property changes hands

Received briefings and tracked the following initiatives:

- The Conservation Effects Assessment Project (CEAP) being conducted in the Choptank River watershed
- A University of Maryland study by Doug Parker on poultry litter use and transport in Caroline, Queen Anne’s, Somerset and Wicomico counties
- The National Strategic Plan for the USDA’s Natural Resources Conservation Service (NRCS)
- Maryland’s tributary strategy implementation plans

In other areas, the SSCC sponsored activities to provide feedback on a nationwide effort by the National Association of Conservation Districts (NACD), the National Association of State Conservation Agencies (NASCA) and NRCS to improve the conservation delivery system. This included a facilitated input session for Maryland soil conservation district supervisors and a survey for technical service providers. The SSCC also developed a tiered process that enables members of Maryland’s Conservation Partnership to evaluate and comment on the state’s conservation delivery system.

Finally, in 2006 the SSCC updated documentation requirements and the evaluation process used to make supervisor appointments to soil conservation district boards.

Program Planning and Development

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

Manure Transport Program

The Manure Transport Program provides grants to help poultry, dairy, beef and other animal producers transport excess manure off their farms. Animal producers with high soil phosphorus levels or inadequate land to spread their manure can receive cost-share assistance of up to \$20 per ton to transport excess manure to other farms or alternative use facilities that can use the product in an environmentally safe manner. To minimize the potential environmental impact of the large number of poultry producers on Maryland’s Lower Eastern Shore, cost-share rates are 20 percent higher for farms located in Dorchester, Somerset, Wicomico and Worcester counties.

In Fiscal Year 2006, the Manure Transport Program provided farmers with \$380,700 in state grant payments to transport 69,000 tons of manure to other areas that could use the product safely. Cost-share funds to transport poultry litter, which accounts for just over half of the manure transported, were matched by Delmarva poultry companies, bringing the total amount of financial support provided to \$674,425.



A Manure Matching Service supports the Transport Program by linking farmers who have excess manure with others who can use the manure safely as a nutrient source.

Geographic Information Systems

A geographic information system (GIS) is a computer system capable of acquiring, storing, analyzing and displaying geographically referenced information that is data-identified according to location. GIS combines data from many sources, including digitized and scanned maps, aerial photography,

soil surveys, and global positioning systems to create a “smart map” of a specific location. In agriculture, this “smart map” is comprised of layers of information concerning soil types, crops, topography, and a farm’s proximity to streams and roads. Because of its ability to manage large amounts of data about a specific location, GIS helps soil conservation planners to more accurately site, design and evaluate the effectiveness of best management practices installed on a farm to protect water quality.

In 2006, Office staff attended training classes to prepare for a migration from Arc View 3.3 GIS software to ArcGIS 9.2, a more advanced and integrated suite of professional GIS applications. GIS applications were developed to monitor the effectiveness of winter cover crops in the Corsica watershed in Queen Anne’s county. In addition, the GIS strategic plan for MDA is currently being updated because of recent advances in GIS software.

Information and Education

The Information and Education Program provides creative, editorial, design, and production services to all program areas within the Office of Resource Conservation. In 2006, efforts to educate Maryland’s agricultural community on Maryland’s nutrient management regulations continued. The office produced the spring and winter editions of the newsletter, Maryland Nutrient Management News, which were mailed to approximately 8,000 farmers and certified nutrient management consultants. A number of farmer publications, direct mailers, annual reports and informational displays were developed or updated to reflect program enhancements and educate both farmers and the public on Maryland’s agricultural conservation efforts.

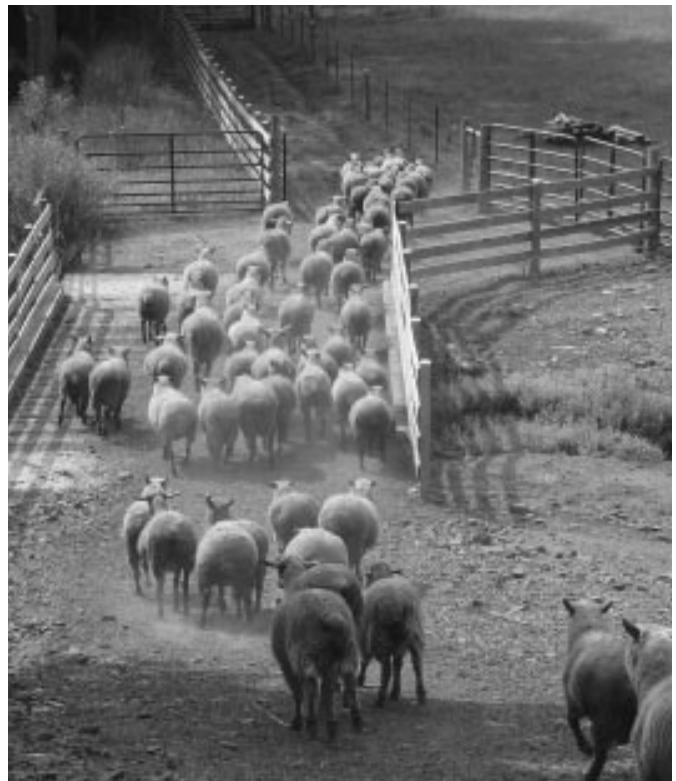
A major campaign to promote the popular cover crop program was initiated in June in order to educate farmers on program enhancements and increased funding. As a result, Maryland farmers were approved to plant a record 290,000 acres of cover crops in the fall of 2006.

In other areas, the office worked with Maryland Cooperative Extension and the Tributary Teams to develop a new brochure for homeowners who want to hire a lawn care service to take care of their lawns. The brochure encourages homeowners to consider a number of environmental factors—in addition to cost—when choosing a lawn care service. Now in its second printing, the popular brochure is available at soil conservation districts, MDA nutrient management regional offices and University of Maryland Cooperative Extension offices.

Convervation Grants

Since 1984, the Maryland Agricultural Water Quality Cost-Share (MACS) Program has helped farmers protect natural resources on their farms, maintain farm productivity, and comply with federal, state and local environmental requirements. Because productive soil and healthy waterways benefit all Maryland citizens, MACS provides farmers with grants to cover up to 87.5 percent of the cost to install best management practices on their farms in order to prevent soil erosion, manage nutrients and safeguard water quality in streams, rivers and the Chesapeake Bay.

In Fiscal Year 2006, Maryland farmers received \$9.4 million in grants from MACS to install more than 1,600 projects on their farms. This figure represents a substantial increase over last year due in part to special funding provided to the cover crop program by the Chesapeake Bay Restoration Fund. The projects will collectively prevent an estimated 1.2 million pounds of nitrogen and 13,500 pounds of phosphorus from entering Maryland waterways each year. Cover crops were responsible for 90 percent of the nitrogen savings. The projects will also help prevent an estimated 14,000 tons of soil annually and 1,300 tons of manure daily from impacting local streams.



A stream crossing keeps livestock out of the water preventing soil erosion.

To help farmers supplement grant payments on expensive structural BMPs such as animal waste management systems and certain types of conservation equipment, Maryland provides Low Interest Loans for Agricultural Conservation (LILAC) to qualified applicants. Guaranteed by the State Revolving Loan Fund, these loans are typically offered at three to four percent below market rates and are available at more than 20 lending institutions with local branch offices statewide. In 2006, MACS worked with the Maryland Department of the Environment and soil conservation districts to provide farmers with just over \$2 million in LILAC loans to help pay for agricultural waste systems, manure handling equipment, conservation tillage equipment and irrigation systems.

Program Highlights and Accomplishments:

- Issued \$352,963 in cost-share grants to 314 farmers who hired private consultants to develop nutrient management plans required by the Water Quality Improvement Act of 1998. The cost-shared plans were used to manage fertilizers on 140,753 acres of farmland.
- During the 2005-2006 planting season, Maryland farmers planted 128,648 acres of cover crops statewide—nearly three times the amount of cover crops planted the previous year—using a record \$4.7 in MACS grants. In addition, signup for the 2006-2007 cover crop program—which ran from June 12 to July 28 of this year—exceeded 450,000 acres.
- Received legislative authorization to raise funding caps in 2006. Effective October 1, 2006, the cost-share ceiling for animal waste treatment and containment projects will increase from \$75,000 per project to \$100,000 per project. Funding caps for the remaining BMPs will increase from \$20,000 per project to \$35,000 per project.
- Provided 74 landowners with \$172,295 in cost-share funds to install riparian buffers and conservation cover on lands enrolled in the Conservation Reserve Enhancement Program (CREP), a voluntary federal-state initiative that pays landowners to take environmentally sensitive cropland out of production and plant vegetative buffers or install other conservation practices.

Maryland Nutrient Management Program

The Water Quality Improvement Act of 1998 requires all Maryland farmers grossing \$2,500 or more annually or raising 8,000 pounds or more of live animal weight to run their operations using a nutrient management plan that addresses both nitrogen and phosphorus inputs. The Nutrient Management



Secretary Lewis R. Riley recognizes Carl Miller for conservation activity on his Frederick County farm during an Earth Day Celebration.

Program oversees a licensing and certification program for consultants and farmers, compliance activities and education and training programs necessary to implement the law.

Program Highlights and Accomplishments:

- As of December 2006, nutrient management plans aimed at protecting waterways from excess crop fertilizers and animal waste were being used on 94 percent of Maryland’s farmland or 1.25 million acres.
- MDA nutrient management specialists visited 1,000 non-compliant farmers in calendar year 2006 and brought 92 percent of these operations into compliance.
- By the end of calendar year 2006, conducted 341 reviews of farmers’ fertilizer records in order to ensure that nutrient management plans are being followed. Provided additional training and guidance to farmers in areas that needed improvement.
- Conducted approximately 150 reviews and field inspections in order to ensure the quality of nutrient management plans prepared by certified consultants. An additional 440 plans required for MDA cost-share projects were evaluated to ensure that they met regulatory standards.

- Certified 24 new consultants who successfully passed the nutrient management exam. These consultants are certified to prepare nutrient management plans for farmers specializing in grain, vegetable, nursery, orchard, poultry, beef, dairy and other livestock operations. To date, 1,066 consultants have been certified under the program.
- During the fiscal year, MDA-certified consultants reported developing or updating 5,802 nutrient management plans covering 668,332 acres of Maryland farmland.
- Trained and certified 71 additional farmers to write their own nutrient management plans. To date, 208 farmers have been certified by MDA to write nutrient management plans for their own operations.
- Partnered with the University of Maryland Cooperative Extension (MCE), to offer 23 comprehensive continuing education workshops for 650 registrants. The program also reviewed and approved 35 classes sponsored by recognized organizations and neighboring universities to help consultants fulfill their continuing education requirements.
- Working with MCE, conducted 35 voucher training sessions attended by almost 800 nutrient applicators. As of August 31, 2006, 4,698 nutrient applicator vouchers were issued.
- Provided financial support to MCE for 27 nutrient management consultants who provide technical assistance to farmers and support nutrient management educational activities, including continuing education, farmer certification and voucher training.
- Reviewed the records and fertilizer programs of 54 suburban lawn care companies to determine program compliance concerning phosphorus and nitrogen application rates, record keeping and soil testing. Thirty-six of the companies reviewed were fully or substantially in compliance with the regulations and 14 firms received a fair rating. Of the four remaining firms, only one was characterized as poor. MDA provided training and follow up to help fair to poor performers improve their fertilizer management programs. An additional 120 firms were contacted during the year and briefed on Maryland's nutrient management requirements.

Resource Conservation Operations

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



Conservation Planning

Much of the work performed by soil conservation districts involves helping farmers protect soil, water and other natural resources on their property. To do this, soil conservation planners working in the districts develop individual farm plans that address site-specific natural resource and environmental issues for each farming operation.

These farm plans, also known as Soil Conservation and Water Quality Plans (SCWQPs), include a menu of BMPs that are used to control soil erosion, manage animal waste, protect water quality and enhance wildlife habitat. Cover crops and streamside buffers are often installed to prevent nutrient runoff from entering waterways. Other more complex BMPs such as animal waste storage structures, livestock crossings, and watering facilities help animal operations protect water quality.

In 2006, soil conservation planners developed 950 comprehensive Soil Conservation and Water Quality Plans for 79,300 acres of Maryland farmland. Another 1,300 plans affecting 148,700 acres were updated to ensure their continued effectiveness in protecting natural resources. Together, these plans contained more than 7,800 BMPs.

Enforcement

Maryland has a procedure in place for addressing cases of water pollution caused by agriculture. The strategy uses a progressive approach to handling individual pollution cases based on the severity of the situation. Conditions that are likely to cause pollution or that have resulted in inadvertent farm pollution require timely corrective action, whereas chronic or

willful mismanagement of farm resources is handled through a formal enforcement action. The Maryland Department of Agriculture and the Maryland Department of the Environment work jointly with soil conservation districts to assess farm management complaints and take action against polluters when necessary. Emphasis is placed on voluntary corrective actions by farmers or landowners with assistance provided by the local soil conservation district or University of Maryland Cooperative Extension. In 2006, 82 agricultural complaints were received concerning sediment and erosion control, odors, manure and livestock concerns. Of this figure, 78 complaints were corrected or dismissed and four complaints are pending.

Agricultural Water Management

To prevent pollution and protect water resources, the office works with local public drainage associations (PDAs) to assure operation and maintenance plans for public drainage systems are technically adequate and properly implemented. In FY2006, technical assistance was provided for the operation and maintenance of approximately 820 miles of drainage ditches.

Also during the year, the Office was actively involved in a number of education and research projects involving ditch-drained agroecosystems. Two field tours of controlled drainage management sites were conducted for university researchers, local, state and federal officials, and other environmental and agronomic organizations. In addition, the group sponsored research projects aimed at developing improved ditch management practices and nutrient removal efficiencies

Tributary Strategy Team Activities

Members of the Resource Conservation Office and soil conservation districts are active supporters and participants in Maryland's Tributary Strategy Teams. These teams—comprised of local citizens, farmers, business leaders and government officials—meet monthly in each of Maryland's 10 major tributary basins to recommend pollution prevention measures and address local water quality problems unique to each watershed with the overall aim of improving water quality in the Chesapeake Bay.

In 2006, the Draft Tributary Strategies Implementation Plan was completed. The public comment period on the plan ended on June 2, 2006 and the comments are currently being reviewed by the Bay cabinet agencies. The Tributary Strategies were updated in 2002 and established new goals to be met by 2010. The updated strategies have very ambitious goals that will require agriculture to reduce its nutrient loadings to the Bay by an additional 50 percent by 2010.

Maryland Envirothon

The office supports soil conservation districts that sponsor the Maryland Envirothon, an outdoor natural resources competition for high school students interested in learning about natural resources and gaining a better understanding of today's complex environmental issues. The Maryland Envirothon challenges students to move beyond the classroom in order to solve real life environmental problems in a natural setting.

Students taking part in the competition spend the year studying Maryland's natural resources with local conservation professionals. Working in teams of five with one to two alternates, students are trained and tested in four natural resource areas including soil, aquatics, forestry, and wildlife, plus an environmental issue that changes from year to year. Teams compete at the local, state and national levels.

A five-member team of students from Clear Spring High School in Washington County won this year's state competition and went on to place 15th among 52 teams from the United States and Canada at the 2006 Canon Envirothon held July 29 at the University of Manitoba in Winnipeg, Canada.

The Maryland Envirothon is sponsored by the Maryland Association of Soil Conservation Districts and the State Soil Conservation Committee. In addition to MDA, contributors and supporters include USDA's Natural Resources Conservation Service, the Maryland Department of the Environment and the Maryland Department of Natural Resources.



Students competing in the Envirothon competition.

Marketing Services

The Marketing Services Division's principle role is to identify and develop profitable marketing opportunities for Maryland farmers and agricultural producers. The division also serves as a conduit for federal resources and for policy information specific to the agricultural sector. These programs have direct and indirect financial impact on farmers and producers and the way they sell their products and develop new buyers. In response to the General Assembly's Agricultural Stewardship bill, the Agricultural Commission's 2005-2006 listening sessions and Governor's Agricultural Forum, marketing staff provided a report to the Governor and the General Assembly on the level of funding that may be needed in order to meet existing and future needs for the marketing program to support Maryland agriculture. The report calls for increased state support of Maryland's Best, the state's buy-local marketing initiative, and a state cost-share for federal crop insurance among other programs.

National Marketing and Agribusiness Development

The Marketing Services staff works with farmers and agricultural producers to assist farmers in marketing their products directly to supermarkets, hotels, food service businesses and to other wholesale buyers as well as directly to consumers at farmers' markets and other venues. The Maryland's Best™ program enables producers to capitalize on the consumer's preference for local agricultural products. The 2006, Maryland's Best campaign promoted Maryland farmers on eight radio stations during the prime growing season as well as press releases statewide throughout the year. The entire campaign was designed to direct consumers to the Maryland's Best website where additional information was available. The website and underlying database are currently being revamped to improve buyer access to information.

Maryland's Best Direct provides opportunities for farmers and producers to sell their products directly to wholesale buyers in Maryland and beyond. In 2006, the division held its fourth annual Produce Buyer-Grower Seminar, introducing 34 Maryland growers to buyers from major chains including Weis, Wal-Mart, Safeway, and Giant. Buyers estimated that the event would result in more than \$1 million in additional purchases of Maryland produce. The division continues to cultivate relationships with more major supermarket chains as well as restaurants, schools, prisons, garden centers, state agencies, and other wholesale buyers, and to work to minimize obstacles to direct-to-wholesaler sales.



Opening day of a new farmers market at the South River Colony Shopping Center in Edgewater, Anne Arundel County.

The marketing office supports the development of 75 farmers' markets in all 23 of Maryland's counties and the City of Baltimore. In 2006, MDA was actively involved with 42 farmers' markets, providing various levels of support from the initial creation and development of new markets to promotional materials and occasional consultation for well-established markets. These markets are an important source of revenue to farmers; farmers estimated their sales (for insurance purposes) at \$2.6 million in 2006.

At farmers' markets across the state, 258 farmers participated in the Farmers' Market Nutrition Programs (FMNP) for Women, Infants, and Children (WIC) and for Seniors in 2006. Funded primarily by USDA's Food and Nutrition Service, FMNP provides fresh produce for nutritionally at-risk women, infants, children and income-eligible senior citizens, while putting cash money in the pockets of farmers. MDA leveraged general funds of \$65,000 to generate a total program commitment of \$675,000. The FMNP is a standing program commitment from USDA and must be administered by a state department of agriculture or similar agency, which requires that MDA provide both staff and general fund resources to continue.

Marketing staff administer and/or provide support for various grant programs, task forces and other activities which improve the policy climate and long-term profitability for farmers. In June 2006, the office hosted the second annual Farming and Land Use Workshop for more than 100 elected and appointed officials from local governments and state agencies to enhance a business-friendly climate for agriculture.

This initiative led to the creation of the Governor's Intergovernmental Commission for Agriculture (GICA) to foster effective collaboration and a consistent and transparent regulatory environment for agriculture statewide. Marketing staffs this Commission as well as the Maryland Dairy Industry Oversight and Advisory Council, the Renewable Fuels Incentive Board, and the Maryland Wine and Grape Advisory Committee. In 2006, staff secured and/or administered grants under the Maryland Agricultural Education and Rural Development Assistance Fund Program (MAERDAF), the Maryland Wine and Grape Advisory Committee, and the Chesapeake Bay Trust's Pioneer Grant Program.

On-going staff assistance and support is provided to other agricultural groups throughout Maryland, including the Maryland Soybean Board, Maryland Grain Producers Association, Maryland Nursery and Landscape Association, Maryland Food Center Authority, Maryland Greenhouse Growers Association, Maryland Agricultural Council, Maryland-Delaware Forage Council, Maryland Organic Certification Advisory Committee, Maryland Organic Food and Fiber Association, and others.

The Maryland Agricultural Conflict Resolution Service (ACReS) provides prompt, low-cost, confidential and collaborative mediation and other services for resolving disputes related to agricultural production. The mediation program, funded mainly by USDA with matching funds from existing state resources, not only serves those who have received an adverse ruling related to a USDA program or other regulatory matter, but also provides assistance for a broad range of issues including those involved in loan servicing and payment issues, farmer-neighbor disputes, family farm and estate conflicts, and more. The program also works closely with other government agencies and organizations on policy development and implementation in order to create a more business- and consumer-friendly face of government. Only state departments of agriculture can request certification by USDA and receive USDA funding for this program; if we did not provide the service, it would not be available to Maryland citizens.

Marketing staff manage a federally-funded program to inform Maryland farmers of crop insurance. This program, financed with \$370,000 from the USDA-Risk Management Agency (RMA), combines the resources of MDA, the University of Maryland, RMA and the National Agricultural Statistics Service to target producers for promotional and educational activities. From 2003 to 2005, participation among Maryland farmers increased by 14 percent—the highest increase in the Northeast. Farmer investment in crop insurance helps stabilize Maryland's agricultural economy. Following the drought of 2002, for example, producers received \$23.4 million in indemnity payments from crop insurance designed to help them survive bad weather, insects, disease, and market fluctuations. The payments translate to more than \$7 for every \$1 spent by producers to purchase crop insurance.



Governor Robert L. Ehrlich, Jr., and Lt. Governor Michael Steele recognize the work of the Dairy Regulatory Review Committee.

International Marketing and Trade Development

The International Marketing and Trade Development office's (IMTD) mission is to increase export sales by Maryland agricultural producers and agribusinesses in order to enhance their economic well being. The staff accomplishes this by conducting outreach and educational programs, organizing and conducting trade promotion activities and facilitating participation by Maryland companies in international trade promotion events. The office's vision is to develop a model for the effective and competitive exportation of all Maryland agricultural products into foreign markets. Staff works closely with farmers, processors and distributors to expand export sales and thereby increase farm income, creating new jobs, both on the farm as well as in value-added food and transportation industries.

The IMTD office focused on two types of activities; market access and international policy and relationships.

The priority areas for market access activities are horticulture, value-added foods, seafood and livestock. Activities ranged from researching new and developing markets, to designing and implementing missions and trade shows, hosting reverse trade missions, arranging one-on-one meetings with buyers and Maryland agribusinesses, conducting seminars, and assisting companies with developing international market strategies. The staff worked with more than 250 agribusinesses in more than 40 countries around the world.

Through international policy and export activities, IMTD participated in the development of export phytosanitary protocols for agricultural products going into new markets. Working with the Foreign Agricultural Service (FAS) and the Animal Plant Health Inspection Service (APHIS) of the United States Department of Agriculture (USDA), IMTD hosted foreign government officials to learn about Maryland and U.S. standards for production and processing of agricultural products. The establishment of fair and scientifically-based import regulations



The International Marketing staff hosted a delegation of racing officials and jockeys from Korea at the Preakness in May. The Koreans have become strong buyers of Maryland racing bloodstock to expand their industry.

in foreign countries will enable Maryland livestock breeders and food processors to further expand their international markets. The ITDM staff is most recently working to resolve the equine protocols for horses being exported to Russia. Staff is working closely with USDA officials in Washington and Moscow as well as with key members of the Russian equine industry on this initiative.

