



Animal Industry Division 2013 Annual Report



A Message from the State Veterinarian



Bovine Tuberculosis (TB) has been a focus for the Animal Industry Division (AID) for over 15 years; and with hard work and collaboration, progress has been made. 2013 was a trying year for the TB program with the confirmation of TB in Saginaw County. Division staff efficiently and effectively tackled the disease investigation ensuring the disease was contained and maintained TB Free status for the southern portion of the Lower Peninsula. As TB work decreases, AID will have the opportunity to focus our work in other program areas which ensure animal and human health in Michigan.

Bovine TB is only one example of the work AID does on a daily basis, safeguarding animals in Michigan for the benefit of food safety and public health. Behind the scenes, 55 people work tirelessly to protect, regulate, and promote animal health - something most stakeholders and Michiganders rarely see.

A handwritten signature in black ink that reads "James Averill".

James Averill, DVM, PhD
Animal Industry Division Director and State Veterinarian

In 2013, AID:

Protected Animal Health:

In total, 2,049 work orders (investigations) were completed:

- 1,603 TB program
- 271 cats, dogs, horses, and exotics
- 151 animal shelters
- 43 cervids, dealers, residue
- 41 avian, swine, aquaculture
- Maintained Brucellosis free status in cattle and swine
- Maintained Scrapie certification
- Maintained Chronic Wasting Disease (CWD) certification
- Maintained Pseudorabies free status
- Conducted a workshop on antibiotics in animal agriculture

Provided Customer Service:

- AID delivered presentations at numerous meetings, conferences, and public events
- Developed and coordinated the Radio Frequency Identification (RFID) task force to address changes in the program
- Improved the animal shelter fund application process and funding priorities

Growing the Food and Agriculture Industry:

- Provided advice and expertise for the City of Detroit's Urban Agriculture Working Group as they developed a working document on soils and use in urban communities. Staff also attended working group meetings and provided guidance on livestock requirements and issues of concern.
- Provided leadership and guidance to the Michigan Fiber Industry Coalition as they conducted farm open houses, presented at gatherings and picnics, and coordinated an industry display at the Clare Welcome Center. AID continues to collaborate with the coalition and Michigan State University's (MSU's) Product Center as members prepare to become a cooperative.
- Provided expertise and guidance on health issues relating to aquaculture roadmap to business and aquaponics in Michigan.

MDARD's Bovine Tuberculosis Eradication Program

Bovine TB is a disease caused by *Mycobacterium bovis*. The disease is found primarily in cattle and deer, but has also been found in privately owned cervidae (deer and elk), bison, goats, and carnivores such as coyotes. It can affect any warm-blooded animal, including humans.

Animals infected with bovine TB may not show any outward signs of illness, but may eventually exhibit weight loss and a gradual decline in general health. TB lesions may be found in any organ or body cavity of diseased animals. Because the lungs are often affected, the animal may display symptoms such as coughing and difficulty breathing.

Bovine TB is most commonly spread through respiration. Invisible droplets (aerosols) containing TB bacteria may be exhaled or coughed out by infected animals and then inhaled by other animals or humans. Animals who come in close contact with infected wild deer, or those kept in close contact with other infected animals in enclosed areas like barns, are at greatest risk for exposure to bovine TB. Livestock may also be infected by ingesting water or feed that has been contaminated with saliva and other discharges from other infected animals. Animals and humans may contract bovine TB when they drink unpasteurized milk from infected cows or consume raw or undercooked contaminated meat from infected animals.

Michigan is now one of only a few states in the U.S. that still has bovine TB; and the only state where the disease has become established in wild deer. Until bovine TB is eradicated, other states will continue to impose strict importation requirements to protect their livestock.

With the combined efforts of MDARD and the departments of Community Health and Natural Resources, and with help from MSU and the U.S. Department of Agriculture (USDA), the eradication of bovine TB from northern lower Michigan has been slow and steady. Gradually the area where TB is found in wildlife and cattle has been diminished.



Program Summary

In 2013, Michigan had three bovine TB status areas: TB Free status in the Upper Peninsula and the majority of lower Michigan; Modified Accredited Advanced Zone (MAAZ) status in the following seven counties of northern lower Michigan: Atrium, Charlevoix, Cheboygan, Crawford, Emmet, Otsego, and Presque Isle; and Modified Accredited Zone (MAZ) status in the following four counties of northern lower Michigan: Alcona, Alpena, Montmorency, and Oscoda. A combination of slaughter (passive) and live animal (active) testing was used for surveillance in cattle herds in MAZ and MAAZ of Michigan.