Beyond the normal difficulties of international trade, such as differences in language and business practices, exporting food products, livestock and nursery products poses additional challenges because such products require phytosanitary certificates and adherence to labeling standards. Program staff helps prepare Maryland's agricultural processors, manufacturers, and farmers to be export ready, to develop niche markets that are competitive in the global market place and to pursue an export marketing management program that is results oriented.

Exporting agricultural products provides additional income to farm families and is increasingly important for small- and medium-sized farmers and agribusinesses. The FAS reports that every \$1 of product exported generates another \$1.62 for the economy in related economic activity, such as transportation or packaging. It also reported that employees engaged in export businesses receive higher wages than their counterparts in non-export businesses.

Diversification into profitable export markets can serve as a good risk management tool for U.S. farmers and can help keep domestic prices high. Exporting has become increasingly a part of the maintenance of a profitable family-farm sector and USDA offers a number of incentive programs to encourage farmers and processors to enter the global marketplace. IMTD garners federal funds to underwrite nearly all of its trade missions, trade shows and reverse buyer's missions. Given the complexities of exporting agricultural products, most USDA funds are awarded to state departments of agriculture where they are administered for the benefit of the state's farmers and processors. The Economic Research Service of USDA estimates that Maryland agricultural exports totaled \$244 million in 2005, the most recent data available. The top three agricultural exports were: poultry products, soybean products and feed grains.

International marketing specialists work closely with USDA staff at embassies worldwide and with other organizations to facilitate successful exports of Maryland products to more than 35 countries. Through the Southern United States Trade Association (SUSTA) and the United States Livestock & Genetics Export Association (USLGE) specifically, MDA invested \$12,500 in membership dues which resulted last year in more than \$200,000 in funding for international trade missions managed by IMTD. These activities included reverse trade missions bringing foreign buyers from several countries to visit Maryland farms. Through SUSTA and the Market Access Program (MAP), an additional \$130,000 in federal funding was allocated directly to Maryland companies for their own export promotions.

Export Activities Implemented by IMTD in 2006 included:
China

IMTD continued to identify significant market opportunities for Maryland producers in the Chinese market. Three Maryland companies are receiving targeted and free assistance from a Beijing-based consultant hired by the Southern U.S. Trade Association to assist companies from the region to enter this rapidly growing market. One company participated in a trade show in China in November 2006 and had pre-arranged meetings with qualified importers.

Canada

ITMD participates in Go South!, a Southern U.S. Trade Association program to promote the export of southern fruits, vegetables and seafood to buyers in Ontario and Quebec. Canada is the region's largest trading partner and IMTD is working

closely with growers to enable them to take advantage of selling to our northern neighbor. Currently, Maryland growers of spinach, sprouts and potatoes sell in the Canadian market, but there are significant opportunities for other Maryland products. In general, Canadians consume more fresh produce than do Americans. In the wake of the e-coli outbreak related to fresh spinach in the fall of 2006, ITMD worked closely with Maryland's largest spinach producer, a Canadian importer, USDA Foreign Agricultural Service and the Canadian Food Inspection Service to facilitate the continued export of Maryland-grown spinach to Canada.

Europe

ITMD has worked one-on-one with producers and processors targeting European countries. A consultant hired by the Southern U.S. Trade Association provides marketing assistance to Maryland companies free of charge.

Korea

In May, ITMD welcomed Dr. Woo Jae Lee, President of the Korea Racing Association, and 14 horse breeders to Maryland. The delegation met with Maryland horse breeders, attended the Preakness and purchased horses at the Fasig-Tipton spring auction. The Korea Racing Association is eager to purchase sports and pleasure horses as well as additional Thoroughbred horses to improve their racing industry. ITMD also hosted 12 Korean jockeys who visited Maryland to learn about techniques. The jockeys are eager to receive training in Maryland. Funding for these missions was provided by the United States Livestock Genetic Export, Inc.

Korea is Maryland's third largest market for agricultural products. IMTD is active in the promotion of food and seafood products to Korea. IMTD managed SUSTA's value-added food project for Korea. In 2006, staff organized the participation of three Maryland companies at the Food & Hotel Korea show. ITMD has also worked closely with SUSTA in regard to exporting croaker to Korea.

Mexico

ITMD participates in the newly-formed Agribusiness Subcommittee of the Maryland/Jalisco Sister State Program. ITMD organized the participation of members of the seafood, food processing and nursery industries. With strong private industry support, this subcommittee will focus on developing sales and investment opportunities for both states.

Philippines

In 2005, representatives of the Philippine Racing Commission traveled to Maryland and purchased 16 horses. The Filipinos are determined to improve their racing industry. ITMD has been in frequent contact with the buyers as well as with the USDA Agricultural Trade Officer based in Manila. In a showing of strength for the future of horses from Maryland sales in the Philippines, horses purchased in Maryland won three stakes races at the Don Juan Derby, one of the biggest racing days in the Philippines on October 15. The winning horses were among the first ever purchased in Maryland for racing in the Philippines. The two-year old No Fear defeated Irene's Fantasy, Lady Commander and seven others in the major juvenile race for Thoroughbred fillies in the country, the SLLP Juvenile Fillies Championship. All three of the top placing horses were derived from American sales. Fasig Tipton Sales graduate Deputy Stravinsky won his stakes race. Big Deb, winner of the Don Juan Derby, the big stakes race of the day, was sired by 1996 Preakness winner Louis Quatorze. The stallion stands at Murmur Farm in Darlington.

Successful racing results create a strong draw for international horse buyers to return to Maryland to buy their racing stock, illustrating the importance horse racing and sales operations to our state's horsemen and economy. A delegation, headed by the new chairman of the Philippine Racing Commission, has been invited to Maryland for the spring 2007 sales. General Fianza has indicated a strong desire to purchase more horses from Maryland breeders and is in the process of organizing the planned mission. These missions are financed in part by the United States Livestock Genetic Export, Inc..

Russia

ITMD continues to act as a liaison between Russian equine industry members, Maryland breeders and USDA veterinarians and agricultural trade policy representatives in regard to the establishment of a protocol for the importation of U.S. horses and genetics into Russia. ITMD has built an excellent relationship with the All-Russia Horse Breeders and Racing Association and continues to provide logistical support for visiting buyers. In cooperation with its partners, ITMD continues to host reverse trade missions focused on dairy genetics, meat processing, equine-related products and the development of food processing enterprises in Russia. In 2006, the government of the Russian Federation allocated significant funds to develop agricultural production throughout the country. The contacts and relationships forged by ITMD will prove helpful as Russia seeks both products and technical expertise from abroad.

ITMD managed the Russian Federation Foods Promotion for SUSTA and represented three Maryland agribusinesses at World Food Moscow 2005. In addition, ITMD is working with the U.S. Poultry Export Council to promote the quality and safety of U.S. poultry products. Exports of Maryland poultry products is estimated at more than \$58 million and Russia remains by far the most important market for the industry. Efforts to maintain and increase the export share of U.S. poultry in the Russian market are of critical importance to Maryland farmers

Seafood Marketing and Aquaculture Development Program

Aquaculture Development Program

The Aquaculture Development Program supports the Maryland aquaculture industry through promotional, educational, and technical assistance programs. In 2006, there were 30 commercial aquafarms in production in Maryland. Maryland has eight licensed fee-fishing operations and 50 schools, nature centers, government agencies, and private organizations producing fish, shellfish, and aquatic plants for educational and restoration projects. The industry produces a diverse array of products ranging from traditional shellfish such as oysters to aquatic plants for use in water gardens and shoreline stabilization. In addition, the use of aquaculture products for restoration has been an area of increasing research and interest in recent years.

Legislation enacted during 2005 created the Maryland Aquaculture Review Board, which provides monthly interagency review of permits and issues across departmental lines. The MDA Aquaculture Coordinator serves as Chairman of the Review Board. In 2006, the Board reviewed 11 applications for aquaculture projects in Maryland. These included operations proposing to raise clams, oysters, turtles and fish.

The Maryland Aquaculture Coordinating Council also began meeting in 2006. The Coordinating Council is comprised of 11 designated members from academia, regulatory, and political categories as well as six members from industry appointed by the Governor. The Aquaculture Coordinator serves

as a member of the Coordinating Council and provides administrative support. The Council was charged with the development of Best Management Practices (BMP) for all forms of aquaculture. During the summer and fall of 2006, Council subcommittees met and formulated their drafts. These BMPs are formed from existing state and federal laws and regulations, as well as voluntary measures that are recommended. In all, they create a roadmap for those entering the aquaculture industry to follow as they grow their businesses in the state. The Program assisted the Council in drafting, editing and finalizing the BMP manual.

The overall farm gate value of Maryland aquaculture products in 2006 was relatively unchanged from 2005 at nearly \$4 million. Maryland growers concentrated on the production of aquatic plants, clams, and oysters. Shellfish production will increase again in 2007. Ornamental species continue to dominate Maryland aquaculture production and sales, accounting for more than 85 percent of the total farm gate value.

The Aquaculture Development Program continues to provide the industry with the opportunity to participate in regional, national, and international trade shows, conferences, fairs, and tours in order to promote and market Maryland farm-raised products. Cooperative programs with the Maryland Waterman's Association, Maryland Sea Grant, Maryland Seafood Marketing Advisory Commission, the National Aquaculture Association, and many other organizations are essential to providing aquafarmers with these opportunities.



Seafood Marketing Program

The Seafood Marketing Program promotes increased sales and consumption of Maryland seafood and aquaculture products through consumer education, promotion, public relations, and advertising. The total estimated value of the Maryland seafood industry is more than \$700 million. There are 75 processing plants employing 1,471 people and more than 6,000 watermen who work the Chesapeake Bay. In 2005, 49.5 million pounds of seafood was landed at a dockside value of more than \$49 million.

Advertising funds are generated from a \$10 surcharge fee collected from commercial fishing and seafood processing licenses. In 2006, the fee garnered \$65,000. Funds were used to place advertisements in newspapers and trade journals and for special promotions. The use of the \$10 surcharge is overseen by the Seafood Marketing Advisory Commission and the Tidal Fisheries Advisory Commission. The Seafood Marketing Advisory Commission is composed of 11 industry members who recommend marketing activities.

The program's website, www.marylandseafood.org, features information for consumers as well as wholesale and retail dealers of seafood. It includes a searchable database, seafood handling and nutrition information, recipes, cookbook order forms, an annual seafood festival list and information on starting aquaculture ventures. In 2006, the site had over a million hits.

In order to promote the sales of Maryland crabs and crab meat in the fall, when crabs are at their peak and prices as well as demand drop, the Seafood Marketing Program developed an advertising and news release program. The products included a 30-second television ad that aired over a two-week period in October on Baltimore Channel 11 and on the Eastern Shore channels 16 and 21. Newspaper ads were placed in the Baltimore Sun and radio ads were placed on the Baltimore Orioles network during games. The program provided retail markets with point of sale materials to inform customers that they sell Maryland crab meat. News releases were sent out to inform consumers of the advantages of buying Maryland crabs and crab meat in the fall.

Other seafood promotions, including newspaper, radio, and internet advertising and recipe distribution, revolved around seasonal availability and holidays. Advertising campaigns included: "Celebrate the Holidays with Maryland Seafood," "Fish on Fridays" in the spring, and "October is Maryland Seafood Month."



Tafari Campbell, winner of the Chesapeake Seafood Challenge and 2007 representative of Maryland in the Great American Seafood Challenge.

After an article about Mycobacteriosis in striped bass, resulted in the loss of charter boat business and the potential decrease in sales of commercial striped bass, a press conference was held at the Governor's mansion to assure the public that striped bass was safe to eat. The Maryland departments of agriculture, natural resources, environment and health and mental hygiene developed joint press releases on the subject and distributed information to the food press, seafood industry and restaurants, and on line.

The program distributed 10 news releases to more than 300 food editors in the mid-Atlantic region. The topics covered seasonal species, special events and promotions. Consumer education included in these news releases discussed safety, handling, and nutrition information. The releases included photos and recipes with an opportunity for consumers to request more information or recipe brochures by mail, phone or website. These releases are posted on the Maryland seafood website.

Program staff participated in a wide array of trade shows, conferences, exhibits and special seasonal events including: International Boston Seafood Show, International Restaurant Show, the Mid-Atlantic Food Service, Lodging and Beverage Expo, East Coast Commercial Fishermen's and Aquaculture Trade Expo, Maryland Dietetic Association Annual Meeting and Exhibit, MDA's Open House and the Maryland State Fair. At the events, informational literature, point of sale information and Maryland seafood samples were offered. At the International Boston Seafood Show, space is shared with industry members, assisting them in marketing their products. The program sponsored and administered several seafood cooking contests including: National Oyster Cook-off, Great American Seafood Cook-off, Rockfish Celebration Cooking Contest, the Mid-Atlantic Chesapeake Seafood Chef Contest and the National Hard Crab Derby & Fair Cooking Contest.

The Seafood Marketing Program is involved in seafood education through various programs including the sponsorship of the Maryland Watermen's Association's "Waterman in the Classroom" project. This program enables watermen to visit schools to educate students on the life of a waterman and includes lessons on ecology. The program also developed and presented a continuing education seminar on seafood for professional chefs.

The Seafood Marketing Program administers the Maryland Crabmeat Quality Assurance Program. This voluntary program, which the industry helps fund, provides an extra level of sanitary inspection and education through the Maryland Sea Grant Program. Product and environmental surfaces are microbiologically tested and evaluated for *Listeria*, *E-coli* and bacteria plate counts. More than two-thirds of Maryland crabmeat processors belong to the quality assurance program. Participation in the program allows them to use the "Maryland label" on their packaging. The generic "Maryland label" is promoted and advertised nationally through trade shows and trade magazine advertising. Future plans for this program will include elimination of shell in product for an extra quality assurance.

The program continues to distribute Maryland seafood information on safety, handling, nutrition and recipes. These are distributed through travel centers, seafood markets, grocery stores, direct consumer requests, trade shows and the website. The program also produces and distributes a variety of point of sale materials including: decorations, pins, table tents, menu inserts, and posters. The program sells the world-famous Maryland Seafood Cookbooks and uses the funds to offset the cost of printed materials.

The program participated in meetings that were held to discuss the cap limit of H2B (guest workers) program of the federal government. The Maryland seafood industry processors depend heavily upon this program to provide seasonal employees. Many plants would have had to close due to the lack of workers if the cap had not been lifted. Senator Barbara Mikulski led the passage and signage of legislation to lift the cap for two seasons. New federal legislation is being debated in Congress to revise the H2B program to eliminate the shortage of workers for the future.

The program continues to represent MDA on the Maryland Oyster Steering Committee which was previously the Oyster roundtable. The committee advises DNR on oyster issues and is currently studying power dredging and dredged oyster shell program.

The Seafood Program Management Team that oversee the Innovative Seafood technologies Program was appointed by MDA Secretary Lewis R. Riley. The Team consists of twelve industry members and six University and state employee advisors. The Program is administered by the University of Maryland Sea Grant Cooperative Extension Program at UMES. This Program is the result of legislation passed in 2005 from the recommendations of the Seafood and Aquaculture Task Force. Currently, there is no funding for this program.

The Program has increased its responsibility for the marketing of Maryland seafood internationally. While there is no increased funding for such activities, the Program was able to work on a few projects. These included SUSTA (Southern United States Trade Association) activities such as; distributing invitations to exporting Maryland seafood companies to participate in various trade shows in Korea, Canada, China, and Brussels. The Program also assisted in a reverse trade mission with a group of seafood buyers from Korea at the International Boston Seafood Show.

Animal Health Program

The Animal Health Program of the Office of Marketing, Animal Industries and Consumer Services is responsible for preventing and controlling infectious and contagious diseases of Maryland livestock and poultry. This is accomplished through regulatory programs of the agency that are executed regionally in conjunction with governmental partners and the animal industries. A key component of these programs is the Animal Health Diagnostic Laboratory System, a network of five regionally oriented facilities providing closer access to services than are available in any of 48 other states. The regional staff members work closely with counterparts in state and local government, neighboring states and the federal government to ensure an efficient team effort for disease prevention, detection and control.

One of the major accomplishments of 2006 was initiating and largely completing the transition to a regionally oriented system of integrated animal health services delivery. Previously, laboratory (diagnostic) and field (regulatory) services in regions around the state reported to different leaders. Now, of six animal health regions across Maryland, the five with laboratory facilities report for all activities and purposes to the Assistant Chief for Regional Services. The sixth region is based in Annapolis and reports directly to the State Veterinarian.

As part of a comprehensive internal evaluation, the Animal Health Program reviewed all policies, practices and procedures to determine where improvements were needed. Many recommendations have already been implemented. As part of that ongoing effort, the program initiated a review of current and proposed regulations and is in the process of numerous updates of these critical regulatory tools. Several positions were realigned and position descriptions modified to reflect new paradigms and



Some of Maryland's Animal Health laboratory and field veterinarians pose with agriculture officials and royalty after a walk-through of a veterinary inspection of animals arriving at the State Fair. Show animals must meet certain health standards to exhibit at Maryland fairs and shows.

operating imperatives. Several key vacancies were filled, including a field veterinarian and inspector for the West Central Region and several laboratory scientists and support staff across the system.

With the continued threat of foreign animal diseases and the unprecedented spread of avian influenza across Asia, Europe and Africa disease surveillance continues to consume a large amount of staff effort. The polymerase chain reaction diagnostic equipment the Salisbury laboratory acquired in 2004 enabled the state to meet the new national standard of testing 100 percent (up from 40 percent previously) of commercial broiler flocks prior to slaughter and has been adapted to detect additional disease agents. This equipment gives the agency a rapid response to any potential outbreak by returning preliminary results in a matter of hours. Federal monies from various cooperative agreements continue to be utilized for staff effort and testing activities in addition to necessary laboratory upgrades allowing for more efficient and effective disease surveillance. New USDA cooperative agreements oriented toward avian influenza prevention and control will provide for up to three additional staff members for two years.

Avian influenza is but one of the scenarios the program addresses in emergency planning. There have been numerous advances in 2006, starting with the activation of an after hours on-call hotline to enable private veterinarians, government officials and others with time sensitive animal health concerns to contact program staff after normal business hours. The hiring of a departmental emergency programs coordinator, was another first. Animal emergencies represent a large share of the department's exposure to emergency operations.

The program has participated in numerous industry emergency planning activities and supported those activities in numerous local jurisdictions. The program has been a national leader with other Delmarva partners in developing improved technologies and tactics for detecting and responding to emergency poultry diseases (EPD), including protecting the health of workers participating in EPD responses. Animal Health Program personnel continue to collaborate with the Department of Health and Mental Hygiene and the Board of Veterinary Medical Examiners to recruit, train and organize the State Veterinary Volunteer Corps, a group of approximately 100 veterinarians and technicians willing to support emergency operations of the program when activated. In 2006, Veterinary Corps members were provided several opportunities for group and individual training, with more planned in the near future.

In 2006, the Animal Health Program along with the Maryland Veterinary Medical Association and other partners saw the fruition of several years of effort to bring SART, the State Animal Response Team into existence, with the SART Summit held in July. While similar in part to the agency-sponsored Veterinary Volunteer Corps, SART is a non profit entity with broad membership among those with responsibilities, interests and resources for animal emergency situations. It includes those in agriculture, academia, emergency planning, law enforcement, animal control, the military, humane organizations, health departments, private veterinary practice, wildlife interests as well as interested citizens. SART serves as a mechanism for multi-entity coordination and training to better address various emergency situations involving animals, such as foreign animal disease incursions or animal sheltering in disasters.

During the past year, the program was able to obtain seats at the Plum Island Animal Disease Center to train three staff veterinarians with live agent foreign animal diseases (FAD). The program also executed an agreement with the USDA to co-sponsor the FAD Practitioner Course at the College Park Animal Health Diagnostic Laboratory. The course is designed as an interim level of training for veterinarians who have not attended the live agent training at Plum Island or as a review



L-R, Maryland Racing Commission Veterinarian Dr. David Zipf, State Veterinarian Dr. Guy Hohenhaus, and Maryland Jockey Club Chief Operating Officer, Lou Rafetto at one of many press conferences held to make horse owners and the public aware of the equine herpes virus situation in Maryland in January 2006 and actions necessary to contain it.

for those who have. Demand for live agent FAD training far exceeds available capacity at Plum Island and this local training has improved readiness nationally. Ten Maryland veterinarians, including two members of the Veterinary Volunteer Corps have received this training during the three one-week courses presented during 2006. Three additional courses are scheduled for 2007.

The 2006 fair and show season presented more opportunities for disease surveillance and producer education concerning biosecurity and the prevention of infectious diseases. The Field Inspection staff, augmented by other program staff, exhibit officials and trained volunteers, inspected livestock and poultry on entry to events and during the course of the exhibition. A comprehensive evaluation of the regulations and procedures pertaining to livestock exhibition in the context of new and emerging disease threats has led to a new paradigm in regulating livestock exhibitions which will be implemented in the 2007 season.

Other livestock diseases such as bovine spongiform encephalopathy (BSE or mad cow disease) in cattle and scrapie in sheep and goats continued to be part of our surveillance programs.

In January, the program responded to an equine neurologic herpesvirus outbreak in the thoroughbred racing industry. Existing response protocols were modified for application this unique sector of the industry and to utilize the rapidly evolving diagnostic technologies available. At the same time, there was an outbreak of vaccine-associated infectious laryngo-tracheitis

on the Delmarva Peninsula which was contained by aggressive industry biosecurity efforts and rapid diagnostics of the laboratory system.

Johne's disease in cattle continues to be a serious threat to profitable dairy and beef operations. Animal Health staff efforts have assured that Maryland's part in the National Johne's Control Program has steadily grown in momentum. A great deal of energy has been put into the educational/informational process to producers. This involves enlisting the support of practicing veterinarians as well as producers. Despite projected federal support cuts for 2007, the Johne's Program is expected to maintain momentum and growth during the coming year because of strong industry support and the ability to accomplish significant diagnostic effort with state-supported staff.

This year saw continued progress in the Maryland Department of Agriculture's participation in the USDA National Animal

Identification System (NAIS). The first step of registering producer premises is well underway. To date there have been nearly 1300 premises registered in Maryland. The program also is aggressively registering poultry premises to comply with legislation enacted in 2005.

Throughout the year other MDA Animal Health programs remained active. These included the licensing of livestock markets and dealers, issuance of permits to hatcheries and dealers of poultry and hatching eggs, investigation of antibiotic residues in meat, accreditation of new veterinarians and overseeing the Maryland Contagious Equine Metritis program for horses coming into the United States from overseas for breeding purposes. Maryland is an active participant in the National Poultry Improvement Plan (NPIP) and continues longstanding obligations to NPIP as well as vigorous participation in recent expansions of NPIP activities in response to avian influenza concerns.

Maryland Horse Industry Board

The Maryland Horse Industry Board (MHIB) is made up of the Secretary of Agriculture and 11 members appointed by the Governor to four-year terms. Chapter 416, Laws of Maryland of 1998 defined six statutory duties of the Maryland Horse Industry Board: licensing and inspecting horse stables in the State, advising the MDA on matters affecting the horse industry, and supporting research, education, and promotion of the Maryland horse industry.

As the commodity board for the Maryland horse industry the Board is positioned to continue to develop and to grow the success of the



recreational horse industry. It also is working to re-establish the prominence of the Maryland horse racing and breeding industries.

Key Accomplishments in 2006

Completed the Feasibility Study of the Maryland Horse Park.

A special committee selected a site in Gambrills, Md. for evaluation of its merits as a potential home of the Maryland Horse Park. This proposed facility would essentially create a large scale market for Maryland equine goods, and services as well as an attraction for increased business, media attention, and marketability of Maryland's equine industry. The establishment of a Maryland Horse Park would generate more than \$123 million a year in economic impact on the local and state economy; over 1,900 new jobs; and millions of dollars in annual tax revenue from tourists. This project was one of the original goals of the MHIB and will remain as such until its completion.

Licensed 503 horse stables through 2006

The licensing of 503 horse stables reflects an increase of 30 stables since FY 2005.

Awarded \$20,916 in Maryland Horse Industry Grants

Projects funded with MHIB grants include 4-H youth educational programs, therapeutic riding programs, horse rescue programs, adult education through Maryland Cooperative Extension, university research and teaching projects, promotional campaigns for Maryland equestrian events. The money for the grant program is derived from special funds obtained through the Maryland Equine Feed Assessment, and is thus funded entirely by the equine industry itself.

In conjunction with the MDA, obtained federal and state funding for the feasibility study of an International Import and Export Facility for horses and other livestock.

As international marketing

efforts continue to attract foreign buyers to the Maryland market and Maryland horse competitions continue to gain in popularity, there is an increased need to improve the quarantine and transportation options in the mid-Atlantic region. The creation of an animal export and import facility associated with the Thurgood Marshall Baltimore-Washington International Airport (BWI) would enhance the potential of the equine industry thereby preserving working lands by reducing transportation costs, enhancing the marketability of Maryland horses to foreign buyers, and improving access to in-state events.

Assisted several MDA divisions in their implementation of policies, statutes, and regulations as they relate to the Maryland horse industry.

Sections of the MDA which have been assisted by the MHIB include but are not limited to Resource Conservation, Nutrient Management, Agricultural Land Preservation, Animal Health, National and International Marketing, and the Office of the Secretary.

Began meetings of the MHIB—Health Advisory Committee

This committee was established to advise the MHIB on matters of equine health and disease in the state and to ensure the establishment and implementation of effective industry and



Combined Driving competitors in the cross country phase at Fair Hill International.

Chris Steele

community communication vehicles. Other mandates of the committee are to review and offer advice on Maryland policies and protocols regarding reportable diseases; Maryland statutes and regulations relating to equine health; Interstate health requirements; capabilities of MDA's five Animal Health Diagnostic Laboratories; and emergency preparedness protocols.

The main challenges the Board faces in the next year are:

- the loss of revenue, horse businesses, and horses from the breeding and racing sectors of the Maryland horse industry due to an uneven economic playing field which has been created by the installation of slot machines in neighboring states race tracks;
- raising enough funds to cover the cost of conducting an equine census in 2009 and economic impact report on the status of the Maryland Horse Industry. The estimated \$180,000 needed to conduct the census is beyond the current budget.

The information from a equine census and economic impact report will prove vital in analysis related to the Maryland horse industry including the perceived, but as of yet unstudied, decline in Maryland's racing and breeding sectors;

- the limited budget for the promotion of the Maryland horse industry. The MHIB has a budget of less than \$120,000 (including staffing) of which approximately \$115,000 comes directly from the horse industry and does not include revenue generated from the Maryland horse industry by other sections of the MDA;
- finalizing the Maryland Horse Park Project and transferring the project to the Maryland Stadium Authority to begin the next phase of the project; and
- the sunset of the Maryland Feed Fund law which will eliminate the funding of the activities of the MHIB.

Maryland Horse Industry Board, 2004-2006

Category:	Year 2004	Year 2005	Year 2006
Number of stable licenses issued	429	473	463
Number of inspections performed annually	418	495	468
Number of facilities inspected and in compliance	99%	99%	100%
Revenue collected from licensing, and inspecting horse stables in Maryland and directed to General Funds.	\$32,175	\$35,475	\$34,725
Revenue collected from assessment based on tons of horse feed sold \$90,356 in Maryland, at \$2 a ton ¹	\$91,826	\$108,356 ¹	
Percentage of total special fund revenue distributed as grants for the Maryland horse industry. ²	29%	25%	33%
Total amount of money distributed as grants for promotional, educational, or research projects for the Maryland horse industry.	\$25,895	\$22,952	\$35,721
Staffed booths or presented talks at trade shows, conferences, fairs and exhibitions promoting Maryland equine.	10	12	20 ²

¹ Increase due to adjustment made to budgetary cycle. Previously the April 1st through June 30th feed fund assessment quarterly payment, had been counted in the following fiscal year as the payment was due by July 30th, this quarterly payment will now be considered as revenue from the fiscal year it was obtained.

² Increase due to Maryland Horse Park feasibility study.

The Maryland State Board of Veterinary Medical Examiners

The State Board of Veterinary Medical Examiners (SBVME) is responsible for setting standards to which veterinarians, registered veterinary technicians, and veterinary hospital owners must comply through statutory and regulatory adoptions and amendments. The SBVME also licenses and registers veterinarians; licenses and inspects veterinary hospitals and humane organizations; registers veterinary technicians; provides disciplinary information to other state veterinary boards and the public; and submits licensure verification to other state licensing boards upon request. Additionally, the SBVME investigates consumer complaints, initiates its own investigations, and determines whether disciplinary action shall be taken against licensees or registrants. Requests for approval of continuing education credits are reviewed by the SBVME.

The SBVME consists of seven members appointed by the Governor to serve five-year terms. Five of the members are veterinarians; of these five members, two must be primarily large animal practitioners. The remaining two members are consumers. SBVME staff consists of an executive director, administrative specialist, office secretary, and two agricultural inspectors, both of whom split their time between the SBVME and the Maryland Horse Industry Board.

One of the primary goals this year was to hire an individual to work as an investigator for the SBVME. The SBVME has been working in conjunction with the Human Resource Office of

MDA to develop a position description to meet the SBVME's needs, which shall include, but not be limited to, the investigation of animal cruelty by veterinarians. The SBVME will be the first program at MDA to employ an individual for the express purpose of investigating the more complex and serious allegations presented by the public.

The SBVME has revived its relationship with the State Veterinary Technician Committee, and met with its new chairperson, in April. Currently, regulations are being developed on new continuing education requirements for registered veterinary technicians, and the SBVME is sponsoring a survey created by the Committee to be mailed to registered technicians.

During the second half of 2005, and the first half of 2006, SBVME staff devoted a great deal of time in assisting the Information Technology department of MDA in the creation of an electronic database that included information on registered veterinary technicians and veterinary hospitals. For the first time ever, veterinary technician registrations and hospital licenses were processed with the aid of that electronic database. Meetings with the IT department, and data entry training of temporary office staff, also resulted in the creation of a database whereby the results of hospital inspections for the last few years may be queried. Supplementary work is being performed to also streamline the registering of veterinarians—changes of which are anticipated to begin with the FY2008 registration cycle.

Key Statistics from the Past Three Fiscal Years

Category	2004	2005	2006
Licenses issued to new veterinarians	133	166	127
Registrations issued to veterinarians	2,275	2,376	2,385
Registrations issued to registered veterinary technicians	69	86	75
Licenses issued to veterinary hospitals	481	495	492
Percentage of veterinary hospitals inspected and in compliance	85	99	98
Number of new complaints received	66	71	91
Number of complaints pending from previous year	27	29	24
Number of complaints closed	64	64	54

A major project is underway to sort through several years of paper files and enter vital information into the SBVME's database on disciplinary actions taken against veterinarians. Such work is expected to streamline the process for fulfilling public information act requests and reporting such actions to the American Association of Veterinary State Boards (AAVSB), of which the SBVME is a member.

SBVME staff also has begun writing content for a revised webpage, to include, at a minimum, applications for prospective licensees and registrants and instructions for completing those applications, guidelines for submission of continuing education approval, and information on the SBVME's most recent regulatory amendments.

This year, the SBVME made significant changes to its regulations for individuals seeking to become registered veterinary technicians in Maryland, which included, in part, the following: altering the format of the State Board Examination from a clinical examination to a jurisprudence examination; providing an additional option to the existing formal educational

requirement, to open the doors to a wider pool of candidates; and allowing veterinary technicians registered in other states or foreign jurisdictions to apply for registration with the SBVME, provided certain conditions are met.

In addition to completing the projects described above, the SBVME has two crucial challenges to overcome; the first being the hiring of a part-time attorney, and the second being the offering of on-line registration. Auxiliary legal assistance is needed to prosecute the increasing number of cases warranting the issuance of formal charges by the SBVME. As evidenced by the statistics listed below, the number of complaints either filed with the SBVME or initiated by the SBVME in 2006 rose by 22 percent. Due to constraints placed on the current legal staff, which also serves other programs within MDA, it has become increasingly difficult for them to take actions that are requested by the SBVME in a timely manner. The second challenge—offering on-line registration to licensees—is one that would benefit enormously not only many of the SBVME's stakeholders, but would also permit the SBVME's staff to carry out its other responsibilities more expeditiously.

Weights and Measures

The and Measures Section has a mandated responsibility to inspect and test all weighing and measuring devices used in buying and selling of commodities or the exchange of goods and services. Prepackaged commodities are inspected and tested for accuracy of quantity statements and compliance with labeling requirements. Investigations and test purchases are conducted to prevent fraud in quantity and measurement determinations during commercial transactions and in response to consumer complaints. Routine monitoring of commercial transactions occurs to assure that proper measurement and methods of sale for commodities are employed. These efforts provide a level playing field thereby protecting both buyer and seller.

While the federal government has some limited responsibility for weights and measures controls, the states have historically taken the initiative in this area. Today, enforcement in the United States is recognized primarily as a state government responsibility. The federal government plays an important role by providing assistance to the states through the National Institute of Standards and Technology (NIST). NIST is responsible for maintaining the national standards and operating a laboratory for certification of standards. The National Conference on Weights and Measures (NCWM) in cooperation with NIST develops and promotes uniformity in standards, laws and inspection methods to provide maximum public protection through an equitable marketplace. The NCWM also manages the National Type Evaluation Program (NTEP), which type-certifies weighing and measuring equipment prior to entering the marketplace.

In FY2006, the field staff conducted approximately 51,350 inspections of commercial weighing and measuring devices. This is approximately 3,000 less devices than the previous year. The inspectors also tested 12,759 individual lots of prepackaged commodities offered for sale. This is approximately 2,700 lots more than the previous year. In FY2006, the field staff investigated 567 consumer complaints, an increase of 125 from the previous year. The increase has caused the decrease in device inspections. The large number of complaints is contributed to consumers being more aware of the Weights and Measures Section. The investigation of consumer complaints is given priority over routine inspections.

Funding for the field inspection program continues to be an important issue. The field inspection program currently operates on special fund revenue collected from device registration fees. The 1992 Maryland General Assembly established the registration fees to offset General Fund budget reductions. Fees were increased through legislation passed in the 2005 Maryland General Assembly. The increased fees are only a temporary fix to the funding of weights and measures inspection staff. The statewide interval between inspections has risen to approximately 18 months. We anticipate this trend will continue due to the size (18 field inspectors) of the current inspection staff. In light of our funding issues, the Weights and Measures Section continues to review the operational aspects of the program in an effort to maintain an acceptable level of service.

The registration of approximately 7,200 businesses has created a database that has become an effective management tool. It allows the administrative staff to put our limited resources in the most critical areas and provides each field inspector a tool to plan their inspection work more effectively, thereby reducing driving time and providing more uniform inspection coverage. This information will assist the section in prioritizing its limited resources to protect Maryland consumers and maintain a level playing field for industries that operate in the state.

The section published regulations for the Voluntary Registration of Service Agencies and Service Technicians early in FY2004. This program establishes controls over the installation, servicing or repairing of commercial weighing and measuring devices with a goal of reducing the number of callback or follow-up inspections necessary each year. Currently, 43 states have a program establishing some type of control over the installation, servicing or repairing of commercial weighing and measuring devices. The effort has produced some additional special funds for the section, but not nearly enough to eliminate the problems we have encountered in the last five years.

Maryland's Metrology Laboratory maintains primary standards of mass, length, volume and temperature that are legally traceable to the National Institute of Standards and Technology and provides a measurement capability at the state level that is consistent with national measurement goals.

The Maryland Weights and Measures Laboratory is recognized by the National Voluntary Laboratory Accreditation Program (NVLAP) for compliance with criteria set forth in The International Standard ISO/IEC 17025:1999 and relevant requirements of ISO 9002:1994.

The NVLAP is an independent agency under NIST in Gaithersburg, Md. NVLAP accredits testing and calibration laboratories that are found competent to perform specific tests or calibrations, or types of tests or calibrations.

It is the laboratory's policy to provide the highest quality measurement services attainable, to clients and field staff, through a continuous improvement of the quality system. Following the International Standards, the Maryland Weights

and Measures laboratory assures consistency and accuracy in regulatory activities and test measurement services for many industries, including manufacturing, science and technology, in addition to calibration laboratories and government agencies.

Maryland's National Type Evaluation Program (NTEP) Laboratory is authorized as one of only four fully participating laboratories in the nation. NTEP laboratories are authorized by the National Conference on Weights and Measures. Meeting the required performance standards and formalized 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.

Weights and Measures Activities Tables—Field Inspection and Test Effort

	2004		2005		2006	
	Percent in Violation	Total Tests	Percent in Violation	Total Tests	Percent in Violation	Total Tests
A. Weighing System						
Large Scales	33.4	1250	30.7	1326	35.5	1,269
Medium Scales	17.0	1040	18.8	977	20.0	1,315
Small Scales	18.1	11806	14.0	10,615	16.0	11,289
B. Liquid Measuring Systems						
Gasoline Dispensers	17.2	33,419	16.8	38,838	18.7	35,486
L P Gas Meters	32.0	466	28.5	460	26.7	511
Vehicle Tank and Other Large Meters	14.0	1,187	13.5	1733	15.5	1,323
C. Grain Moisture Meters	9.5	139	16.0	143	9.0	157
D. Programmed Tare Inspections	8.4	4,550	10.0	3,955	10.8	4,640
E. Price Scanning and Method of Sale	3.0	8,140	2.2	9,892	3.4	8,161
F. Delivery Ticket Inspections	2.0	2,257	1.7	3,055	1.7	2,572
G. Package Lots	12.0	12,100	11.2	10,029	12.5	12,759

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

Weights and Measures Activities Tables—Laboratory Effort Inspection and Test

	2004		2005		2006	
	Tested	Rejected	Tested	Rejected	Tested	Rejected
Weights	6,996	9.5	6,490	10.5	6,901	5.1
Volumetric Measures, (Non-Glass)	128	40.0	243	38.0	188	32.4
Length Devices	5	0.0	5	0.0	0	0.0
Temperature Devices	67	6.0	61	0.0	46	0.0
Timing Devices	0	0.0	9	0.0	0	0.0
Volumetric (Glass)	2	0.0	0	0.0	12	0.0
Scales/Meters	0	0.0	0	0.0	0	0.0
Milk Samples	172	3.5	160	2.5	114	2.6
Standard Grain Samples	701	N/A	700	N/A	654	N/A

The Laboratory involves technical support of the field effort and provides a base of measurement for Weights and Measures officials. Additionally, it provides measurement support for other State agencies and Maryland industries.

Weights and Measures Activities Tables—Administrative Controls and Miscellaneous

	2004 Number	2005 Number	2006 Number
Weighing and Measuring Devices Registration Certificates, Issued	7,489	7,373	7,239
Type Evaluation of Devices Conducted (NTEP)	56	55	57
Samplers and Testers Licenses, Issued	24	19	19
Citizen Complaints Received and Investigated	446	442	567
Disciplinary Hearings, Criminal Arrests and/or Summonses Obtained	10	18	18

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

Food Quality Assurance Program

Grading Services

The Grading Services Section offers producers and processors a voluntary certification program for agricultural commodities including meat, poultry, eggs, fruit, vegetables and grain. MDA graders sample commodities for comparison with standards developed by USDA and/or MDA for reduction of microbial, chemical and/or physical contamination, quality, size, labeling and packaging. Commodities meeting the criteria established by USDA and/or MDA standards are identified and certified by MDA graders. Official certification provides a uniform basis for the marketing of agricultural commodities that enhances the marketability of Maryland commodities. 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. The provision of a cost-effective and service-oriented grading program is crucial to Maryland producers competing in these markets.

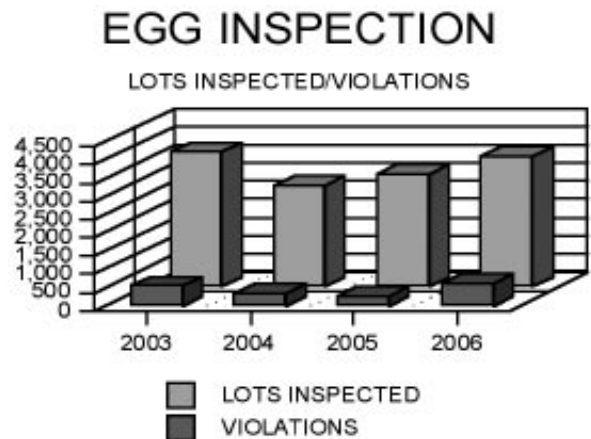
In addition to providing certification services to the producing industry, the section has assisted buyers in developing specifications to meet their needs. Many buyers have begun requiring audits of production practices in addition to the certification of product. The section conducts audits of agricultural production facilities for compliance with standards for animal welfare, good agricultural practices, food security, food safety and quality assurance programs. As buyers and consumers continue to demand verification of compliance with standards for animal welfare and food safety, the section anticipates increased demand for audits of these practices. Additional staff members are being trained to accommodate the anticipated increase in audit requests.

The agriculture commodity industry has continued to change and the section has adapted to these changes by offering the services necessary for the industry to market their products. Consolidation in the poultry and egg industry has reduced the number of processing plants in the state reducing the pounds of poultry and eggs certified. These reductions have resulted in

higher fees charged to industry for the services provided. The primary commodities graded by the section this year were 221.5 million pounds of poultry, 34.2 million pounds of shell egg and 1.4 million pounds of fruits and vegetables.

Egg Inspection

The Egg Inspection program is responsible for enforcement of the Maryland Egg Law. Inspections are performed at the wholesale, food service and retail level to ensure eggs sold in our state meet the standards established for quality, size, refrigeration, microbial and physical contamination, labeling and record keeping. The section is also responsible for the registration of egg wholesalers and packers. Portions of the labeling, record keeping and registration requirements were developed to provide traceability in the event of a *Salmonella enteritidis* outbreak. Other sections of the law were established to reduce the risk of consumers purchasing eggs that could cause 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 party. The inspection activities are funded through the collection of \$.0026 per dozen of eggs sold in Maryland.



The percentage of eggs sampled found to be in compliance with the Maryland Egg Law decreased to 83 percent this year compared to 91 percent last year. The Egg Inspection chart shows comparison data for the eggs inspected and violations.

Organic Certification Program

The federally accredited Maryland Organic Certification Program certified 75 farms and 14 handlers of organic products in Maryland in 2006. The program also registered an additional

14 farms as organic that are exempt from the inspection requirements. Additional producers have applied for certification that will be effective in 2007 as a result of the increased demand for organic milk.

Maryland organic producers and handlers continue to benefit from the federal Cost-Share Reimbursement Program funded by USDA. This cost-share program allowed MDA to reimburse 75 percent of the inspection costs growers paid for certification. This program is expected to continue until 2007.

Grain Laws

All persons in the business of buying, receiving, exchanging or storing grain from a grain producer are regulated by this section. 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. The section licensed 41 businesses with 66 business locations in 2006.



Mosquito Control

Mosquito control is a service program that celebrated its 50th anniversary of operation on July 1, 2006. Prior to legislative creation of the Maryland Department of Agriculture, mosquito control was a function of the State Entomologist through the University of Maryland, State Board of Agriculture. Legislative authority for the activities of the Mosquito Control Section of MDA is the Maryland Mosquito Control Law, Agricultural Article, Title 5, Subtitle 4. Mosquito control in Maryland has three objectives: (1) protect public health by managing mosquito populations to reduce the risk of mosquito-borne disease; (2) improve the quality of life by reducing the populations of pest mosquitoes; and (3) protect the environmental quality of Maryland.

The cooperative mosquito control program is available to all Maryland jurisdictions. Participation in the program requires a request to begin new service, or annual renewal of existing service, and agreement by local government to pay a share (50 percent or greater) of the cost of providing mosquito control. In most counties, MDA provides mosquito control directly; however, Calvert, Caroline and Queen Anne's counties provide service to their respective communities. The towns of Easton, Fruitland and Ocean City also operate their own programs with funding assistance from MDA. During 2006, mosquito control programs operated in all Maryland counties except Garrett County. Due to mountainous terrain, Garrett County has few mosquitoes and has never participated in the mosquito control program. Baltimore City government has not participated in the program since 2001 despite having the highest number of human cases of mosquito-borne disease (West Nile virus) in Maryland and a large population of pest mosquitoes. One community association within Baltimore City did request and receive one adult mosquito control spray treatment in 2006, with funds to pay the local share paid by the community, not the City.

The MDA mosquito control program is staffed by 20 classified employees and approximately 65 seasonal contractual employees. Regional offices are located in Annapolis, Hollywood, Riverdale and Salisbury. Equipment used in the program includes 63 light trucks, one van, two heavy trucks, four boats, five all-terrain vehicles, 75 insecticide sprayers and one multiple engine, fixed wing aircraft.

Mosquito Control During 2006

The Maryland Department of Agriculture and cooperating local agencies provided service in 2,107 communities, with an estimated total population of 725,000 residents in 22 counties

and the City of Baltimore. The number of participating communities per county varies from one in Baltimore City to 329 in Baltimore County. Counties in the piedmont and mountainous areas of Maryland have less of a mosquito population; therefore, community participation is lower as compared to counties in the coastal plains where the flat topography and abundance of wetlands provide conditions that are generally more favorable for mosquito breeding.