1. Population

Table 1. Number of cattle *herds* by type in each zone

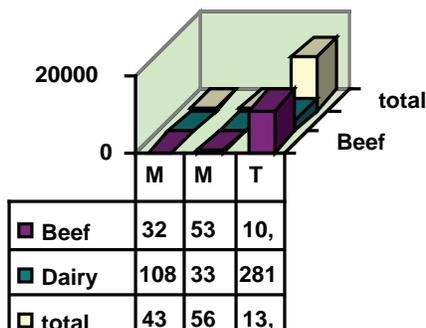
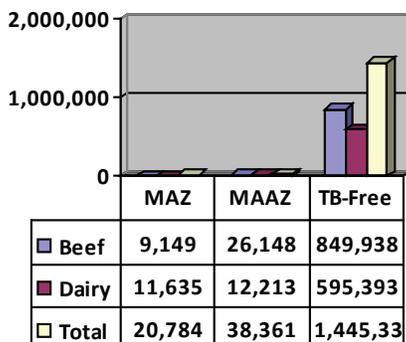


Table 2. Number of cattle in each zone



* Data generated from the USAHerds database 10/21/2013.

* Does not include freezer beef herds or cattle less than 12 months of age.

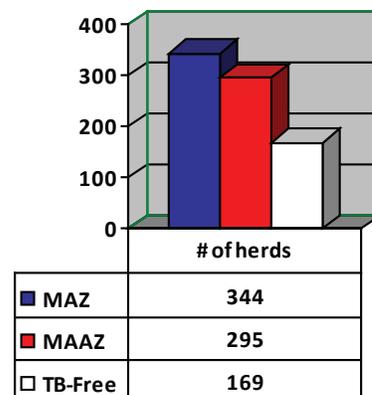
* MAZ as of Sept. 30, 2011 (Alcona, Alpena, Montmorency, and Oscoda counties)

2. Surveillance

Surveillance in Michigan cattle herds consists of:

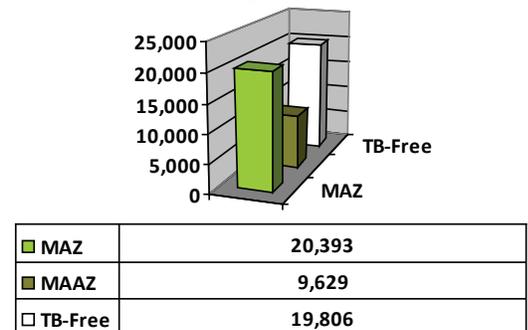
- Annual whole herd testing in the MAZ except freezer beef herds and approved feedlots (no approved feedlots currently exist in Michigan)
- Targeted surveillance testing in the MAAZ and TB Free Zones
- Federal inspection of cattle at USDA-FSIS inspected plants within Michigan and other states
- TB testing of cattle for movement from the MAZ and MAAZ

Table 3. Bovine TB Whole-Herd Testing in 2013



* Data generated from the USAHerds database 11/22/2013

Table 4. Bovine TB Cattle Testing in 2013



Beginning January 1, 2011, MDARD implemented a risk-based surveillance program for bovine TB in cattle as follows:

MAZ - counties of Alcona, Alpena, Montmorency, and Oscoda (high risk area)

1. Whole Herd TB Testing
 - a. Annual whole herd test of all herds except freezer beef herds
2. Slaughter based surveillance at USDA FSIS Inspected Plants
3. Post movement testing of cattle sold from herds in the MAZ and MAAZ that do not have a verified Wildlife Risk Mitigation Status.
4. Trace Source testing (6-4A)
5. Trace Exposed testing (6-4B)
6. Slaughter Trace testing (6-35)

MAAZ - counties of Antrim, Charlevoix, Cheboygan, Crawford, Emmet, Otsego and Presque Isle (low risk area)*

1. Whole Herd TB Testing
 - a. Breeder herds -Annual whole herd test
 - b. Feeder calf producers - Test one half of the herds each year
 - c. Feedlots (sell only slaughter cattle) - Test every 3 years
 - d. Freezer Beef herds - no testing
2. Slaughter based surveillance at USDA Food Safety Inspection Service (FSIS) inspected plants
3. Post movement testing of cattle sold from herds in the MAZ and MAAZ that do not have a verified Wildlife Risk Mitigation Status
4. Trace Source testing
5. Trace Exposed testing
6. Slaughter Trace testing
7. Circle testing around any instances of TB identified in a cattle herd
8. Circle testing around any instances of TB identified in free-ranging cervidae

*Presque Isle County continued annual whole herd testing until September, 2011, when the status was upgraded to MAAZ.