The diverse topography of Maryland provides habitat for 62 species of mosquitoes. Three are exotic or invasive species: *Aedes aegypti*, *Aedes albopictus* and *Aedes japonicus*. *Aedes albopictus* is the most widespread invasive species and also the one of greatest concern as a vector of disease and as a pest.

Mosquito populations showed a great deal of temporal and geographic variation during 2006. Overall, the 2006 mosquito population in Maryland was average to slightly below the long-term average, but with a notably higher infestation than experienced in 2005. An exceptionally dry spring resulted in greatly reduced mosquito breeding habitat throughout Maryland and very low mosquito populations through June. Unusually heavy rainfall in late June flooded large areas of the Eastern Shore, with Dorchester and Caroline counties receiving more than 12 inches of rain in a short period of time. Damage to public and private property was severe enough to qualify for federal disaster assistance. The flooding from the June rains resulted in large populations of mosquitoes during July throughout the central Eastern Shore. A hot, dry period from mid-July through the end of August reduced the amount of mosquito breeding habitat and populations fell to lower than normal levels in August. The remnants of Tropical Storm Ernesto passed through Maryland on September 1 and brought unexpectedly heavy rainfall, high winds and flooding tides. Ernesto and subsequent rain events resulted in a much wetter than normal September and a statewide increase in mosquitoes. The high mosquito population persisted through October in all areas. In Southern Maryland and on the lower Eastern Shore, mosquito populations were sufficient as late as December 1 to cause numerous complaints from the public due to the exceptionally mild fall temperatures.

Mosquito control activities in 2006 were greatly reduced as compared to the past five years. In 2006, the mosquito control program did not follow the mosquito-borne disease suppression strategy used during the years 2001–2005 because of the perceived high risk to public health of West Nile virus during that period of time. Public health authorities determined in early 2006 that the risk of mosquito-borne disease had diminished in

Maryland to the point that aggressive mosquito control activities were no longer warranted. Therefore, a pest management strategy of mosquito control was utilized in 2006. A pest management approach tolerates higher mosquito populations and consequently reduces control efforts, particularly adult mosquito control efforts, as compared to a disease suppression strategy.

Number of Communities Participating in Mosquito Control During 2006

County	# of Communities
Allegany	6
Anne Arundel	177
Baltimore City	1
Baltimore County	329
Calvert	91
Caroline	67
Carroll	3
Cecil	41
Charles	91
Dorchester	136
Frederick	21
Garrett	0
Harford	53
Howard	12
Kent	36
Montgomery	25
Prince George's	318
Queen Anne's	23
St. Mary's	111
Somerset	140
Talbot	109
Washington	7
Wicomico	173
Worcester	137
Total	2,107

In 2006, insecticide application for mosquito control in Maryland was reduced by 20 percent (364,278 acres) as compared to the average yearly acreage treated during the years 2001 through 2005. The number of acres treated with insecticides per county in 2006 (of those 23 jurisdictions with active control programs) varied from two acres in Allegany County to 277,977 acres in Dorchester County.

The number of service requests from the public in 2006 increased by nearly 40 percent in 2006 as compared to the complaints received in 2005. The majority of the 2006 complaints were in regard to the higher mosquito populations and the reduced level of mosquito control service.

Use of aircraft to apply insecticides for adult and larval mosquito control increased in 2006 by 12 percent (24,144 acres) as compared to the yearly airspray average from 2001—2005, and was 170 percent greater than aerial spraying activity in 2005. Aircraft spraying was confined to Dorchester, Somerset, Talbot and Worcester counties on the Eastern Shore and Hart-Miller Island in Baltimore County. Use of the aircraft is reserved for areas of the highest levels of mosquito infestation and the willingness of jurisdictions to pay for the relatively high cost of the airplane and associated expenses. Homeland Security regulations in effect since 2001 also greatly restrict the areas of the state where it is possible to conduct aerial spraying operations.

The air spray program continues to use night vision technology on loan from the Maryland Air National Guard. This allows aerial spraying to occur after sunset when mosquito activity and environmental conditions are most favorable for maximizing mosquito mortality. Control effectiveness of aerial spraying at night often exceeds 95 percent.

The air spray program operated with only one aircraft in 2006. The 1961 Aztec aircraft that was acquired in 1996 and provided exceptional service in the Maryland mosquito control program for the past 10 years is no longer in airworthy condition due to extensive corrosion of the frame. It is not practical or economical to repair the Aztec. The aircraft will be stripped of useable components which will be offered for sale and the frame will be sold as scrap aluminum. Fortunately, the Beechcraft King Air purchased in 2005 remains in excellent condition. The King Air should provide several years of service to the program. There are no plans at this time to procure a second aircraft.

Facets of the mosquito control program that do not use pesticides include source reduction, biological control and public

education. Source reduction efforts include wetland management and community clean-up efforts. Wetland management requires use of heavy equipment to construct ditches, ponds and dikes and install water level control structures. State and federal permits are required for all wetland projects. A total of 493 acres of marsh management work was completed during 2006 in the Crisfield and Deal Island areas of Somerset County and in Ocean Pines in Worcester County. The public education program endeavors to teach the community at large how to rid the urban and suburban environment of mosquito breeding sites. This requires frequent emptying or flushing of water-holding containers, removing debris that can collect water, cleaning clogged rain gutters and drainage pipes and reporting standing water to local mosquito control or health departments. In 2006, mosquito control staff participated in 21 community meetings, nine school presentations, six public workshops and hundreds of one-on-one contacts with the public to promote mosquito control education and domestic source reduction projects.

The biological control program stocks stormwater ponds, waste water lagoons and other manmade habitats with *Gambusia holbrooki*, commonly known as mosquitofish. These small, minnow-like fish are aggressive predators of mosquito larvae and pupae and provide long term control in the proper habitats. No effective biological control of mosquito eggs or adult mosquitoes has yet been documented. The number of mosquitofish stocked in 2006 was about 75 percent below average because the source for obtaining mosquitofish used in the past became severely degraded and is no longer capable of providing an adequate number of fish for transplanting. To counter this, a fish rearing pond was constructed at the Eastern Shore regional office in Salisbury. Fish were introduced into the new pond in the spring and by the fall a large, naturally propagating population was established. Fish from this new source will be used to stock sites throughout Maryland beginning in the spring of 2007.

Mosquito-Borne Disease Surveillance

The cooperative effort between MDA and the Maryland Department of Health and Mental Hygiene (DHMH) to monitor the occurrence and distribution of mosquito-borne viruses continued during 2006. A total of 51,289 mosquitoes were collected throughout Maryland by mosquito control staff, identified, sorted and sent to the DHMH virology laboratory to determine if virus was present. Nine mosquito samples were positive for West Nile virus (MFIR = 0.175/1000) in 2006. One of these collections came from Frederick County and eight were collected in Prince George's County. Of the nine positive collections, eight were *Culex* mosquitoes and one was

Aedes albopictus, the tiger mosquito. Three additional WNV positive mosquito collections from Maryland were reported by the Department of Defense (DOD), which conducts its own surveillance. The DOD virus-positive mosquitoes came from Montgomery County.

Cumulative Acres Treated with Insecticides for Mosquito Control by County during 2006

County	Acres
Allegany	2
Anne Arundel	30,901
Baltimore City	91
Baltimore County	69,846
Calvert	78,688
Caroline	28,043
Carroll	827
Cecil	39,409
Charles	85,661
Dorchester	277,977
Frederick	1,845
Garrett	0
Harford	3,108
Howard	3
Kent	10,813
Montgomery	6
Prince George's	21,422
Queen Anne's	74,620
St. Mary's	96,077
Somerset	179,129
Talbot	122,490
Washington	446
Wicomico	213,428
Worcester	96,295
Total	1,431,127

In addition to WNV, the DHMH laboratory reported that five mosquito collections were positive for *Bunyaviridae*, probably Cache Valley virus. These collections came from Anne Arundel County, central Maryland and Wicomico County. Cache Valley virus rarely causes human illness and there has never been a documented human case in Maryland.

There were no veterinary cases of mosquito-borne viral disease in Maryland during 2006 and none of the mosquitoes sampled were positive for eastern equine encephalitis virus.

The Department of Health and Mental Hygiene documented 10 human cases of West Nile virus disease in Maryland residents during 2006. That is a 100 percent (5 cases) increase above the number of Maryland cases in 2005. None of the 2006 cases were fatal. Eighty percent of the 2006 cases occurred in residents of the Baltimore metropolitan area, one was from Howard County and one from Prince George's County.

The 100 percent increase in human cases of WNV illness in 2006 does not parallel the 35 percent decrease in the virus infection rate found in Maryland mosquitoes. This indicates that the risk of illness from exposure to virus-infected mosquitoes was lower in 2006, but other factors were responsible for the increase in the human illness case count. These factors include: (1) reduced mosquito control service; (2) reduced concern about the risk of West Nile virus and a consequent reduction in preventive action by local health officials; and (3) reduced public awareness about WNV and a reduction in personal protection measures to avoid mosquito bites.

It is possible that the reduced mosquito control efforts contributed to the increase in the number of human illnesses. Mosquito populations during 2006 were larger than in the recent past and control efforts, particularly adult mosquito control spraying, occurred less frequently. Three of the 2006 human cases occurred in residents of communities with active mosquito control programs (one each in Baltimore City, Baltimore County and Prince George's County). It will not be possible to increase mosquito control efforts in the future unless public health authorities call for a return to the mosquito-borne disease suppression model and additional funding is available to pay for the increased cost of service.

Local health departments, in general, were less concerned about West Nile virus in 2006 as compared to past years due to the reduced incidence of WNV activity in Maryland in 2004 and 2005 and the relatively low virus infection rate in mosquitoes during 2006. In two Maryland jurisdictions, multiple findings

of WNV in mosquitoes, and in humans, failed to motivate local health officials to issue public warnings about the increasing risk of WNV and without this warning, county residents were not motivated to take personal protection measures to reduce exposure to mosquitoes. Under Maryland's mosquito-borne virus management plan, local health departments are delegated the responsibility to notify the public within their jurisdictions of the risk of WNV.

In contrast to some, Frederick County Health Department responded very well to a report of one collection of West Nile virus infected mosquitoes from Middletown in mid-August. County health authorities and the town government rapidly informed the public of the risk of WNV, encouraged the public to take personal protection measures against mosquitoes and greatly assisted MDA to coordinate aggressive mosquito control efforts. This cooperative effort resulted in a rapid decline in the mosquito population, an informed public and no human illness.

Cooperation with Other Agencies

MDA interacts and cooperates with several other agencies, in addition to county governments and community groups, to effectively carry out the mission of the mosquito control program. These include the Maryland Department of the Environment (MDE), Maryland Department of Natural Resources (DNR), Maryland Department of Health and Mental Hygiene (DHMH), University of Maryland, U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service, and the Army Corps of Engineers.

Cooperation between MDA, MDE and DNR on mosquito control issues has a long history. These agencies must review and approve MDA's permit applications for Toxic Material Permits, needed for applying larval mosquito control pesticides to waters and wetlands, wetland alteration permits for source reduction projects, stormwater management projects and all issues regarding threatened and endangered species. In the spring of 2006, MDA received Toxic Material Permits to allow statewide mosquito larviciding through 2010. One wetland alteration permit request was submitted in December for a source reduction project in Worcester County. Cooperation with DNR is also essential to coordinate mosquito control on wildlife management areas and other natural resource areas.

The cooperation between MDA and DHMH for mosquito-borne disease surveillance has been a tremendously valuable asset to protecting public health since 1999. DHMH also established a laboratory in 2005 which can detect very small concentrations

of a wide array of pesticides in urine from people who suspect they suffer ill effects from exposure to insecticides and herbicides. This is a valuable resource to validate claims of adverse health impacts of pesticide exposure. To date, there has been no documented instance of ill effects to human health from insecticides applied for mosquito control in Maryland.

The University of Maryland has served as the landlord for mosquito control offices in Central Maryland for more than 50 years. MDA and the University are currently working together to build a permanent facility to support mosquito control. The proposed building site is on the College Park campus with an anticipated construction completion date scheduled for the fall of 2007.

In the summer of 2006, EPA published the proceedings of a workshop on stormwater management and mosquito control that occurred in February 2005 in Salisbury. The assistance from EPA in coordinating the workshop and printing the proceedings is greatly appreciated.

MDA is cooperating with the U.S. Fish and Wildlife Service, the Army Corps of Engineers, as well as DNR, in several marsh restoration projects on the Eastern Shore.

Number of Human Cases of West Nile Virus Illness in Maryland, 2001–2006

	2001	2002	2003	2004	2005	2006	Total
Allegany							0
Anne Arundel		8	7	2			17
Baltimore City	3	5	14	4	2	5	33
Baltimore Co.	3	1	17	3	1	3	28
Calvert							0
Caroline			1	1			2
Carroll			2				2
Cecil							0
Charles		1	1				2
Dorchester				2			2
Frederick		5	3				8
Garrett							0
Harford			2				2
Howard			3			1	4
Kent							0
Montgomery		7	10	1			18
Prince George's		7	4	3	1	1	16
Queen Anne's			5				5
St. Mary's		1					1
Somerset							0
Talbot							0
Washington		1	4		1		6
Wicomico							0
Worcester							0
Statewide	6 (3*)	37 (7)	73 (9)	16	5	10	146 (19)

*Number of fatalities in parentheses

Mosquito Control Plans for 2007

A mosquito control customer satisfaction survey was distributed to more than 2,000 community contacts in the fall of 2006. The survey results will be evaluated in early 2007 and improvements made, when possible, for the next mosquito control season. MDA anticipates that the survey will show a general dissatisfaction with the reduced adult mosquito control service provided in 2006. However, it is doubtful that MDA will return to a disease suppression strategy for mosquito control in 2007 and the pest management plan is likely to be followed during the foreseeable future.

It is likely that the federal funds made available from the Centers for Disease Control to the Maryland Department of Health

and Mental Hygiene for mosquito-borne disease surveillance will be significantly reduced in 2007. This will unfortunately impact MDA's ability to carry out the mosquito-borne disease surveillance program and efforts in this area will likely be reduced.

MDA anticipates that community participation in the mosquito control program will remain essentially unchanged in 2007. Because we have experienced three years (2004-2006) of below normal mosquito populations in Maryland, it is expected that 2007 may experience a return to normal or above normal mosquito infestations. MDA will continue to encourage the City of Baltimore to participate in and support a comprehensive mosquito control program to better protect City residents from mosquito-borne disease.

Mosquito Control Activity Summary

	2003	2004	2005	2006
Communities Participating in Mosquito Control Program	2,095	2,204	2,104	2,106
Number of Light Trap Nights	3,223	3,198	3,333	3,762
Percent of Light Trap Nights Below Threshold	39	55	63	65
Number of Landing Rate Counts Performed	19,694	20,876	18,971	20,756
Percent of Landing Rate Counts Below Action Threshold	18	31	68	66
Number of Public Service Requests	5,163	3,532	3,324	4,636
Number of Mosquitofish Stocked	12,237	19,698	16,138	3,737
Acres Managed by Open Marsh Water Management	221	709	812	493
Acres Treated with Insecticide	2,550,112	2,109,236	1,701,685	1,431,127
Acres Treated for Mosquito Larvae	28,842	27,928	15,095	24,880
Acres Treated for Adult Mosquitoes	2,521,270	2,081,308	1,686,590	1,406,247
Acres Treated by Aircraft	332,020	118,120	81,631	220,038
Acres Treated by Ground Equipment	2,218,092	1,991,116	1,620,054	1,186,209
Number of Mosquitoes Tested for Arboviruses	195,135	52,616	74,930	51,289
Number of Mosquito Pools Positive for Arbovirus	72	20	24	9
Number of Human Cases of Arbovirus Statewide	73	16	5	10
Number of Human Cases of Arbovirus in Areas with Mosquito Control	2	3	0	3
Number of Cases of Arbovirus in Domestic Animals	235	2	0	0

Pesticide Regulation Section

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 Pesticide Regulation Section contains five major programs: (1) Pesticide Applicator Certification and Training; (2) Pesticide Use Inspection and Enforcement; (3) Pesticide Technical Information Collection and Dissemination; (4) Integrated Pest Management in Schools and on School Grounds; and (5) Special Programs.

Pesticide Applicator Certification and Training

Two types of pesticide applicators are certified by the 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 or public agencies.

A total of 79 private applicators were certified in 2006 for a three-year period after passing a closed book examination administered by section personnel during exam sessions. One thousand six hundred sixty-nine (1,669) private applicators renewed their certificates by attending recertification training. Currently, there are 3,516 certified private applicators. Section staff approved and monitored 122 private applicator recertification training sessions that the University of Maryland Cooperative Extension, MDA, or the pesticide industry conducted.

A total of 476 new commercial pest control applicators and consultants were certified in one or more of the 13 categories of pest control by satisfying minimum experience or education requirements and by passing written certification exams. The section certified 1,000 public agency applicators in 2006, bringing the total number of certified commercial applicators to 3,881. Staff processed 489 applications for certification in 2006 and held 18 exam sessions during which 1,823 exams were administered to 729 applicants. Once certified, commercial applicators are required to participate in at least one update training session approved by the department each year in order to renew their certificates. Three hundred and sixteen (316) recertification training sessions for commercial pesticide applicators were approved and monitored by this section and were conducted by the pesticide industry, the University of Maryland Cooperative Extension, or the department. By attending recertification training, 3,847 applicators were recertified in 2006.

During 2006, the section licensed 1,374 businesses to apply pesticides and to perform pest control services. Two hundred ninety-nine (299) public agency permits were issued to governmental agencies that apply pesticides. Forty pest control consultant licenses were issued. A total of 2,107 registered employee identification cards were issued during 2006. The department currently has 45,311 employees of pesticide businesses and public agencies registered to apply pesticides under the supervision of certified applicators. A total of 157 dealer permits were issued to businesses that sell restricted use pesticides.

Pesticide Use Inspection and Enforcement

Besides 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 use observations and inspections of businesses; public agencies, dealers, market places and producer establishments. Consumer complaint and pesticide misuse investigations also are conducted by the staff.

In 2006, 823 routine business inspections were performed, during which 199 businesses were cited for violations of the Pesticide Applicators Law and Regulations. Eighty-one (81) pesticide dealer inspections were conducted to ensure that restricted use pesticides were sold only to certified applicators. Seventy-six (76) use observations were conducted, during which pest inspections and pesticide applications performed by commercial and private applicators were observed by section personnel. A total of 74 consumer complaints were investigated. Under the federal cooperative agreement, 20 pesticide producer establishment and 33 market place inspections were conducted. Other enforcement actions taken during 2006 included the assessment of six civil penalties totaling \$7,140.

Pesticide Technical Information Collection and Dissemination

During 2006, two newsletters were printed and distributed to both private and commercial pesticide applicators that provided information on federal and state pesticide management programs and regulatory updates. The section also revised the “Pesticide Information Sheet” entitled “Pesticide Applicator Certification and Business Licensing Requirements to reflect a number of changes made to the regulations during 2006. The section also developed and printed a new training manual for Nuisance Wildlife Control.

A listing of pesticide sensitive individuals was first compiled in 1989. During 2006, this section registered 155 individuals. These individuals receive advance notification of pesticide applications

made to adjacent properties by commercial ornamental plant and turf pest control businesses and public agencies. Two update mailings were sent to all commercial companies and public agencies licensed or permitted in the ornamental plant and turf pest control category.

Searchable databases of registered pesticide products, licensed pesticide businesses, commercial and private applicators and pesticide dealers continue to be posted on the MDA's web site. These databases provide information to applicators and the public about pesticides that may legally be sold, distributed,

Pesticide Regulations Section Activities, 2004-2006

	2004	2005	2006
Pesticide Business Licensed	1,487	1,557	1,374
Commercial Pest Control Applicators Certified in One or More Category	2,860	3,957	2,852
Registered Personnel Employed by Licensed Businesses and Public Agencies	40,012	43,204	45,311
Public Agency Permits Issued	304	311	299
Commercial, Public Agency Applicators Certified In One or More Category	1,032	1,056	1,000
Private Applicators Certified to Date	3,856	3,778	3,516
Dealer Permits Issued	144	144	157
Examination Sessions Held	18	18	18
Individuals Taking Examinations	770	867	729
Examinations Administered in All Categories	1,657	1,784	1,823
Number of Businesses Inspected	1,316	861	823
Number of Businesses with Violations	265	205	199
Unregistered Employees	17	38	15
Records Incomplete or Inaccurate	147	128	101
Vehicles Not Properly Identified	37	41	4
No Anti-siphon Device	29	31	15
No First-aid/Safety Equipment	6	7	16
Incomplete or No Customer Information	82	15	15
Pesticide Dealer Inspections	84	79	81
Application Records Reviewed	1,316	1,144	973
Hearings and Investigation Conferences	1	1	2
Consumer Complaints Investigated	87	79	74
Pesticide Use Observations	74	77	76
Pesticide Samples Collected for Analysis	40	47	33
Market Place Inspections	31	32	33
Producer Establishment Inspections	17	16	20

or used in Maryland and 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 EPA's registration database so that information on each pesticide product queried, such as the EPA registration number, pest controlled, site of application, formulation, active ingredient, and the brand name, can be obtained.

Integrated Pest Management in Schools

The section continues to promote and support implementation of the Integrated Pest Management (IPM) Program in Public Schools. Regulations that require schools to develop and implement notification and IPM plans for indoor pest control became effective in 1999, and regulations for notification and IPM plans for school grounds became effective in 2002. Staff provided technical assistance in the development of the plans and distribution of information on potential adverse effects of pesticides applied. During 2006, the section has made improvements to the Department's IPM In-Schools website including a Frequently Asked Questions page, a listing of the School Systems Contacts, links to both the Law and Regulations, a form for filing complaints or tips regarding compliance issues.

Special Programs

During 2006, the section offered the recycling program for empty plastic pesticide containers to growers and commercial pesticide applicators at 17 locations. Collection centers were maintained in nine counties (Frederick, Harford, Kent, Prince George's, Talbot, Washington and Wicomico) with the assistance of county government agencies. A total of 28 collection days were held during June through September. In addition, 10 pesticide dealers/custom applicators participated in inspection and collection of containers at their own facilities. A total of 43,829 containers, weighing nearly 22 tons, were collected from 111 participants, of which 37 were first time participants. The containers were processed for transporting to a plastic recycling facility.

Maryland Department of Agriculture Pesticide Regulation Section staff continued to offer outreach and compliance assistance to growers and pesticide dealers under the Worker Protection Program. The Worker Protection Standard (WPS) was established to minimize occupational exposure to agricultural pesticides. The WPS requires agricultural workers, who might be exposed to pesticides, to receive training on pesticide safety.

Brochures on the Worker Protection Standard have been produced and widely distributed to the regulated community.

To aid with on-farm compliance, the section has developed a pocket-sized WPS Compliance Evaluation Checklist, which is available

to all of the WPS regulated community. The section also contracted with Telamon Corporation to provide pesticide safety training to farm workers. In 2006, Telamon members provided training to 376 farm workers and three non-farm workers (health care providers). Telamon also provided pesticide safety and awareness training to 94 farm worker children, from pre-K through eighth grade.

The section, in cooperation with the Maryland Department of the Environment, the University of Maryland Cooperative Extension and various agricultural organizations, offered an unusable/unwanted pesticide disposal program, for all agricultural producers, in Allegany, Frederick, Garrett and Washington counties. More than 9,000 pounds of unwanted pesticides were collected from 14 sites in 2006. Since 1995, the program has collected more than 579 different pesticides totaling nearly 130,000 pounds of unwanted or outdated pesticides.

During FY 2006, the section contracted with the United States Geological Survey (USGS) to summarize MDA's ground water monitoring data. The focus area was within Maryland's Coastal Plain area. The finalized fact sheet will be available for distribution to all interested parties in 2007.

Changes in Regulations

In 2005, the section proposed several changes to the Regulations pertaining to the Maryland Pesticide Applicators Law COMAR 15.05.01. These changes became effective April 10, 2006. The changes included the establishment of minimum age requirements for certification as a private applicator (16 years of age) and commercial and public agency applicators (18 years of age). The changes also resulted in the establishment of two new pest control categories (12. Consultant and 13. Aerial), one new sub-category (1c Agricultural Grain Treatment). Additionally, a new license type was established, that being a Not-for-Hire license. A Not-for-Hire license will be issued to a person who performs, or whose employees perform, pest control services on property that is owned by the person, and is open to, or routinely used or enjoyed by members of the public, at the person's expressed or implied invitation, even though a fee or other charge may be administered for the property's use or enjoyment. As a result of this regulation change, all golf courses in Maryland, are now required to obtain a pesticide business license and employ a commercial applicator to apply pesticides

State Chemist Section

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

Registration of Products

Pesticide products, commercial feeds, fertilizers, fertilizer/pesticides, liming materials, and soil conditioners are registered for sale or distribution only after careful review of the label to determine the material’s nature, proposed uses and potential adverse impacts on agriculture, the environment, the general public, and the regulated industry. During 2006, the section registered 11,715 pesticide products; 12,515 commercial feeds; 3,383 fertilizers; 550 fertilizer/pesticides; 145 liming materials; and 494 soil conditioners. See Table 1 for details and comparisons to product registrations of prior years.

Inspection

Field inspectors routinely inspect regulated products at retail outlets, distribution centers, warehouses, and formulating facilities. These inspections enable the section 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, plant nutrients, trace elements and/or toxic materials. In 2006, section inspectors performed approximate 1,412 on-site inspections. See Table 2 (Inspection Program).

Laboratory Analyses/Investigations

MDA’s state of the science laboratory is staffed with chemists who have expertise and experience in the use of highly sophisticated computer controlled instruments used for the analysis of agricultural chemicals and toxic contaminants in commercial

products, crops and environmental samples (water, soil, fish), etc. The laboratory staff provides reliable scientific data that are used to assist farmers and to initiate or support regulatory actions against violative products or violators of state and federal agricultural and environmental laws. The laboratory has also provided support to its sister agencies, the departments of the Environment and Natural Resources, and to the federal Department of Agriculture (USDA) and the U. S. Environmental Protection Agency (EPA).

The State Chemist laboratory staff is closely working with DHMH and MDA’s Animal Health Section in a continuing monitoring project to determine the presence of lead in raw milk. The State Chemist Section is uniquely capable of providing laboratory support for such a project because it has the expertise and the necessary sophisticated instrumentation to detect and quantify exceptionally low concentrations of heavy metals in many different matrices. Table 3 is a compilation of laboratory analyses.

Table 1. Product Registration and Enforcement Actions

Product Registration	2004	2005	2006
Feeds	11,448	11,957	12,515
Fertilizers	3,374	3,363	3,383
Pesticides	11,236	11,855	11,208
Soil Conditioners	510	533	494
Liming Materials	133	135	145
Fertilizer/Pesticide Combinations	522	522	550
Total	27,223	28,365	28,295
Number of Companies with Registered Products			2750
Registrants and Subsidiaries	3,217*	3,614*	
Registrants			2300
Enforcement			
Non-Registered Notices	1,085	441	227
Stop Sale Orders	116	216	167

*manual counting in prior years may have resulted in some overlap

Enforcement

Any regulated product determined to be ineffective, misbranded or deleterious to the public, agriculture, or the environment is removed from the market place. Determination for product removal is based on inspection, laboratory analysis of official samples, information received from federal or state regulatory agencies, products offered for sale but not registered for use or distribution in Maryland, and review of labels or other materials submitted by companies to support product registration. See Table 2 for details relating to stop sale orders and issuance of non-registered notices for products not properly registered with the section.

Food Safety Activities

Bovine Spongiform Encephalopathy (BSE)

The section continued a feed mill inspection program that began in 1999 to determine if feed mill operations within Maryland comply with U.S. Food and Drug Administration (FDA) regulations pertaining to the prevention of bovine spongiform encephalopathy (BSE), also known as mad cow disease. Feed mills and/or feed distributors are issued stop sale orders for products determined to be not in compliance with FDA regulations.

Recent terrorist activities have resulted in placing additional emphasis on section inspection activities that go beyond the protocols established by the FDA. Section inspectors distributed handouts that list specific precautions that farmers, retailers, distributors and warehouses should follow to help ensure that ruminant animal feed manufactured or distributed in Maryland does not contain ingredients that may transmit BSE. The inspectors have been instructed to personally emphasize to mill workers, distributors, etc. the need to read, understand and follow the specific precautions that appear on the warning handouts.

The economic havoc that would ensue from animal feed containing BSE transmissible ingredients inadvertently or deliberately fed to the ruminant farm animal populations could be ruinous to the beef industry and allied businesses, e.g., fast food companies, food stores, restaurants, etc. Beyond the economic considerations, public health concerns would be even greater because ingestion by humans of BSE-contaminated meat could result in incurable fatal brain cell degeneration.

In 2006, the State Chemist Section of MDA completed 100 BSE feed inspections in the state of Maryland. All facilities that were inspected during this period were found to be in compliance and void of any violations of the FDA regulations pertaining to BSE.

The section performed analyses for ruminant tissue on 290 samples collected from 36 feed manufacturing facilities. The analyses were performed to confirm the findings of the 36 inspections.

USDA—Pesticide Data Program (PDP)

Since 1997, the USDA has contracted with the section to sample various food items from principal distribution centers in the state. These samples consist of such diverse items as pineapples, potatoes, processed food, processed fruit juices, produce, milk, and peanut butter. Approximately 6,000 food samples have

Table 2. Inspection Program

Inspections (Feed, Fertilizer, Pesticides, Compost, etc.)	
Plants, warehouses, retailers, etc.	1,412
Special investigations	9
Feed mill inspections for BSE (mad cow disease)	100
Pesticide and microbiological data sites visited (USDA/MDA)	196
Food Safety Program (farmer's market, chain stores, etc.)	98
Composting sites	6
Samples Obtained for Chemical Analyses	
Feeds (livestock, pet food)	1,505
Fertilizers, soil conditioners, etc.	685
Pesticide formulations (farms, homes, disinfectants)	296
Fertilizer/pesticide combinations	39
Liming materials	81
Raw milk	80
Violations	
Non-registered products	
feeds	134
pesticides	17
fertilizer/pesticide combinations	7
fertilizers	53
soil conditioners	16
liming materials	6

been sampled and analyzed by federal and state laboratories for several hundred different pesticides. In 2006, the section collected approximately 711 samples. 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.

USDA—Microbiological Data Program (MDP)

Since 2001, the section has been contracted by USDA to sample various produce items from principal food distribution centers for analysis to determine the presence of specific pathogens

relative to a national health concern about food-borne bacteria. In 2006, more than 486 samples of raw agricultural food commodities were collected by section inspectors to be analyzed for E.coli, Salmonella sp. and Listeria monocytogenes. These analyses are being conducted by various federal and state contract microbiological laboratories.

Food Safety Survey of Maryland Produce

In 2006, the section collected from roadside vegetable/fruit stands random samples of produce grown in Maryland. Fifty-six samples of various vegetables and fruits were collected for analysis of more than 400 different pesticides. The laboratory staff will complete the analyses in the first quarter of 2007. The data will be sent to EPA and USDA for incorporation into national data banks.

Drugs and Additives in Livestock Feed

In order to help ensure the safe and effective use of drugs in livestock feed, the section has expanded its feed analysis program. Any feed products containing drugs that do not meet the federal requirements relative to use, over-formulation or deficiency are removed from the market place. Removal of violative products not only protects farm livestock but also provides protection to the public against exposure to drug resistant bacteria. In 2006, the section analyzed 169 samples of feed for 10 different drugs and 45 feeds for phytase. All feed samples tested for phytase were in compliance. Distributors and registrants of defective feed products were notified and either stop sale orders or warnings of potential regulatory action were issued to remove unacceptable products from the marketplace. In addition to monitoring animal feed for drugs and phytase, the section randomly samples and screens the ingredients that are used in the production of feed for pesticides and heavy metals.

FERN (Food Emergency Response Network) for Chemistry

In 2005, the section's laboratory program was officially accepted by the USDA and FDA into the Food Emergency Response Network for chemistry as part of the federal government effort to secure the nation's food supply. The section will be expected to perform priority analysis of U.S. food/feed samples and to rapidly supply data to the FDA and USDA for the purpose of deciding what food/feed stuffs are safe for consumption in the event of a terrorist attack on the nations' food/feed supply. In 2006, the laboratory staff participated in a national study to test chemical methods for detecting the highly dangerous toxin RICIN in drinking water.

Table 2. Inspection Program

Stop Sale Orders	
Non-registration	
feeds	80
pesticides	2
fertilizers	85
Deficient	
feeds	69
fertilizers	69
pesticides	1
Label Violation	3
Warning—over formulation	
feeds	11
fertilizers	43
Products Not Registered Brought into Compliance	
Feeds	464
Fertilizers	70
Fertilizer/pesticide combinations	1
Pesticides	30
Soil conditioners	26
Liming materials	3
Total	594

Commercial Compost Inspection and Certification Program

The commercial compost industry has grown significantly and sold/distributed about 100,000 tons to homeowners and horticultural establishments during 2005. The section has increased its efforts to monitor this important nutrient management tool, and has also been able to include representatives of the Maryland Department of the Environment and the local county governments on complaint investigations related to composting operations. This cooperation among agencies has resulted in corrective actions that have eliminated, or significantly reduced, the adverse impacts on the environment and the public from commercial composting, without seriously impacting the efficient operations of compost producers. All commercial compost facilities must have an MDA Certified Operator to oversee the operation. In 2006, the section administered the compost operator certification test to seven applicants.

Chemical Terrorism—Cooperation with DHMH

The section has recently purchased an additional gas chromatograph with state-of-the-science detectors (flame pulse photometric and halogen specific detectors) and a polymerase chain reaction instrument for use in determining the presence of ruminant protein in cattle feed. These additions will be used to provide rapid and precise identification of pesticides and other toxic organic materials relative to (1) misuse and accident investigations, and (2) potential terrorist attacks on Maryland crops, animal feed as well as food intended for human consumption.

Assistance to a Sister State

The section provided field inspector training to newly hired Delaware agricultural field inspectors. Delaware's State Chemist felt that MDA's State Chemist Section inspection staff had the necessary experience and expertise to provide field training to its newly hired inspector.

Table 3. Samples Collected and Analyzed—2006

	Samples Collected	Total Number of Chemical Analyses
Toxic Metal Analysis of Feeds and Fertilizers	115	1,725
EPA Samples (Pesticide Misuse Investigations, Market Place Product Monitoring)	81	810
Pesticide Formulation Analysis	264	1,056
Food Safety of Maryland Products/Fruit	56	(In Progress) 20,470
Feeds and Pet Foods (Protein, Drugs, Phytase, etc)	1,505	18,740
Broiler Feed for Phytase	45	90
Livestock Feed for Drugs	169	853
Ruminant Tissue Analysis of Feed	290	348
Fertilizers (Nitrogen, Phosphorus, Potassium, Micro-nutrients)	685	5,343
Agricultural Liming Materials	80	308
Service Samples for Farmers, Veterinarians, etc.	17	204
National and International Quality Assurance Samples	40	1,642
Animal Health Samples	91	132

Turf and Seed

Seed is the single most important input to any cropping system. To be successful, the grower, whether a farmer tilling hundreds of acres or a homeowner with a garden, must begin with quality seed. The Turf and Seed Section conducts regulatory and service programs, including seed inspection, testing, certification and quality control services, designed to insure the continued availability of high quality seed to Maryland's seed consumers.



Today's seed industry exists in an environment of rapid change. The continued development and expansion of GMO's (genetically modified organisms), or genetically-modified crops, has had an enormous effect on the production, distribution and marketing of seed and, thus, upon state seed programs. Seed regulatory, testing and certification programs throughout the country are being challenged to meet the demands brought about by these changes.

Seed Laboratory

Maryland's seed testing laboratory is central to the operation of the section, supporting the regulatory, certification, supervised seed mixing and turfgrass activities, while also providing service testing for seed producers, dealers, farmers and other seed consumers. Turfgrass professionals look to the laboratory to provide them with extended purity and noxious weed examinations for seed destined for use on golf courses, sod production fields, public grounds and other areas demanding high quality turf. Commercial vegetable growers utilize the laboratory for specialized vigor testing, particularly for peas, garden beans and lima beans.

The State Highway Administration relies upon the laboratory to test all grass, wildflower, shrub and other seed planted along Maryland's highways. Maryland farmers participating in the Maryland Agricultural Water Quality Cost-Share (MACS) cover crop program utilize the laboratory to insure that the seed they use meets the standards required for that program. The laboratory also identifies seeds submitted by farmers,

veterinarians, health officials, other government agencies and the general public. Round-up®Ready testing of seeds is conducted by the laboratory for authorized seed producers. The laboratory also tests seeds used on wetland mitigation and restoration projects.

Key to a successful laboratory operation is a well trained staff. The Association of Official Seed Analysts (AOSA) maintains an accreditation program for seed analysts in official laboratories throughout the United States. Analysts who pass rigorous tests, which include both written and practical examinations, are certified as purity and germination analysts. At the present time, seven members of our laboratory staff are certified by AOSA in both purity and germination testing, out of a nationwide total of 98 analysts who have achieved this level of certification by AOSA. The laboratory staff also participated in various seed referees. These referees develop new testing methodology and ensure uniform and accurate seed testing throughout the country. During the past year, several of our analysts attended a seed testing workshop in Harrisburg, Pennsylvania.

Seed Regulatory

The Maryland Seed Law requires that all seed offered for sale in the state must be accurately labeled and represented. This includes agricultural seed, vegetable seed, flower seed, lawn and turf seed, and includes specialized seed, such as tree and shrub seed, seed of native species, wildflower seed and seed used in reclamation and wetlands mitigation projects. This seed is sold in quantities ranging from the small packets of vegetable and flower seed sold to home gardeners to bulk sales of thousands of pounds

of crop seed sold to farmers. All seed distributed in Maryland is subject to inspection by this section.

For much of its seed needs, Maryland relies on other areas of the country and the world where climates are more suited to seed production. Thus, it is important that Maryland maintain a strong and effective regulatory program. Seed importing states that fail to maintain good seed regulatory programs become “dumping grounds” for low quality seed that is not acceptable to be sold in many other states.

Maryland’s seed inspectors visit both retail and wholesale seed dealers throughout the state. They review label claims, insure that germination test dates are current and look for seed lots that have been found to be mislabeled or otherwise illegal for sale, based on samples taken at other locations. Seed lots are sampled and submitted to the laboratory for testing. Lots found in violation of the Maryland Seed Law are placed under a stop sale order until they are brought into compliance. Corrective action may include re-labeling, reconditioning, destruction of the seed lot or its removal from the State. Seed dealers who fail to comply with a stop sale order are subject to civil penalties.

Seed Certification

The seed certification program is quickly adapting to changes in the seed business. As biotechnology increases in agricultural crops, movement away from traditional certification services is occurring. With large investments involved in biotech research, more and more variety development is being funded by private companies. The involvement of public institutions, which in the past were the source for most certified seed varieties, continues to decline.

With the increased number of crop varieties being released by private companies, the demand for “quality assurance inspections” by third parties is strong, particularly from small to medium sized seed

companies that cannot afford the expense of quality control programs. Companies growing seed in Maryland look to this section for expertise in field inspections, sampling and laboratory analysis for quality control of their products. In the future, it is anticipated that quality control inspection acreage will increase as certified acreage decreases.

Staff members worked closely with seed growers and conditioners to assist them in producing a product that meets some of the highest quality standards in the United States. Maryland seedsmen have become a net exporter of wheat, barley, and soybean seed, adding much revenue to the Maryland agricultural economy.

Staff members cooperated with the Maryland Crop Improvement Association, the Maryland Agricultural Experiment Station, and the University of Maryland in the production and distribution of Maryland Foundation seed. Much effort was spent to maintain the genetic purity of foundation seed of public varieties important to Maryland agriculture. This foundation seed was distributed to 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

Turf and Seed Activities 2004-2006			
	2004	2005	2006
Field Inspections			
Acres in Turf Certification Program	7,344	4,574	3,433
Acres of Crop Seed Inspected	16,184	14,964	11,189
Supervised Mixing			
Pounds of Seed Mixed (thousand)	2,240	2,801	3,937
Retail and Wholesale Seed Inspections			
Number of Lots Sampled	1,129	910	856
Number of Regulatory Seed Tests Conducted	3,331	3,213	2,984
Seed Testing			
Purity Service Tests Conducted	2,542	2,566	2,663
Germination Service Tests Conducted	5,558	5,290	4,925

of seeds are mixed together. Demand from the industry and consumers for supervised seed mixing is strong and continues to grow. The supervised seed mixing program's oversight insures that the consumer receives quality seed by precluding the opportunity for substitution of varieties or seed lots that have not been approved. All seed used on State Highway Administration projects and the seed used 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 also 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 insures that the mixer is free of any contaminants and that only approved seed lots are used in the mixture. Special tags are sewn into each bag to verify that the seed was mixed under MDA supervision.

Turf Regulatory

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 the majority of cases, the problems are determined to be due to site preparation and other growing conditions rather than the quality or condition of the sod. In these cases, staff makes recommendations to remedy the situation. The Maryland public continues to be able to purchase some of the highest quality sod available anywhere.

Turf Certification

Maryland's turf certification program is a leader in the nation and has served as a model for certification programs in other states. Growers must plant varieties recommended by the University of Maryland based on trials conducted in this region. All seed used in this program is tested by the Maryland State Seed Laboratory and mixed under the supervision of MDA inspectors. Many sod specifications require the use of Maryland certified turfgrass as a means of assuring the use of high quality turfgrass of varieties that are well adapted to this area.

Forest Pest Management

The Forest Pest Management (FPM) Section is responsible for minimizing losses due to insect pests and diseases affecting Maryland's valuable forest and landscape trees in rural and urban areas. The FPM Section advises landowners about the management of forest pests. When there are serious outbreaks, as from the gypsy moth, the section will cooperate with local jurisdictions to manage the infestation. To accomplish this, monitoring, assessment, control and education actions are administered through two major programs, Cooperative Gypsy Moth Suppression Program and Cooperative Forest Health Program. Both are cooperative cost-share programs conducted with technical and financial assistance from the USDA, Forest Service (USFS).

The Cooperative Gypsy Moth Suppression Program conducts an integrated pest management (IPM) program to protect forest and shade trees from the continuing threat of defoliation and damage by the gypsy moth. An effective statewide IPM program for gypsy moth requires extensive amounts of accurate population data that must be collected annually. When survey data indicate the potential for defoliation that could lead to death or dieback of high value hardwood trees, aerial application of insecticide may be implemented. In 2006, following two years without damage, a dramatic surge in gypsy moth populations led to the treatment of 25,454 acres and recorded defoliation on 15,793 acres

The Cooperative Forest Health Program monitors and evaluates insects and diseases affecting Maryland forests and conducts education and training activities. In addition, separate projects are conducted targeted at specific agents or situations that are having or may have significant impact on the health of Maryland's forests. In 2006, numerous assessment surveys were conducted to determine the impact of several insects and diseases. Cankerworms stripped some 7,269 acres in two outbreak areas. Also in 2006, the hemlock woolly adelgid suppression project continued. A predatory beetle that was released as a biological control for the adelgid was recovered in healthy numbers at one site, raising hopes for the natural control of this serious pest.

Cooperative Forest Health Program

The Maryland Cooperative Forest Health Program (CFHP) combines two federal cost-share programs: Cooperative Forest Health and Forest Health Monitoring. The objectives of these combined programs are to conduct surveys of major forest pests in Maryland and to provide technical advice and assistance to managers of state and private forests. The CFHP also provides training on the importance, identification and control of forest pests to various state and local agencies and forestry organizations.

Surveys

Hemlock woolly adelgid (HWA)—The HWA-infested area now includes the metropolitan area between Baltimore and Washington and native stands of hemlock in Harford, Frederick, Washington, Allegany and Garrett counties. As part of a Mid-Atlantic, multi-state survey, MDA continues to monitor 13 plots established in six Maryland counties to assess the impact of the adelgid on hemlock resources. By the close of 2006, the leading edge of this pest was in eastern Garrett County.

Southern pine beetle (SPB)—Since 1989, Maryland has participated in a multi-state SPB survey throughout the southern United States using pheromone-baited traps. Trap data indicated that SPB numbers would continue to remain low in 2006. Populations have been below outbreak level since 1994. A minor outbreak of SPB occurred in 2005 in Talbot County (99 acres, 22 spots), a first time record for that county, but did not carry over into the next season.

Emerald ash borer (EAB)—With special funding from the U.S. Forest Service, MDA's Forest Pest Management Section conducted a survey for emerald ash borer in Western Maryland by placing trap trees and conducting visual surveys. No detections were made in 2005 or 2006 by either survey method. In August, 2006 MDA's Plant Protection and Weed Management (PP&WM) Section found EAB infesting one natural and one trap tree very close to the site of the 2003 introduction of infested nursery stock in Prince George's County. Thought to be eradicated in 2004, a new eradication zone has been established to encompass and eliminate the lingering infestations. [See the PP&WM Section report for additional details]. FPM staff is providing administrative and field assistance with the eradication project.

Pine shoot beetle—In cooperation with the Plant Protection and Weed Management Section, surveys for the pine shoot beetle have been conducted since 1993. Garrett, Allegany, Washington, Frederick and Montgomery counties are now regulated by a federal quarantine. In 2006 as in 2005, surveys were conducted in Western Maryland, Central Maryland and the Eastern Shore, a total of 10 counties in 2006. [See Plant Protection Section report for pine shoot beetle survey details.]