TB Free Zone - All other counties in lower Michigan and the entirety of Upper Michigan (negligible risk area)

1. Slaughter based surveillance at USDA FSIS inspected plants
2. Post movement testing of cattle sold from herds in the MAZ and MAAZ that do not have a verified Wildlife Risk Mitigation Status
3. Trace source testing
4. Trace exposed testing
5. Slaughter trace testing
6. Circle testing around any instances of TB identified in a cattle herd.
7. Four areas for circle testing were designated surrounding instances of TB infection in cattle in the TB Free Zone in FY 2013. These circles included portions of the following counties: Saginaw, Gratiot, Midland, and Arenac. No instances of bovine TB have been identified through this circle testing.
8. Circle testing around any instances of TB identified in free-ranging cervidae
9. Iosco and Ogemaw counties - whole herd surveillance test of all cattle herds located within a 12-mile radius of Iosco County 24N 06E at the convergence of sections 22 and 28, and Oscoda County 25N 04E section 22 by December 31, 2012.
 - a. Forty-two test eligible cattle herds are located in this area. Testing of these herds was continued in FY 2013, and completed on January 22, 2013.

No instances of bovine TB were identified through this testing.

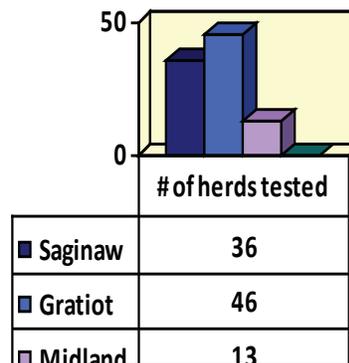


Table 5. Circle testing in the TB Free Zone as of November 13, 2013

Any herds which are not in compliance with surveillance requirements are handled according to MDARD's Compliance and Enforcement Policies.

Slaughter surveillance is conducted by examination of cattle that are presented for slaughter at USDA-FSIS inspected plants in Michigan and throughout the United States. The Michigan Bovine Tuberculosis Eradication Program requires all cattle moved from a farm premises have official RFID ear tags. Slaughter plants throughout the United States receiving the majority of Michigan slaughter cattle have RFID readers that communicate tag information to the USAHerds database. The total number of these scans estimates the number of Michigan cattle slaughtered at each location.

A conservative estimate of the number of MAZ and MAAZ cattle that underwent slaughter examination during this reporting period can be determined by evaluating the number of movement certificates issued to four federally inspected slaughter plants, two major slaughter cattle buyers that purchase in this area, and one major saleyard receiving cattle from the MAZ and MAAZ for re-permitting. The estimates are represented in Table 6.

Table 6. MAZ/MAAZ - Number of cattle sold for slaughter FY 2013*

MAZ	1,310
MAAZ	1,035
Northern MI Livestock Association – both MAZ and MAAZ	13,448
Total	15,793

*Data generated from the USAHerds Database 10/24/2013.



One beef cattle herd and one dairy herd were diagnosed as infected with bovine TB in the MAZ during this reporting period. One dairy herd was diagnosed as bovine TB infected in the TB Free zone during this reporting period. Through exposed trace investigations of this dairy herd, TB infected exposed cattle were identified on two small beef premises and one feedlot in the TB Free zone.

Table 7. Fiscal Year 2013 – Date and location of TB positive herds

Type of herd	County	Zone	Date Diagnosed Infected	Status
Dairy	Alpena	MAZ	Nov. 1, 2012	Test and Removal Program
Beef	Alcona	MAZ	April 2, 2013	Depopulated
Dairy*	Saginaw	TB Free	March 25, 2013	Depopulated
Beef**	Gratiot	TB Free		Depopulated
Beef	Midland	TB Free		Depopulated

*The beef herds identified in Gratiot and Midland counties were infected through purchase of exposed cattle from this herd.

**One feedlot in Arenac County was found to contain a TB infected animal that was exposed on this farm. The feedlot is depopulating as animals reach slaughter weight.

One previously infected dairy herd in the MAZ remains quarantined on a test-and-removal program.

No TB infected herds were identified in the MAAZ during this reporting period.

4. Report on Additional Activities

Compliance Activities

The Compliance Unit opened 570 investigations relating to reports of non-compliance with TB program requirements during FY 2013. Six hundred forty-four investigations were closed during the same period. Two hundred sixty-one investigations resulted in a producer receiving an informational letter for a first time violation of movement of

cattle without bearing official RFID tags. Forty-two investigations resulted in a producer receiving a formal warning for repeated violations for movement of cattle without bearing official RFID tags.