Exotic bark beetles—Also in cooperation with the Plant Protection and Weed Management Section, surveys for exotic wood boring beetles were conducted during 2006. The CFHP Program set and serviced the several traps while the PP&WM Section provided identification of beetles collected. Warehouses receiving overseas shipments of tile, marble and granite that contain wood for protection and bracing were targeted. Black

light traps and pheromone-baited traps were placed in and around these warehouses from May through October. No target species were trapped in 2006.

Roadside tree health survey—A cooperative project with the USFS and Maryland Forest Service assessed the health of Maryland roadside trees. A pilot project in 1999 and 2000 was conducted in the Baltimore-Washington corridor. In 2001, methods developed in the pilot project were used to collect information on tree species, tree health and distribution of roadside trees statewide. The final year of the five-year project was 2005. A report using information from Maryland's earlier plot data and a similar survey was compiled into a U.S. Forest Service publication of the National Forest Health Monitoring Program. A final report including all the plot data will be issued in the near future.

Ramorum blight (sudden oak death) disease—In cooperation with the USFS and MDA's Plant Protection and Weed Management Section, Forest Pest Management conducted a survey for the organism causing sudden oak death. [See Plant Protection Section report for sudden oak death survey details.] In 2004-2006, the Forest Pest Management Section conducted a U.S. Forest Service funded nursery perimeter survey around those establishments that received host plant material from the same source as the infected plants. Landscape and forest trees around 33 nurseries and forest sites were surveyed for *P. ramorum* infections in 2006. No infected plants were found in any of the surveys 2004-6. In addition, nine watersheds near two nurseries positive for *P. ramorum* infested plants in 2004 were sampled in 2006 by leaf baits placed in the stream. No *P. ramorum* was found in any of the samples, though numerous recoveries of other *Phytophthora* were made.

Miscellaneous surveys—Sirex Woodwasp—Trapping was conducted in 12 counties at 28 sites. This exotic woodwasp is known to be a pest on four continents and was discovered for the first time in North America in New York State in 2004. No trap collections were positive for the insect in Maryland in 2006.

Defoliation and Damage Report

After seeing no defoliation and virtually no significant infestations since 2003, gypsy moth defoliation was recorded from eight different counties in 2006, this despite 23,000 acres of successful treatments. All but 2.3 percent of the 15,793 acres of defoliation was observed in Garrett County in and near the Savage River State Forest. However, 244 acres were recorded in Frederick County, 109 of which was also on State land. This is the most defoliation recorded since 2001, and the third highest amount since 1995. By comparison defoliation by the gypsy moth in nearby states in 2006 was as follows: Delaware 8;

Virginia 11,380; West Virginia 17,272; New Jersey 125,743; and Pennsylvania 689,846.

Fall cankerworms caused defoliation of hardwood trees in Anne Arundel County (6,082 acres) and Cecil County (1,187 acres). The cankerworm damage in Anne Arundel county was an expansion of a 1,000 acre area of damage in 2005. Cankerworms have caused minor defoliation in various areas in central and suburban Washington and Annapolis areas since 2000.

Suppression and Management Report

The hemlock woolly adelgid remains the major threat to the health of eastern hemlock. Infested hemlocks occur in the metropolitan area between Baltimore and Washington and in natural stands from Harford to Garrett counties. A joint MDA-DNR HWA Task Force addresses the multidisciplinary needs of the HWA infestation. As part of a mid-Atlantic multi-state survey, 13 plots have been set up in six counties to assess the HWA impact on hemlock stands. The predatory beetle, *Laricobius nigrinus*, was recovered from Rocky Gap in the fall of 2005 and 2006. Recoveries have been so numerous that efforts have begun to establish a field insectary at Rocky Gap with the hopes of harvesting enough *L. nigrinus* in future years to release in other areas of the state. Two other predatory beetle species, *Scymnus sinuanodulus* and *Sasajiscymnus tsugae* were released at several different sites, with no recoveries made. Through 2006, 2,252 trees in priority sites have been soil injected and 218 were trunk injected with imidacloprid insecticide for control of HWA and an additional 382 trees were soil injected on property owned by The Nature Conservancy.

Cooperative Gypsy Moth Suppression Program

The basis for all decision-making for the integrated pest management of gypsy moth in Maryland is timely, accurate pest population data. These data, in the form of annual population samples and other survey information and observations, are collected from state-owned land, forested residential areas, and privately managed forest tracts. Eighteen counties, Baltimore City and some municipalities were cost share partners in conducting the surveys in 2006. Recently, the FPM Section has been alert to low but growing populations in Northeastern, Central and Western Maryland. The 2005-6 fall/winter surveys disclosed a sudden increase in infestation levels resulting in the prescribed treatment of 25,454 acres of trees by the Forest Pest Management Section in eight counties across the northern part of the state. Treatment with aerial application of insecticide to suppress gypsy moth caterpillar populations may be proposed on a priority basis to protect high value forest and shade trees, especially in those areas where death and die back of the trees would not

be tolerated. One of two insecticides is used—diflubenzuron (Dimilin) or *Bacillus thuringiensis* (B.t.)—and are chosen for their specificity and effectiveness. In 2006, some 14,406 acres (57 percent) were treated with the B.t. insecticide.

The majority of treatments in 2006, 58 percent, were to protect resources on State-owned land (State Forests, State Parks, etc.). The largest portion of the 14,819 acres of state land that was treated was in the Savage River State Forest in Garrett County where the worst part of the outbreak was centered.

This marks the beginning of the second distinct outbreak of the gypsy moth since the mid 1990s. Both the current outbreak and an earlier one starting in 2000 have been characterized by a sharp initial increase in populations. The difference a well designed forest health monitoring program like Maryland's gypsy moth surveys can make for averting damage is seen in both New Jersey and Pennsylvania. In 2005, neither of the two states had conducted treatment programs as neither has a routine monitoring program like Maryland's. As a result, during the summer of 2005 New Jersey was surprised with 45,367 acres of defoliation and Pennsylvania suddenly saw 333,335 acres of defoliation.

Maryland Cooperative Gypsy Moth Suppression Program 1999–2006*

	2006 Total Acres	2004 Total Acres	2003 Total Acres	2002 Total Acres	2001 Total Acres	2000 Total Acres	1999 Total Acres
Allegany	2,001	0	0	3,941	18,979	2,344	0
Anne Arundel	0	93	1,821	4,845	3,381	166	0
Baltimore	0	0	388	1,041	1,050	251	0
Baltimore City	0	0	0	135	0	0	0
Carroll	541	0	29	272	220	313	0
Cecil	2,941	567	5,644	13,114	2,971	0	0
Charles	0	0	879	3,809	1,517	362	0
Dorchester	0	0	1,198	1,148	156	416	521
Frederick	1,848	0	968	4,331	9,172	5,638	3,150
Garrett	14,188	0	0	0	429	0	0
Harford	870	0	0	0	0	0	0
Howard	216	0	159	255	149	0	0
Kent	0	0	0	0	0	0	0
Montgomery	0	0	1,273	413	2,112	640	26
Prince George's	0	0	0	505	499	512	0
Queen Anne's	0	0	0	0	0	0	0
Somerset	0	0	0	52	0	0	219
St. Mary's	0	0	0	0	0	56	0
Talbot	0	0	1,289	0	0	120	0
Washington	2,851	0	115	5,204	7,953	5,853	2,390
Wicomico	0	0	290	69	0	300	0
State Totals	25,456	660	14,053	39,134	48,588	16,971	6,306

Note: In 2005, no gypsy moth suppression was conducted.

Defoliation by Gypsy Moth 1999 –2006*

	2006 Total Acres	2003 Total Acres	2002 Total Acres	2001 Total Acres	2000 Total Acres	1999 Total Acres
Allegany	0	0	0	25,194	8,913	0
Anne Arundel	0	0	203	527	2	0
Baltimore	57	0	27	9	104	29
Baltimore City	0	0	0	0	0	0
Calvert	0	0	0	0	0	0
Caroline	0	0	0	0	0	0
Carroll	4	0	0	10	2	0
Cecil	2	0	1,161	49	734	11
Charles	0	0	346	0	0	0
Dorchester	0	112	7,055	12,150	4,698	1,101
Frederick	244	0	1,156	799	2,402	32
Garrett	15,422	0	0	0	0	0
Harford	16	0	0	0	0	0
Howard	14	0	0	4	13	0
Kent	0	0	0	2	0	0
Montgomery	0	0	755	116	272	0
Prince George's	0	0	50	98	2	0
Queen Anne's	0	0	0	0	0	0
Somerset	0	0	536	663	0	0
St. Mary's	0	0	0	0	0	1
Talbot	0	0	6	24	0	0
Washington	34	0	507	5,079	6,089	23
Wicomico	0	0	1,937	1,459	0	0
Worcester	0	0	0	0	0	0
State Totals	15,793	112	13,739	46,183	23,231	1,197

Note: There was no gypsy moth defoliation detected in 2004 or 2005.

Plant Protection and Weed Management

Apiary Inspection

The primary purpose of this program is to control honey bee diseases, mites, and pests in order to maintain healthy bees for the essential pollination of more than \$40 million of Maryland crops. Maryland growers of fruit and vegetable crops annually rent approximately 5,000 colonies to improve pollination. Beekeepers' colonies are essential to Maryland because two parasitic mites have nearly eliminated feral (wild) colonies.

American foul brood disease is the most serious brood disease of honey bees and can destroy a colony in one year. Colonies detected with American foul brood (50) were destroyed to control the spread of this bacterial disease to healthy colonies. The incidence of disease remains relatively low (only 2 percent of colonies inspected).

Varroa and tracheal mite populations were very low in Maryland in the first half of 2006, but brood problems were attributed to Varroa mite later in the season. The Varroa mite often has been found to be resistant to Apistan⁸, the primary product used to control this parasite. The Maryland Department of Agriculture requested and received a Section 18 Special Exemption from the U.S. Environmental Protection Agency for the use of Check Mite+7 (Coumaphos) to control Varroa mites.

Africanized honey bees arrive occasionally on cargo ships coming from South or Central America. Swarm traps for collecting and monitoring bees were placed at 35 sites at marine and other shipping locations. Only three swarms were collected in 2006 and were determined to be local bees, not Africanized. MDA is working with two groups—Mid Atlantic Apiculture Research and Extension Consortium (MAAREC), for education/information to the general public on emergency incidents, and the Apiary Inspectors of America (AIA), for information on the control of movement, other than through natural spread.

Small hive beetle (SHB): The SHB was detected in packaged bees and reported or detected in eight counties this past year. Each apiary was treated and monitored to ensure successful control of the beetles. There have been no reports of larvae or damage to established colonies. The small hive beetle is a pest mainly in stored equipment and in honey houses, although it can render stored honey in the hive unsalable.

ETO-Fumigation: There were 36 complete loads of equipment fumigated with a sterilizing gas, to decontaminate infested equipment. The fumigated equipment had a value of \$26,981.00 if the beekeepers had needed to replace with new.

Colony Movement: Permits were issued for 2,610 honey bee colonies to move out of Maryland and 378 colonies to move into Maryland for pollination services. For the second year, Maryland beekeepers sent colonies to California for almond pollination. In November, 2,400 colonies were transported to California for this purpose, to return to Maryland in March of 2007. (See table on page 71 for Apiary Inspection Program Activities.)

Nursery Inspection and Plant Quarantine

The nursery and greenhouse industry continues to be a strong part of Maryland's agricultural economy. Based on a crop cash value, in 2004, of more than \$360 million, it ranks second among agricultural commodities in the state. Total sales of Maryland horticultural products and services were \$1.04 billion. It is a goal of the section to facilitate the production and sale of Maryland nursery stock by inspecting all plant material intended for sale or distribution, to ensure that it is disease and pest free.

Maryland law and reciprocal agreements with other states require plant material at each producing nursery is to be inspected annually for freedom from dangerously injurious plant pests prior to its movement out of Maryland. These inspections also facilitate phytosanitary certification of Maryland plants for export from the United States. MDA inspectors issued 510 phytosanitary certificates for the movement of plants and plant products to 18 states and territories, and to 14 foreign countries, during 2006. Most of the certificates were issued to meet other states' quarantine requirements for Japanese beetle. The number of phytosanitary certificates issued was reduced during 2006, primarily due to a revised protocol which reduced the need to send certificates with shipments, and a decrease in mail-order trade. Inspections of plants at 733 plant dealers (garden centers, chain stores and landscape contractors) and 384 Nursery Inspection Certificates (nurseries and greenhouses producing nursery stock) were conducted to intercept pests not known to occur in Maryland. The general health of Maryland-produced nursery stock was found to be excellent.

Pest Survey

In August of 2006, the **emerald ash borer** (*Agrilus planipennis*) was detected in ash trees located in the Clinton/Brandywine area of southern Prince George's County. The infested trees were discovered during survey and eradication efforts begun after the detection of the insect in Maryland in 2003, when a Michigan nurseryman shipped infested trees, in violation of a quarantine in that state, to a Prince George's County nursery.

The emerald ash borer, an exotic, devastating pest of ash trees was first detected in the Detroit, Michigan/Windsor, Ontario area in 2002. This federally-regulated beetle is thought to have arrived in the United States in solid wood packing material from its native Asia. It has been found since in Ohio, Indiana, and Illinois. Because of the emerald ash borer, more than 20 million ash trees have died in Michigan, Ohio, and Indiana. On August 22, 2006, the Maryland Secretary of Agriculture issued a Quarantine Order (#06-01) that prohibits anyone from moving ash trees, wood, or any hardwood firewood out of Prince Georges's County until further notice.

Ash trees are one of the most utilized landscaping trees in the United States and are common in Western Maryland forests. Ash accounts for more than 10 percent of the trees planted in Baltimore City, and an estimated 3 percent of trees in wooded areas of Baltimore and surrounding counties. The USDA has estimated that losses could exceed \$227.5 million in the Baltimore area alone, should this pest become established. Ash is also the second most predominant tree, and one of the most frequently successful, in streamside buffer areas that protect the Chesapeake Bay watershed.

The MDA, with federal funding support and in cooperation with federal, state, and local government partners, has undertaken a massive eradication effort continuing into 2007. The emerald ash borer spends the winter in its immature stage under the bark of ash trees. All tree removal needs to be completed by March 31, 2007, before the adult beetles emerge in the Spring and infest more trees. The MDA and Maryland Department of Natural Resources (DNR) are surveying the area south of Rte. 4 to locate all ash trees and determine how far the emerald ash borer has spread. All ash trees within 1½ miles of the farthest known infested trees will be removed and destroyed. At the time of this writing, the eradication area encompasses more than 14,000 acres.

The most significant development affecting the PP&WM Section in 2006 was the rediscovery of emerald ash borer in Prince George's County in August. It was fortunate that this discovery occurred after the bulk of the pest detection activities were completed or nearing completion. This discovery could easily overshadow all other activities that are extremely important to our mission to protect Maryland's agriculture and environment from plant pests.

Current information on pest distribution and abundance is needed for regulatory actions by the Department and for pest control actions by Maryland farmers. Maryland Department of Agriculture Plant Protection & Weed Management's pest survey program has been the instrument fulfilling this mission.



Dick Bean strips the bark from a dead ash tree to show a news reporter how to identify emerald ash borer larvae, which lives under the bark of ash trees, killing the tree within three years of infestation.

The Cooperative Agricultural Pest Survey (CAPS) is a joint project between MDA and USDA-APHIS-PPQ. USDA recommends pests of quarantine export significance as survey priorities and provides funding for these surveys. MDA adapts the appropriate survey methods and conducts the actual survey. This cooperative program has provided necessary data used to certify Maryland products for export to many countries.

CAPS surveys document the presence or absence of exotic pests in Maryland, support APHIS-PPQ exotic pest survey activities, and provide state-specific data for exotic pests in the United States. If any of these species were to become established, it would pose a significant threat to our agricultural production and have a significant impact on Maryland's ability to export agricultural commodities. Early detection of exotic pests before they become established will aid in any eradication or control efforts undertaken and protect Maryland agriculture and the environment from potentially devastating losses.

A total of 3,934 insect traps were deployed and monitored in 2006. Through the various types of surveys conducted, 14,731 samples were collected and over 94,000 insects identified. Trapping techniques involved a wide range of devices including blacklight and pheromone traps. Visual surveys accounted for the detection of two new sites infested with giant hogweed. The blacklight and pheromone traps were instrumental in alerting growers on the Eastern Shore of a potential outbreak of black cutworm that can cause severe losses to corn and vegetables.

The surveys target pests that are both exotic and endemic to Maryland. Eighteen extensive surveys for exotic wood borers, stored product pests, field crop and vegetable pests including diseases such as soybean rust, and fruit crops were conducted. The majority of the pests targeted were either not present or did not reach significant levels of concern. A few did, such as emerald ash borer and imported fire ant. Expanded distribution of the euonymus leaf notcher was also detected in Anne Arundel County.

The **red imported fire ant**, *Solenopsis invicta*, a South American stinging insect, continued to present survey challenges to MDA. This pest is occasionally shipped out of the Southern United States, in spite of a federal domestic quarantine that prohibits movement of a variety of commodities unless treated and/or certified free of fire ants. The insect's ability to quickly colonize in a variety of habitats, and its aggressive foraging behavior, pose additional dangers if established in Maryland. It is a serious pest, having agricultural and human health importance. Interstate shipment of nursery stock has been the most common means of long distance spread of red imported fire ants. Thirty-two isolated infestations have been eradicated in the state since 1989. The continuing detection and eradication efforts of the red imported fire ant required 114 surveys on 85 sites in seven counties. Eleven of the 12 positive sites were associated with palm trees imported from Florida. Eradication efforts have begun at all the positive sites. USDA and the Florida Department of Agriculture and Consumer Services have stepped up their efforts to halt this problem at the source.

Plant Certification Programs

The MDA greenhouse continued to maintain virus-free roses for tissue culture production of plants. The 12 varieties were propagated by tissue culture in 2006, producing a total of 2,896 plants.

The **Maryland Ginseng Management Program** protects American ginseng, *Panax quinquefolius*, from over-harvest by monitoring the harvest of ginseng by licensed diggers of wild, wild-simulated woods-grown, and cultivated ginseng. MDA conducts a management program, in cooperation with the U.S. Fish and Wildlife Service (USF&WS), that follows established protocols to insure the continued availability of a potentially threatened native resource and to protect it from over-harvest. Harvested ginseng is certified through the program to enable licensed dealers to sell this wild harvested plant product in international markets. The dried roots are highly prized, especially in China and Korea, for their putative properties in promoting good health.



Carol Holko, leader of the Maryland Emerald Ash Borer Eradication Project, inspects a mulch pile to make sure that the chips are less than one inch in any two directions, the specification necessary before mulch can be transported out of Prince George's County where the emerald ash borer has been found.

During the 2005-2006 harvest and sales season, the certification program inspected, collected size and age data from, and weighed 96 pounds of dry wild ginseng root, 460 pounds of "artificially propagated" dry ginseng root (this category, initiated by the USF&WS includes wild-simulated and woods-grown ginseng categories) and one pound of green (fresh) "artificially propagated" ginseng root. Data were gathered and reports submitted in accordance with U.S. Fish and Wildlife Service requirements. The amount of wild ginseng certified in 2005-2006 represented an approximate 57 percent decrease as compared to 2004-2005. Certification and export of wild-simulated ginseng also decreased by nearly 27 percent. These data seem to reflect a marked downturn in the price per pound offered for ginseng on the international market, and also were likely influenced by regulatory changes made by the USF&WS in 2005. Since those changes were made, however, USF&WS officials have made further changes that are likely to positively affect ginseng harvest and export in 2006-2007. Those changes are outlined below.

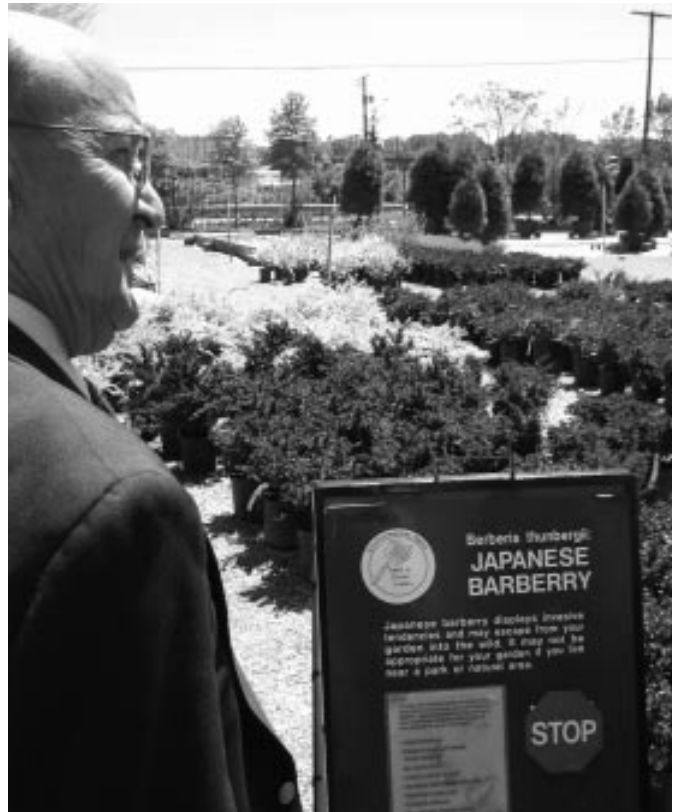
Changes that were made in the federal regulations in August 2005 were reevaluated by the USF&WS, Division of Scientific Authority after meetings with state ginseng management program coordinators and public hearings held in February and March of 2006. The minimum age for harvest of wild American ginseng was again returned to five years of age. At the meetings with state government ginseng program administrators, the USF&WS received assurances from state officials that more intensive population survey and conservation efforts would be undertaken by the states that export wild American ginseng. This change affects all ginseng exporting states, not only Maryland. No changes have been made to the minimum ages for harvest for export of cultivated, woods grown and wild simulated American ginseng, therefore ginseng growers should be minimally affected by the changes in federal regulations. Cultivated field-grown American ginseng roots of any age may still be harvested for export

The changes, based on consideration and evaluation by the USF&WS, should still “ensure that wild American ginseng remains viable throughout its range in the United States” and that the harvest and export of wild American ginseng remains “non-detrimental to the survival of the species.” Such outcomes are primary goals of the U.S. Fish and Wildlife American Ginseng Management Program and are goals that are supported by the Maryland Department of Agriculture Ginseng Management Program.

The amount of ginseng “cultivated” (including woods-grown and wild-simulated designations) in Maryland, and certified by the department, continues to remain high relative to the amount of wild ginseng. This reflects both continuing interest in ginseng as an alternative crop, and the ability of Maryland growers to produce high quality ginseng. If this trend continues, harvest pressure on wild ginseng may be reduced, in turn, allowing wild ginseng populations to rebound.