Twenty-eight investigations resulted in a producer receiving a formal warning for other cattle movement violations. Thirty-six investigations were closed due to the producer coming into compliance with rules and regulations. All other investigations resulted in the determination that no violation existed, or official actions were deferred and will be evaluated based upon future compliance interactions.

Mobile patrol surveillance conducted by the Michigan State Police Traffic Safety Division of livestock vehicles in the MAZ and near the MAZ/MAAZ border included 688.5 hours of surveillance. During this time, 164 vehicles were stopped. Six violations of failure to have cattle officially identified with RFID were found (4 percent of total stops). This surveillance was accomplished during 39 weeks of patrol.

Mitigation of the Transmission of Disease from Wildlife to Cattle in the MAZ/MAAZ

In 2008, MDARD worked with a cross-sectional government/industry/university team to develop a new project for mitigating the risk of disease transmission from wildlife to livestock in the MAZ. This project includes an on-farm risk assessment and drafting a Wildlife Risk Mitigation Action Plan (WRMAP) by USDA Veterinary Services (VS) or MDARD regulatory staff, USDA Wildlife Services (WS) Wildlife Biologists, or Natural Resources Conservation Districts (NRCS) conservationists.

The project was instituted in the Fall of 2008 with a goal of having all cattle herds located in the MAZ and MAAZ included by the end of 2011. At that time there were approximately 950 commercial dairy, beef, and bison farms TB tested in the 11 counties comprising the MAZ and MAAZ, and an additional 200 freezer beef herds that do not TB test. The project actively worked in annual rounds at developing biosecurity plans for the commercial herds, but has also worked with 45 freezer beef herds wanting to develop a plan. To date, 984 farms have been verified by the TB Program as wildlife risk mitigated. Note that 104 of these farms have sold out during the several years of the project, while other new herds have been formed. Additionally, since 2009, 11 farms dropped out of the project.

Since Round 5 began in January 2013, 60 farms requested an assessment of their wildlife risk. In particular, we worked with the Michigan Milk Producers Association to encourage dairy herds to participate. The current zoning regulations also encourage participation, particularly for those in the MAAZ.

Implementation Schedule for Wildlife Risk Mitigation Program

In 2011, USDA NRCS received \$1.5 million in dedicated funding for producers in the 11 Michigan counties dealing with wildlife risk mitigation. Working with the State Bovine TB Eradication program to identify those with legitimate needs for cost-share, the NRCS was able to quickly allocate the dedicated funding to producers to implement mitigation practices on their farms. Additionally, Michigan has offered cost-share funding for feed storage, either hoop barns or feed storage fences, since 2008. Seventy-seven producers have implemented cost-share feed storage structures (74 hoop barns and four fenced enclosures) with the State of Michigan paying \$1.1 million of the cost and producers paying \$1 million.

Class of Cattle	Implementation	Current Status
Breeding herds in the MAZ and Subzone 1	October 2008 - December 2009	339 Round 1 farms verified, (goal 300)
Herds in townships with high apparent prevalence of TB in wild deer	December 2009 - December 2010	346 Round 2 farms verified, (goal 400)
Remaining feeders from herds in the MAZ and Subzone 1	December 2010 – December 2011	185 Round 3 farms verified, (goal 300)
All non-WRM verified herds in either MAZ and MAAZ	January 2012 – December 2012	81 Round 4 farms verified
Non-WRM verified herds in MAZ or MAAZ	January 2013-December 2013	33 Round 5 farms verified

Animal Shelter Program

Animal control shelters and animal protection shelters are registered with MDARD and the regulatory program covers animal care, facility design and maintenance, record keeping, and holding times for animals before disposition. The following highlights show the routine, but dissimilar types of investigations AID does every day:

Ringworm in Mecosta County Animal Shelter

Healthcare providers and veterinarians in the Big Rapids region were informed that MDARD quarantined the cat area of an animal shelter in Mecosta County due to a fungal infection (ringworm) in some shelter cats. The action assures appropriate treatment, cleaning, and disinfecting is completed. No adoptions were allowed from the shelter until the cats were clear of infection and a documented cleaning and disinfecting episode had taken place. Ringworm is not a reportable disease to the State Veterinarian. But, since it is a public health issue, in the interest of both public and animal health, AID wanted to ensure local health departments were aware of the situation.