Diagnostic Laboratories

The diagnostic laboratories provide testing and analyses that support departmental programs and provide answers to inquiries from outside the department and from the general public. During 2006, samples submitted to the laboratory were received from Plant Protection and Weed Management Section survey and inspection programs, other MDA sections, University of Maryland Cooperative Extension, nursery and landscape businesses, and the general public.



Agriculture Secretary Lewis Riley toured Benke’s Nursery in Beltsville this summer. Benke’s has a strong educational program to teach consumers to avoid planting invasive species.

Entomology Laboratory

The Entomology Laboratory processed a number of interesting samples in 2006. Some highlights follow: a mealybug, *Chorizococcus brevicurvis*, was collected on a greenhouse *Hoodia* from California, an onion aphid, *Neotoxoptera formosans*, was found in fancy onions and garlics at a gourmet market.

A very interesting tropical ant, *Odontomachus* sp., which snaps its large jaws to launch into the air and escape predators, was collected on palm trees from Florida. A horntail ‘wasp’, *Urocerus gigas flavicornis*, not known in the East below New Hampshire, was found in an exotic beetle trap in Baltimore.

High-end lacquered Asian furniture from Florida was found to be riddled with large larvae and adults of a cerambycid beetle, *Stromatium longicornis*. In some places, only the thick lacquer pant was intact, concealing powdered wood.

Three bedbug (*Cimex lectularius*) collections from hotels reflected the national increase in these pests as less toxic pesticides are utilized for control.

In addition, entomology laboratory staff identified plenty of snakes, camel crickets, cicada killer wasps, as well as the unfortunate reappearances of emerald ash borer (*Agrilus planipennis*), red imported fire ant (*Solenopsis invicta*), and brown garden snail, *Cryptomphalus aspersus*.

Plant Pathology Laboratory

The mission of the Plant Pathology Laboratory (PPL) at the Maryland Department of Agriculture (MDA) is to collect, accept, and evaluate plant samples for plant pathogens and diseases. General activities include: evaluating plant samples in support of the Nursery Inspection Program to ensure that all plant material in Maryland intended for distribution or sale is disease free; diagnosing plant diseases submitted by other sections of MDA, i.e., Pesticide Regulation and Forest Pest Management, other Maryland agencies, home gardeners and home owners, consultants, and industry representatives; providing technical and diagnostic support for virus-free certification programs; supporting the Cooperative Agricultural Pest Survey Program through laboratory assays for specific diseases; and supporting USDA, APHIS and MDA regulatory functions through diagnostic assays for pathogens of regulatory importance.

Plum Pox Virus (PPV)

Sharka disease, caused by plum pox virus (PPV), was first detected in the United States in September 1999, in a peach orchard approximately 20 miles north of the Maryland border in Adams County, Pennsylvania. Plums, peaches, nectarines, and apricots may be infected by the virus that is spread via budwood, infected root stocks, and by aphids. Fruit produced on infected trees is of poor quality and may show rings on the skin. Plum pox virus is economically important because it can cause fruit to be unmarketable and can decrease the yield of infected trees. In Europe, several wild or ornamental *Prunus* species have been identified as alternate hosts, possibly putting Maryland's ornamental nursery stock at risk as well.

In 2006, The Plant Pathology Laboratory assayed 1,815 samples for plum pox virus using the Agdia enzyme-linked immunosorbent assay (ELISA) as part of MDA's continuing involvement with the Plum Pox Virus Cooperative Agricultural Pest Survey. The laboratory samples originated from field samples from commercial growers, abandoned orchards, and private yards in neighborhoods. **All samples in 2006 were leaf samples (no budwood or fruits were sampled) and all tests were negative for**

plum pox virus. Continuation of the Plum Pox Survey in 2007 is uncertain.

Phytophthora ramorum

In 2004, **Ramorum Blight /Sudden Oak Death**, caused by *Phytophthora ramorum*, a fungus-like microorganism, exploded on the American nursery industry. Economically-important nursery plants (e.g., *Rhododendron*, *Viburnum*, *Pieris*) were found to be susceptible to what was previously a forest disease in California and Oregon on several oak species. More than 100,000 trees on the West Coast have been killed as a result of infection by this pathogen. Plants from nurseries where *P. ramorum* was found were shipped to all parts of the country, including Maryland, where *P. ramorum* does not exist. In 2004, Maryland had three confirmed sites where plants infected by *P. ramorum* were found. In an attempt to keep *P. ramorum* out of Maryland, where 60 percent of the state's forest trees may be susceptible to the pathogen, MDA again participated in the National Nursery Survey and the Forest Pest Survey in 2006. Nursery inspectors also visited and sampled plants from nurseries that may have contained trace forward plants.

Diagnostic approval. The laboratory was authorized to perform diagnostic tests for *P. ramorum* by USDA, APHIS, PPQ through the Provisional Laboratory Approval Program on June 9, 2006. Authorization was granted after the laboratory passed an inspection of the physical facilities, submitted a written Standard Operating Procedure, and passed a proficiency panel consisting of 20 unknown DNA samples. The laboratory was authorized to perform both the nested and real-time PCR protocols as specified by USDA, APHIS, PPQ. The Plant Pathology Laboratory presently is one of only 11 laboratories in the country authorized to perform these diagnostics. Presently, Dr. John Bowers holds the authorization for the laboratory. Plans are to obtain training and authorization for Rich Anacker and Heather Brown.

Nursery surveys. The Plant Pathology Laboratory received only 49 field samples from 19 survey nurseries, three past positives sites, and two trace forward sites. An additional 57 samples from 34 sites not on the National Survey list were tested by the laboratory. Samples were processed using culture methods as well as the DAS-ELISA and real-time PCR protocols specified by USDA, APHIS, PPQ. No suspect samples were sent to USDA, APHIS, Beltsville, MD, for clarification and confirmation. **Eighteen samples tested positive for *Phytophthora* spp. (17 percent), and all samples tested negative for *P. ramorum* in 2006.** Prolonged periods of hot, dry weather separating short periods of wet, rainy weather this year may not have been conducive for infection by *Phytophthora* species and subsequent disease development, and may have contributed to the low number of samples processed this year. Stringent testing of

nursery stock before shipping from West Coast nurseries also helped reduce the spread of pathogens to other parts of the country. Increased awareness of the potential of *P. ramorum* to spread in nursery stock by the nursery and landscape industry also may have been a factor in the lower number of symptomatic samples processed this year. A better method of surveying nurseries and collecting samples is needed. Not enough samples were tested this year to adequately detect *P. ramorum* in Maryland’s nurseries or landscapes.

University of Maryland Home and Garden Information Center (HGIC). An outreach program established in 2004 in cooperation with the HGIC continued this year. The purpose of the program is to alert the public about sudden oak death, and to request homeowners to send in samples from plants that may have come from infected nurseries and have symptoms caused by *P. ramorum*. Only nine sample kits were requested and sent out this year, and three were returned (33 percent). **All were negative for *P. ramorum*.** The low response by the public may be due to a lack of funding for outreach this year as more “Wanted” posters were not able to be printed and distributed. Funding for outreach is a major need for this program, and funding sources will be explored in cooperation with the HGIC.

Forest surveys. As in preceding years, the laboratory processed plant samples from the National Forest Service survey in 2006. General forest and nursery perimeter samples were received from Maryland (113 samples), Delaware (27 samples), and New Jersey

(11 samples). All samples were assayed only using real-time PCR. **All samples were negative for *P. ramorum*.**

Pilot watershed survey. In 2006, the laboratory participated in a pilot study through the USDA Forest Service to survey watersheds for *P. ramorum* using a stream baiting technique. Leaf baits (*Rhododendron* leaves) were floated in streams for 2 weeks each month, from June through September, at 9-10 sites in Baltimore, Harford, and Carroll counties. An additional three stream sites at the U.S. National Arboretum in Washington, D.C. were sampled once in August. All samples were assayed using real-time PCR and culture methods. **All samples were negative for *P. ramorum*.** Water samples also were collected from several streams in Western Maryland, and assayed for *P. ramorum* using a water filtration method and subsequently culturing the filter on semi-selective medium for species of *Phytophthora* trapped on the filter. **No cultures of *P. ramorum* were recovered.** The laboratory is presently engaged in identification of the species of *Phytophthora* recovered from streams in the state as a result of these surveys. Morphological and molecular methods are being used to examine 100-150 cultures.

The Plant Pathology Laboratory will continue in 2007 to assay plant samples for *P. ramorum*, participate in survey and trace forward programs, and continue efforts to educate the nursery industry and the general public about the seriousness of this disease and what it means to Maryland’s nursery industry and forests.

Phytophthora ramorum

Assays–2006	# Sites	Field Samples	Lab Samples	ELISA +	PCR +
National Survey	19	40	40	8	0
Trace Forwards	2	8	8	0	0
Past Positive	3	1	1	0	0
U. of MD / HGIC	3	3	3	0	0
Miscellaneous	34	57	57	10	0
Forest Pest Survey ¹					
Maryland	31	113	113	–	0
Delaware	15	27	27	–	0
New Jersey	10	11	11	–	0
Total	117	260	260	18	0

¹Forest Pest Survey samples were tested with real-time PCR only.

Phytophthora kernoviae

In 2006, work was initiated to obtain the real-time PCR protocol for *Phytophthora kernoviae* developed by the Central Science Laboratory (CSL) in the United Kingdom. A sample of DNA from culture was obtained from the CSL, specific primers and probe were ordered, and the assay was run on the Cepheid SmartCycler in the laboratory. Preliminary results were successful with good amplification curves. We will next ask the CSL to send us environmental samples so that we can fully optimize the assay in our laboratory under our conditions (no APHIS permit is needed for DNA samples). *Phytophthora kernoviae* is a major pathogen in the United Kingdom on beech trees and *Rhododendron*. The pathogen is not yet present in the United States, but the potential exists for it to be introduced into the United States in the plant trade. The development of this assay will ensure that we have the ability to detect this pathogen.

Phakopsora pachyrhizi

Soybean rust, caused by *Phakopsora pachyrhizi*, was introduced into the southeastern United States in the fall of 2004 on the coattails of Hurricane Ivan. This disease has the potential to severely limit soybean production. MDA, in cooperation with the University of Maryland and other interested parties, developed an action plan to prepare for the arrival of soybean rust into Maryland.

The pathogen survived the 2004-2005 winter in Southern Florida, and spread throughout the outheast during the 2005 growing season. Epidemics developed locally and slowly, mostly due to the hotter than normal weather. Major hurricanes in 2005, Katrina and Rita, did not appear to facilitate inter-regional, long distance transport of the pathogen even though spores of the pathogen are capable of being wind-blown over long distances. Wind patterns and weather conditions in 2005 were, for the most part, not conducive for transport and establishment of *P. pachyrhizi* from the southeast into Maryland this year. The amount of over-wintering pathogen from 2004 to 2005 was most likely very low due to the late season introduction and the short time it had for establishment. In 2005, the pathogen became well established in the outheast, extending as far north as North Carolina.

The pathogen survived the '05-'06 winter in southern Florida, and again spread locally throughout the outheast during the 2006 growing season, albeit at a somewhat faster rate than in 2005 due to a greater amount of surviving inoculum. Wind patterns and weather conditions in 2006 were not conducive for transport and establishment of *P. pachyrhizi* from the southeast until late in the season (no hurricanes touched the continental United States in 2006). By this time, soybeans in Maryland were well past flowering and pod set, and any yield loss was not predicted even

if the disease appeared while there was green tissue remaining (mostly on double cropped beans). Late in the season, the disease was found in more locations than at the end of 2005, and reached southeastern Virginia.

Spread of soybean rust into Maryland in 2007 will depend on the amount of inoculum surviving the winter in the southeast on kudzu, and weather patterns during the growing season. If past seasons are any indication, in Maryland only double cropped soybeans late in the season may be at risk, however, that may change if a major weather event (hurricane) tracks up the east coast from the Gulf of Mexico.

MDA established two sentinel soybean plots in St. Mary's County in Southern Maryland in 2006 (in addition to four established by the University of Maryland). These plots were sampled biweekly for both healthy and diseased tissue. Samples from the University of Maryland Plant Diagnostic Clinic also were received. Diseased tissue contained brown spot (*Septoria glycines*), downy mildew (*Peronospora manshurica*), frog eye leaf spot (*Cercospora sojina*), and thrips damage, just to name a few. DNA was extracted from all samples and assayed for *P. pachyrhizi* using real-time PCR (qPCR). **All results were negative for *P. pachyrhizi*.**

Synchytrium endobioticum

During the Summer of 2005, Plant Protection & Weed Management Section received a request from the USDA, APHIS concerning **potato wart disease** and the eradication of the casual agent, *Synchytrium endobioticum*, from Maryland. Potato wart was first found in Western Maryland in 1920 through surveys, and a quarantine was imposed in 1921 by Governor Richie. Activities related to this disease continued on and off until 1993. The request for information was initiated by the Japanese government in relation to the importation into Japan of potatoes grown in the United States. Of specific interest in Maryland was the question as to whether this potato pathogen was still present or had been eradicated, and whether the methods used were appropriate to declare the pathogen eradicated. This fungus is on the USDA, APHIS Select Agent List and is an economic concern where it is found.

Laboratory personnel were in almost daily contact with APHIS representatives passing on information that had been researched in response to the very detailed questions posed by the Japanese. Large amounts of old data, maps, and manuscripts still on file in the laboratory were reviewed and synthesized to determine what was done to declare potato wart eradicated in Maryland. Additionally, Japanese officials from the Ministry of Agriculture, Forestry, and Fisheries visited MDA and toured the potato wart sites in Western Maryland.

In 2006, MDA was informed that the Japanese government had decided to allow U.S. potatoes to be imported into Japan for chipping at port facilities during certain months of the year. This was a major victory for the U.S. government and American potato growers, who, until now, had restricted access to Japanese ports. This access was due, in no small part, to the effort made by MDA and the Plant Pathology Laboratory to work with USDA, APHIS and the Japanese delegation in an open and scientific manner to answer all questions regarding the eradication of potato wart in Maryland.

Plant Disease Diagnostic Clinic

Clinic. The MDA Plant Disease Diagnostic Clinic was established primarily to assist MDA nursery inspection staff with routine diagnostics of plant diseases. The plant diagnostic clinic has received more than 400 samples (a record number) over the 2006 growing season. Samples were submitted by MDA nursery inspectors and pesticide investigators, nurserymen, landscapers, IPM scouts, private consultants, and homeowners. The majority of the samples were of fungal leaf spots diseases, with a number of fungal root rots and canker diseases. Host plants consisted of the usual range of popular nursery and landscape plants.

Outreach through grower workshops, in conjunction with the University of Maryland Cooperative Extension and the HGIC, has increased the awareness of the MDA Plant Pathology Laboratory. Site visits to growing facilities (particularly nurseries) have resulted in increased sampling by the MDA field pathologist and nursery inspectors. Routine field visits have been beneficial to both plant pathology lab personnel and nursery inspectors. Such field visits also benefit growers. Problems often are discussed directly with the grower or production manager, and addressed in the field. This effort will continue in the future whenever possible.

The Plant Pathology Laboratory has been involved with a number of different projects in addition to the regulatory testing programs. A description of each project is detailed below.

***Phytophthora* spp. identification.** In concert with the identification of *Phytophthora* spp. recovered from streams, a major emphasis in the clinic is to identify species of *Phytophthora* that are present on nursery stock, landscape plants, and forest species. Numerous isolates of *Phytophthora* have been obtained through survey efforts and clinic samples, and identified to species by morphological and restriction fragment length polymorphism (RFLP) analyses. Predominant species include *P. cactorum*, *P. cinnamomi*, *P. citricola*, and *P. nicotianae*.

Decline of European Beech. The laboratory also has been working with the Maryland Arborist Association (MAA) to determine the cause of a *Phytophthora* disease affecting European beech trees (*Fagus sylvatica*). Several sites with large, declining European beech trees have been located in Baltimore and Harford counties, and are being monitored. Experimental fungicide treatments were conducted in the fall of 2005 on a large European beech located on the campus of Towson University and at an additional site. These trees continued to be monitored. Carroll Tree Service donated and applied the fungicide treatment.

Rose certification. The Laboratory continues to participate in the virus-free rose certification program with Angelica Nursery. MDA maintains and certifies stock plants of 17 varieties of roses as virus-free. Plants are maintained in the MDA greenhouse with insect controls. Laboratory personnel participated in a visual inspection of all rose plants in the nursery both in the spring and fall, and submitted leaf samples of the stock plants to Agdia for testing in their rose screen for viruses. Visual surveys are conducted twice a year, and testing occurs once each year.

Leaf scorch caused by *Xylella fastidiosa* is a major bacterial disease on oaks, elms, and other tree species in Maryland. Symptoms usually are not expressed until late summer or early fall when the bacterial population in the xylem is large, and may be confused with drought stress, salt damage, or other environmental stresses. A large survey was conducted by the Plant Pathology Laboratory and the Forest Pest Management section in 2002 and 2003, and found that leaf scorch is widely distributed in the state. In 2006, PPWM staff initiated a project with Dr. Norman Schaad, USDA, ARS, Ft. Detrick, to evaluate a bio-PCR method to detect *X. fastidiosa* in oak trees after sap flow begins, before leaf expansion, and early in the growing season when bacterial numbers are low. This method was developed to detect *X. fastidiosa* in grape where it causes Pierce's Disease. The project compared the bio-PCR method (a short culture period on selective medium followed by real-time PCR) and conventional ELISA (Agdia kit) with the goal of conclusively identifying the disease in the laboratory before symptoms occur in nature. A stand of young northern red oak trees recently planted in a new development in East New Market, Dorchester County, was selected for the study. These trees were observed in the nursery the previous year, and thought to be somewhat uniformly infected with the bacterium.

The results this year were inconclusive and inconsistent. A very low number of trees were identified as positive, and at each sample date different trees were assayed as positive. Additionally, results of duplicate samples tested in the Plant Pathology

Laboratory and at ARS, Ft. Detrick, did not match. Much of the inconsistency was due to the low numbers of bacteria present in the sap at each sample date (a hit or miss situation). Also, PCR inhibitors present in the oak sap most likely contributed to the inconsistent results. A follow up sample in the early fall to match symptom expression with bio-PCR results could not be accomplished because the condition of the trees was very bad. The young trees were planted in a sandy soil, and were not properly cared for or watered by the management of the development during the drought periods of the summer. The current protocol of the bio-PCR method also was called into question when a severely infected tree with classic symptoms in the MDA parking lot tested positive with the ELISA method, but not with the bio-PCR method. Further evaluation of the protocol for use on oak trees is needed.

Hosta Virus X (HVX) was a big concern for nurseries and retail stores alike in 2006. An increase in the media coverage of this disease has alerted nurseries, retail centers, and homeowners to the seriousness of this virus. Nursery inspectors and concerned homeowners brought several cultivars of hostas to the Plant Pathology Laboratory to be tested for HVX. The hostas were tested by Jayme Dinsmore (an intern from Catholic University), using an ELISA assay (Agdia kit) to determine the range of cultivars infected. A total of 71 samples were tested, and 34 tested positive for HVX (48 percent). Sample of both positive and negative plants were planted in a small area next to the MDA greenhouse to determine the fate of the virus in plants over time. These hostas will be tested several times next year and monitored yearly to determine the effects the environment has on the virus and the effects of the virus on the plants. Below is a table of the different cultivars that were tested this year and results obtained.

Africanized honey bees. In 2006, the laboratory initiated a project to identify Africanized honey bees using molecular methods. The current morphological method is time consuming and requires specialized techniques, whereas the published molecular method can be accomplished in a shorter period of time and requires techniques already established in the laboratory. Native honey bees preserved in ethanol were obtained from the Apiary Inspection program and DNA extraction was attempted. Results were poor. Residual ethanol in the bees may interfere with extraction of DNA with the kit used in the laboratory. DNA extraction was successful with fresh bees, trapped and then frozen, not placed in ethanol. We requested a sample of Africanized bees from Apiary Inspection, but their contacts have not yet responded. Shipping the bees in ethanol also may complicate DNA extraction, and other shipping methods may be needed that still meet APHIS requirements.

Once DNA has been successfully extracted from both types of bees, tests to differentiate the two types can be further developed.

Additional note. The Plant Pathology Laboratory would like to acknowledge the retirement of Ethel Dutky, Director of the Plant Clinic for the University of Maryland. She has assisted the Plant Pathology Laboratory on numerous occasions, and her expertise has been invaluable to our department. We wish all the best for Ethel in her retirement.

Hosta Virus X Test Results

Cultivar	Number of Plants HVX positive	Number of Plants HVX negative
Albo-marginata	0	2
Aphrodite	0	1
August Moon	0	1
Baby Bunting	0	1
Blue Cadet	12	5
Blue Mouse Ear	0	1
Blue Tiara	0	1
Cheatin Heart	0	2
Francee	3	1
Ginkgo Craig	0	1
Golden Tiara	3	0
Guineviere	3	0
Maui Buttercup	0	2
Patriot	0	2
Sieboldiana	0	1
Shade Fanfare	0	1
Sum & Substance	3	1
Sunpower	0	1
Striptease	4	0
Wheaton Blue	0	1
Wide Brim	0	1
Unknown	6	10

Greenhouse Laboratory

Plants were produced for integrated pest management and biological control programs that require food for insect colonies and plant material for research. A collection of herbaceous perennials used for teaching and testing purposes by the Certified Professional Horticulturist Program, in conjunction with the Maryland Nursery and Landscape Association, was increased.

Integrated Pest Management & Biological Control

Participation in the **IPM Maryland Program**, a cooperative effort between MDA and the University of Maryland, continued and expanded. IPM Maryland consolidates research, education, outreach, regulatory, and support aspects of IPM to mutually benefit agriculture, the environment and the citizens of Maryland. Cooperative efforts continued with MDA, the University of Maryland, growers, and the Northeast Integrated Pest Management Center (NEIPMC). MDA represents Maryland state regulators at the NEIPMC through a seat on the Advisory Council. In 2006, the section was active on planning and implementation teams for the Maryland Plant Protection Center, a cooperative effort between USDA and the University of Maryland, which aims to establish a leading academic research and extension program in the mid-Atlantic region.

Weed Integrated Pest Management (IPM)

Under the direction of Plant Protection and Weed Management Section entomologists, staff assisted in an integrated pest management (IPM) program to provide biological control of certain thistle species. The program has helped greatly to control musk thistle along highway areas that are inaccessible to mowing and/or spraying equipment. MDA provided technical assistance to the federal government, county governments and other state agencies with noxious weed problems on public land, including the University of Maryland, Department of Natural Resources, correctional institutions, county road departments, State Highway Administration and the U.S. Department of the Interior.

Thistles

Weed IPM research activities continue to be conducted at field plots at the MDA facility in Cheltenham. Field plots established along State Highway Administration rights-of-way sites during each of the past six years continued to be used for evaluation and to conduct weed suppression trials. Investigations continued on integrated pest management of *Cirsium* and *Carduus* thistles. Research is concentrating on the evaluation of organisms for potential biocontrol, testing herbicide formulation efficacy, and evaluating the use of competitive vegetation (including native

grasses and forbes) in an effort to provide environmentally-sound and cost-effective methods for suppression of noxious thistle species in Maryland. The department continues to be involved with the State Highway Administration in a cooperative thistle management program on state highway rights-of-way.

Rose Rosette Disease

A survey for the presence and effects of rose rosette disease was continued in 2006. Rose rosette disease is a pathogenic malady of the multiflora rose, *Rosa multiflora*, that has become established in North America and is spread by natural means. The disease reduces populations of this invasive rose species. Results indicate that the disease is continuing to spread over a wide portion of Central and Northern Maryland. In 2001, rose rosette disease was detected for the first time in Cecil and Prince George's counties and, in 2002, symptomatic plants were found in Queen Anne's and Kent counties. In 2003, symptomatic plants and the eriophyid mite vector were discovered in Garrett County. New detections of rose rosette disease have been recorded in each subsequent year; however, it has not been found in any new counties. In 2002, a field experiment to test the relative susceptibility of various rose cultivars and native species to rose rosette disease was designed and implemented at the MDA facility in Cheltenham. In 2003, problems with deer and vandalism postponed efforts at gathering data. In 2004, major renovations to the plots where the experiment is being conducted were made, including installation of deer exclusion cages and replacement of weed barrier cloth. In 2006, at last, plants were large and healthy enough to inoculate with eriophyid mites from multiflora rose plants that were symptomatic for rose rosette disease. Experimental results continued to be recorded in 2006. This experiment is intended to provide valuable information needed to assess the effects of the disease on rose species other than *R. multiflora* including native species and cultivars important to the landscape and nursery trade in Maryland.

Purple Loosestrife

This was a banner year for releases of biological control agents, *Galerucella californiensis* and *G. pusilla* (leaf-feeding beetles) on populations of purple loosestrife (*Lythrum salicaria*). During the summer and into the fall of 2006, more than 48,000 adult beetles were released at eight general locations (each location comprised of several specific sites) in Central and Southern Maryland west of the Chesapeake Bay and on Maryland's Eastern Shore. This season's *Galerucella spp.* release effort was by far the largest to date performed in Maryland and included new sites and counties (Charles and Caroline). It also included the first multifaceted amphibious releases (by boat and by boot) along both the Anacostia and Patuxent rivers. Several agencies cooperated in this effort: the Maryland Department of Natural Resources (DNR), the Maryland National Capital Park and Planning Commission

(MNCPPC) and the Maryland Department of Agriculture (MDA). Funding for the project was, in part, derived from funds dedicated by the Maryland Department of Transportation, State Highway Administration (SHA). MDA was the primary coordinating agency, received all of the beetle deliveries, and holds the permit for and was present at all of the releases of the *Galerucella* leaf beetles. To address the demand for adult beetles for release at various locations around the state in the future, preparations were completed for the establishment of a *Galerucella* rearing facility at the MDA Cheltenham insect rearing facility. MDA and DNR staff visited the New Jersey Department of Agriculture's Alampi Beneficial Insect Laboratory in Trenton, New Jersey in September 2005 to gather information, and first-hand knowledge regarding the artificial rearing of *Galerucella* leaf beetles in greenhouse and laboratory settings. This information and expertise was applied in 2006. The facility for rearing adults made ready, MDA staff received shipments of the purple loosestrife leaf beetle, *Galerucella* spp. from the New Jersey Department of Agriculture (NJDA) in late August 2006, expressly for the purpose of establishing a colony of the biocontrol agents. Purple loosestrife plants were grown at and moved, as needed, from the MDA Annapolis greenhouse to the MDA Cheltenham greenhouse for use in the rearing of the leaf beetles. Additional beetles to supplement the colony were received from the (NJDA) in late September. To date, the rearing effort appears to be a success and small numbers of "Maryland raised" beetles are expected to be ready for release in 2007.

In addition to the releases and the rearing project described above, locations of prior releases in Prince George's and Howard counties were again surveyed for the biocontrol agent in 2006 and beetle activity was detected. An average of 30,000 beetles per year had been released over several years through 2003. The releases were intended to establish populations of the leaf feeding beetles in field insectaries, to support field collections for biological control efforts, and to allow for redistribution in the future. Sites where beetles were released in past years (Font Hill Park in Howard County, Baltimore-Washington Parkway, and Merkle Wildlife Management area in Prince George's County) were evaluated for levels of plant control and were surveyed for establishment of the beetles. No detectable level of control of purple loosestrife has been noted, but for the second consecutive year, high numbers of beetles were recovered at the Howard County site, indicating that establishment is in an exponential population increase phase at that location. The apparent slow initial increase in population levels of the beetle, and initial lack of significant control of the pest plant is typical of *Galerucella* biocontrol of purple loosestrife. Slow increase of beetle populations is not uncommon, and significant reduction of purple loosestrife populations has taken five to seven years or longer in some other states. Additional releases of adult

beetles, and the expansion of the *Galerucella* rearing facility at Cheltenham are planned for 2007.

Statewide levels of cereal leaf beetle (*Oulema melanopus*) parasitoids, both egg (*Anaphes flavipes*) and larval (*Tetrastichus julis*), were healthy. One thousand five samples were collected, showing egg parasitoid populations about the same as in 2004 and an increase in larval parasitoids.

Japanese Stilt Grass

Experiments in the management of Japanese stiltgrass, *Microstegium viminium*, were designed and initiated in 2004 in a cooperative effort with the Howard County Department of Recreation and Parks. The project is directed at finding proper management tools to help suppress and control this invasive weed species in both natural and roadside environments. In 2005, pre-emergent herbicide treatments were applied and additional data gathered. Data was scrutinized in 2006 and sites revisited. It was decided that at least one more round of data should be gathered from treatment plots in 2007. The potential for widespread control of this pest plant through use of herbicides is rather limited. Herbicides are likely to be most effective on small populations, limited in spread. Large scale control of Japanese stiltgrass is likely only through use of biological control agents.

Noxious Weed Management

This program supports the control and eradication of designated noxious weeds in order to reduce their economic and aesthetic impact on farmers and landowners. Noxious weeds (Johnsongrass, shattercane, thistles, and multiflora rose) cause losses in excess of \$15 million annually to Maryland agriculture due to reduced quality and yields of crops and forages, increased control costs, and increased roadside and development property management cost. The Maryland General Assembly enacted the first Nuisance Weed Law on Johnsongrass in 1969. In 1987, the Nuisance Weed Law was rewritten and renamed the Noxious Weed Law (Title 9, Subtitle 4, Agriculture Article, Annotated Code of Maryland). The Noxious Weed Law requires that a landowner, or a person who possesses and manages land, eradicate or control the noxious weeds on that land by using practices prescribed by the department, including mowing, cultivating, or treating with an approved herbicide. The law prohibits the importation and transportation of these weeds in the state and prohibits the presence of viable noxious weed seed and rhizomes in seed, topsoil, mulch, nursery stock, on-farm machinery, or any other article. The Noxious Weed Law also provides that the Maryland Department of Agriculture may enter into an agreement with a county or political subdivision to provide technical and financial assistance for initiating weed management and eradication programs.

A weed control advisory committee has been established in each of the 20 participating counties, with representatives from farming organizations, governmental agencies, and local farmers. Each committee provides advice or input into planning the noxious weed control program in that county. A county weed control coordinator, usually employed on a part-time basis, determines the degree of noxious weed infestations within the county, locates uncontrolled infestations, provides information on currently recommended control practices, and initiates agreements with landowners to implement a control program. In many counties, the local weed control coordinator also performs spot-spraying on roadsides, in cooperation with the Maryland State Highway Administration, to help eliminate Johnsongrass or thistles and to control noxious weeds on private or public lands for a fee. In counties with no weed control coordinator, section employees handle these duties. This program was active in reducing the impact of noxious weeds in most areas of the state during 2006.

The weed control program provided grant assistance to 20 counties, averaging \$4,400 per county which was leveraged with similar amounts of money from the counties. In addition, the counties generated in excess of \$600,000 from spraying services.

Under the direction of Plant Protection and Weed Management Section entomologists, staff assisted in an integrated pest management (IPM) program to provide biological control of certain thistle species. The program has helped greatly to control musk thistle along highway areas that are inaccessible to mowing and/or spraying equipment. MDA provided technical assistance to the federal government, county governments and other state agencies with noxious weed problems on public land, including the University of Maryland, Maryland Department of Natural Resources, correctional institutions, county road departments, Maryland State Highway Administration and the U.S. Department of the Interior.

Noxious weed advisory notices were mailed to 171 managers of property infested with a noxious weed. Generally these notices were effective in obtaining compliance; when necessary, MDA sent follow-up correspondence resulting in compliance.

The weed control program responds to citizens' requests for technical assistance in controlling invasive, persistent weeds, such as phragmites, kudzu, mile-a-minute, *Ailanthus* (tree of heaven), Japanese stilt grass, purple loosestrife and Japanese bamboo, (*Fallopia japonica*). Cultural control strategies and herbicidal recommendations are made after a site visit determines the appropriate strategy.

Giant hogweed is a federal noxious weed that was first detected in Maryland in 2003. This species is dangerous due to the phytophotodermatitis it causes (blistering, burning of the skin). Giant hogweed (*Heracleum mantegazzianum*) was originally detected at 29 sites in Baltimore and Harford counties. Eight additional sites were added in 2005. In 2006, no additional sites were added to this list. A multi-state eradication effort is underway, all previous sites and all newly verified sites were brought into this program. The eradication effort involves monitoring the sites and chemically treating all emerged plants. Plans have been made for continuing this effort in 2007.

The staff participated with the Maryland Department of Natural Resources for the 10th year in providing a Phragmites Management Program. Phragmites is an invasive species which colonizes tidal and intertidal areas crowding out all our native species. Upon request from landowners or managers, the Weed Control Program staff supplied technical and spraying assistance for control. The DNR provided the material (Aquastar®) that was applied in the nine counties of the Eastern Shore for phragmites. Total spray revenue for phragmites control was in excess of \$55,000 for treating approximately 350 acres in 300 locations in 16 counties.

Field staff also participated in purple loosestrife control. Ten locations were treated in five counties for the control of purple loosestrife. These infestations were considered too small for the release of the biocontrol agent, necessitating the need for herbicidal control.

In all counties, the noxious weed control program's spraying service was offered to landowners participating in the Conservation Reserve Program (CRP) or Conservation Reserve Enhancement Program (CREP). Due to the likelihood of weed problems occurring on land in these programs, spraying services were offered for noxious weed control.

Other Section Activities

During 2006, MDA continued to take a leadership role in the Maryland Invasive Species Council (MISC), a forum for information exchange and consensus building among diverse interests in public and private agencies or organizations concerned with invasive species. Several Plant Protection and Weed Management staff members were directly involved with MISC and were able to assist other members or individuals with technical information on control of invasive plant species or with actual spraying as well as partner with other agencies on grants to control invasive species. Through MISC, MDA has been able to disseminate information on many of the serious pests cited in this report. The MISC Web site is www.mdinvasivesp.org.

Apiary Inspection Program Activities

	2004	2005	2006
Beekeepers Registered	957	987	1,059
Apiaries Registered	1,311	1,337	1,379
Apiaries Visited	729	776	734
Apiaries Inspected	539	591	572
Apiaries with Disease ⁸⁵	40	32	
Bee Colonies Registered	7,771	8,333	7,274
Bee Colonies Inspecte	3,700	4,138	4,215
Bee Colonies with Disease	42	74	50
Laboratory Diagnoses of Bee Diseases and Pests	64	77	82
Colonies Certified for Movement Out of State	1,559	4,303	5,140
Colonies Moved into Maryland Under Permit	572	523	378
Bee Colonies Certified During Inspection	3,700	4,138	4,215
Field Diagnoses for Varroa Mite	96	192	64
Ginseng Dealers Registered	6	8	9
Ginseng Collectors Licensed	249	229	210
Plant Inspections Conducted	1,316	1,217	1,263
Nurseries Certified	394	282	374
Nursery Acreage Certified	10,039	8,126	10,503
Plant Dealers Licensed	679	563	664
Plant Dealer Retail Outlets Licensed	693	679	734
Greenhouse Plants Inspected (1,000 sq. ft.)	7,972	7,556	7,853
Plant Brokers Licensed	17	17	14
Postentry Quarantine Inspections	38	36	39
Phytosanitary Certificates Issued	976	678	510
Condemnation-Seizure Notices Issued	39	4	24
Plants Condemned	15,739	493	624
Imported Fire Ant Positive Sites	10	7	12
Imported Fire Ant Traps Placed	2,188	1,422	3,056
Imported Fire Ant Traps Positive	779	407	927
Special Insect Traps Monitored	2,719	2,329	3,934
Blacklight Samples Processed	6,138	6,490	6,433
Soil Samples Processed for Nematode Surveys	44	73	24

Maryland Department of Agriculture Budget Allocations for Fiscal Year 2006

Total State Budget (Operating and Capital)	\$23,105,679,515
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Maryland Department of Agriculture Budget	\$93,716,960
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Maryland Department of Agriculture Budget Sources	
State General Fund	\$23,113,578
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Special and Reimbursable Funds (Fees, Registration, Testing & MALPF)	\$61,283,998
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Federal Funds (Grants & Cooperative Agreements)	\$9,319,384
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General Obligation Bonds (Maryland Agricultural Water Quality Cost Share, Maryland Agricultural Land Preservation Foundation, and Tobacco Conversion Program)	\$6,163,000
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Source: Fiscal Digest of the State of Maryland, FY2006 C-11, C-26, SB370

Employees of the Quarter, 2006

Every three months, an MDA staff member is selected as Employee of the Quarter based on his or her outstanding performance, attitude and motivation, among other considerations. At the end of the year, one of the four is selected as Employee of the Year. In 2006, these employees were Dwight Dotterer, Resource Conservation Operations based in the Frederick field office; Brenda Baumann, Food Quality Assurance Office based in the Salisbury field office; and Regina Dorsey, Animal Health Section based in the Annapolis headquarters office. Neither the employee of the fourth quarter nor the employee of the year had been named at press time.



Dwight Dotterer works for Resource Conservation out of the Frederick Office.



Brenda Baumann works in the Food Quality Assurance Section in its Salisbury Office.



Regina Dorsey (far right) works with the Animal Health staff in the Annapolis Office.

Staff Directory

Executive Direction— Secretary's Office

Fax (410) 841-5914

Secretary of Agriculture

Lewis R. Riley
(410) 841-5880

Deputy Secretary

John R. Brooks, D.V.M.
(410) 841-5881

Special Assistant to the Secretary for Intergovernmental Relations, Vacant

(410) 841-5880

Special Assistant to the Secretary/Policy, Dr. Keith Menchey

(410) 841-5881

Communications/Media, Sue duPont and Kate Wagner

(410) 841-5881

Public Outreach, Buddy Bowling

(410) 841-5882

Counsel to the Department, Craig A. Nielsen

(410) 841-5883

Rural Maryland Council, Vanessa Orlando (Acting Director)

(410) 841-5772

Information Technology Services,

Michael Goff (410) 841-5737
Fax (410) 841-5735

Administrative Services,

Douglas H. Wilson
(410) 841-5855

Fiscal Services, Joseph D. Lilly

(410) 841-5855

Central Services,
Joseph M. Harrington
(410) 841-5900
Fax (410) 841-5835

Human Resources,

Charles J. Tarrant
(410) 841-5840,
Fax (410) 841-5846

Marketing, Animal Industries & Consumer Services

Fax (410) 841-5999

Assistant Secretary

S. Patrick McMillan
(410) 841-5782

Aquaculture Development/Seafood Marketing, Noreen Eberly

(410) 841-5724

State Veterinarian,

Dr. Guy Hohenhaus
(410) 841-5810

Asst. State Veterinarian,

Dr. Thomas Jacobs
(301) 314-1870

Animal Health Laboratories: Centreville, Dr. William P. Higgins

(410) 758-0846

College Park, Dr. Thomas Jacobs

(301) 314-1870

Frederick, Dr. Virginia Pierce

(301) 663-9528

Oakland, Dr. James I. Fearer

(301) 334-2185

Salisbury, Dr. Maurice Clarke (acting)

(410) 543-6610

Marketing and Agricultural Development

Mark Powell (Acting Chief)
(410) 841-5770
Fax (410) 841-5987

Agribusiness & Direct and National Marketing, Jane Storrs

(410) 841-5770

International Marketing, Theresa Brophy

(410) 841-5770

Farmers' Market Nutrition Program,

Joan Schulz
(410) 841-5770

Maryland's Best, Vacant

(410) 841-5770

Specialty Crop Marketing,

Karen Fedor
(410) 841-5770
Fax (410) 841-5970

Weights & Measures

Richard Wotthlie
(410) 841-5790
Fax (410) 841-2765

Food Quality Assurance

Deanna L. Baldwin
(410) 841-5769
Salisbury Office
(410) 543-6630

Maryland Agricultural Statistics Service/ USDA

Barbara Rater, State Director
(410) 841-5740

Resource Conservation

Fax (410) 841-5736

Assistant Secretary

Douglas D. Scott
(410) 841-5865

Resource Conservation Chief,

Louise Lawrence
(410) 841-5863

Resource Conservation Operations

John C. Rhoderick
(410) 841-5896

Administration, Janet A. Crutchley

(410) 841-5865

Western/Central Md., Daniel J. Bard

(301) 694-9290

Patuxent, Royden Powell

(410) 841-5896

Eastern Shore, David J. Mister

(410) 677-0802

Conservation Grants

Robert Ensor
(410) 841-5864
Fax (410) 841-5950

Administration, Michele Esch

(410) 841-5864

Nutrient Management

F. Fred Samadani
(410) 841-5959

Certification & Licensing,

Renato Cuizon
(410) 841-5959

Plan Implementation,

Robert Wevodau
(410) 841-5959

Training Programs,

Vacant (410) 841-5959

Plant Industries & Pest Management

Fax (410) 841-5734

Assistant Secretary

Mary Ellen Setting
(410) 841-5870

Mosquito Control

Cyrus R. Lesser
(410) 841-5870

Annapolis, Mike Cantwell

(410)841-5870

Hollywood, Mike Cantwell

(301) 373-4263

Riverdale, Jeannine M. Dorothy

(301) 927-8357

Salisbury, David A. Schofield

(410) 543-6626

Forest Pest Management

Robert H. Tichenor, Jr.
(410) 841-5922
Fax (410) 841-5835

Survey & Control, Vacant

(410) 841-5922

Central Maryland,

Elizabeth M. Handley
(301) 662-2074

Eastern Shore, Steve A. Tilley

(410) 479-2047

Northeast Maryland,

Robert L. Tatman
(410) 879-8034

Southern Maryland,

Sarah A. Hughes
(301) 782-7155

Western Maryland, David L. Cohen

(301) 777-3601

Forest Health Monitoring, Vacant

(410) 841-5922

Pesticide Regulation

Chief, Dennis W. Howard
(410) 841-5710
Fax (410) 841-2765

Enforcement, Dennis W. Howard

(410) 841-5710

Certification/Training,

Edward A. Crow
(410) 841-5710

Special Projects, Robert Hofstetter

(410-) 841-5710

Plant Protection & Weed Management

Chief, Carol A. Holko
(410) 841-5920
Fax (410) 841-5835

Nursery Inspection, Matt Travis,

(410) 841-5920

Salisbury, Mark Taylor**Riverdale, Robert Trumbule****Annapolis, Steve Malan, Matt Travis**

Apiary Inspection, Jerry Fischer
(410) 841-5920

Pest Survey, Dick Bean

(410) 841-2743

Laboratory Services, John Bowers

(410) 841-5920

Noxious Weed Control,
Mark Smith
(410) 841-5920

State Chemist
Warren R. Bontoyan
(410) 841-2721
Fax (410) 841-2740

Laboratory Manager,
Ken McManus
(410) 841-2721

Turf & Seed, Chief, Lois Capshaw
(410) 841-5960
Fax (410) 841-5969

Seed Laboratory, Jenny Miller
(410) 841-5960

Turfgrass Activities, Dale A. Morris (410)
841-5960

Seed Certification, Dale A. Morris
(410) 841-5960

Boards and Commissions

Aquaculture Advisory Committee
Chairman, Aaron Morgan
Coordinator, Noreen Eberly
(410) 841-5724

Aquaculture Coordinating Council
Chairman, Don Webster
Coordinator, Karl Roscher
(410) 841-5724

Board of Review
Chairman, Roger L. Richardson
(410) 841-5880

Maryland Agricultural Commission
Chairman, Douglas Green
Executive Director, Buddy O. Bowling
(410) 841-5882

**Maryland Agricultural
Fair Board**
Chairperson, Harold Clark
Executive Secretary, Martin Hamilton
(410) 841-5770

**Maryland Agricultural Land
Preservation Foundation**
Chairman, Dan Colhoun
Executive Director, James Conrad
(410) 841-5860

Maryland Horse Industry Board
Chairman, James Steele
Executive Director, J. Robert Burk
(410) 841-5822

**Maryland Organic Certification
Advisory Committee**
Chairman, Erroll Mattox
Agricultural Coordinator, Karen Fedor
(410) 841-2719

Maryland State Tobacco Authority
Chairman, Earl F. Hance
Executive Secretary, Ray E. Hutchins
(410) 841-5770

**Wine and Grape Growing Advisory
Commission**
Chairman, Richard Penna
Agricultural Coordinator,
Theresa Brophy
(410) 841-5770

Seafood Marketing Advisory Committee
Chairman, William Woodfield
Agricultural Coordinator,
Noreen Eberly
(410) 841-5820

**State Board of Veterinary Medical
Examiners**
President, Christopher Runde, D.V.M.
Executive Director, Laura Downes
(410) 841-5804

State Soil Conservation Committee
Chairman, J. Bruce Yerkes
Executive Secretary, Louise Lawrence
(410) 841-5863

Young Farmers Advisory Board
Chairman, William K. Boniface
Coordinator, Dr. Keith Menchey
(410) 841-5881



Governor
Robert L. Ehrlich, Jr.

Lt. Governor
Michael S. Steele

Secretary
Lewis R. Riley

Deputy Secretary
John R. Brooks, D.V.M.

Wayne A. Cawley Building
50 Harry S. Truman Parkway, Annapolis, Maryland 21401-7080
Baltimore/Annapolis 410-841-5700
Washington Metro Area 301-261-8106
MD Relay Service (TTY Users) 800-735-2258
Toll Free 800-492-5590
Fax 410-841-5914
www.mda.state.md.us