Detroit Animal Control

The Animal Industry Division met with Detroit Animal Control in 2013 to assist in resolving the problems that come with transferring an office from one department to another. AID met with the Detroit Police Chief and the Animal Control Director to discuss the importance of smooth operations in light of public health implications. This visit brought positive action on the part of the City of Detroit and contractors were paid and back to work helping the animal control shelter function properly.

AID Helps Cat Haven Understand Responsibilities

In 2013, AID staff visited a passionate, soft-hearted individual who owned a “forever” home for cats. She thought she had to be licensed to own and care for the 50 cats that found a place to live out their lives in her place. She provided a setting with plenty of space for the animals to play, plenty of resting perches, food, water and clean litter. The forever home for these felines was a peaceful and harmonious setting. The owner receives

donations, has volunteers helping her, and did not plan to sell or adopt out the cats. She was not breeding the animals and had a veterinarian providing oversight. MDARD informed her a license to operate was not needed and she was happy.

Inspections

AID is responsible for registering and inspecting 195 animal shelters throughout the State of Michigan, both government run and non-profits. Animal control shelters are government operated shelters with the purpose of housing stray, confiscated (usually in relation to animal cruelty cases), or owner surrendered animals, and whenever possible, finding new homes for them. Private protection, often non-profit, shelters are operated by private organizations such as humane societies for the purpose of housing and finding permanent new homes for homeless animals.

A video, developed in 2012, is available on our website which explains AID’s process for inspecting an animal shelter. Additionally, the video helps Michigan residents know their rights, and advises on what to look for when adopting pets from shelters.

In 2013, AID field staff conducted 237 inspections due to private concerns, or requests for inspections by the business owners. Staff made sure the cages were appropriately cleaned at least once a day; and looked for proper storage of pet food to prevent contamination by vermin and pests. MDARD staff ensured the animals received adequate water and food and confirmed the walls could be easily cleaned - surfaces in the facility could be sanitized to minimize illness and disease.

Staff confirmed shelters used the services of at least one licensed veterinarian and sought licensed veterinary services whenever a health issue arose. AID encouraged shelters to work with their veterinarians whenever an animal in the shelter was ill or injured, and made sure the shelters had accurate and proper record keeping practices. Of the 237 visits, 189 cases were closed, the other 43 are still open due to compliance issues, re-check situations, or follow-ups.



The Animal Welfare Fund Program

The goal of the Animal Welfare Fund is to provide money for the sterilization of pets before adoption, to increase the knowledge and awareness of Michigan's anti-cruelty laws, and to help fund the care of animals while county animal control and law enforcement offices enforce the anti-cruelty laws.

The Animal Welfare Fund was established in 2007 and Michigan taxpayers contribute money via the state income tax return form. Money collected by the fund is distributed through MDARD in the form of grants to licensed animal shelters primarily to help defray the cost of spaying, neutering, and adopting animals in shelters. The fund

is also used for other activities such as education and outreach on the importance of spay-neuter programs and training related to Michigan's anti-cruelty laws.

For the Fiscal Year (FY) 2014 grant period, AID received a total of 56 proposals requesting more than \$488,000. Twenty of 45 proposals from Michigan shelters were funded from the 2013 tax year totaling \$177,131.

The selection process is competitive with each proposal being evaluated and rated on its own merit. The call for proposals required shelters to be registered with MDARD. From 2010 through 2014, the Animal Welfare Fund allocated \$695,976 to 82 facilities throughout the State of Michigan. The number of requests indicates the magnitude of the need for these services.

Ruminants and Other Non-TB Programs

Scrapie

Scrapie is a fatal neurological disease of sheep and goats. It is classified as a type of transmissible spongiform encephalopathy and is caused by an abnormal protein called a prion. Scrapie is not transmitted between species. There is a genetic component in sheep and goats for susceptibility to scrapie – the genotype susceptible to scrapie is QQ. The risk of scrapie in a population may be reduced through genetic testing of animals, especially breeding rams, and by not using rams that carry the QQ gene; 202 animals were officially genotyped in Michigan in 2013. This number includes animals involved in traces, those tested as participation in the Scrapie Flock Certification Program, and owner submitted samples. There were no animals positive for scrapie in Michigan in 2013.

In the 2013 publication by the National Agriculture Statistics Service, Michigan had 82,000 sheep and lambs, 9,600 milk goats, and 18,500 meat goats at the beginning of 2013.

AID monitors compliance activities regarding movement of sheep and goats with official identification presented at licensed livestock markets throughout the state. In order to increase traceability of animals back to the flock of origin, Michigan will no longer allow untagged animals to be tagged with white scrapie tags at licensed livestock markets without providing either documentation showing the flock of origin, or a signed statement from the owner of the flock of origin.

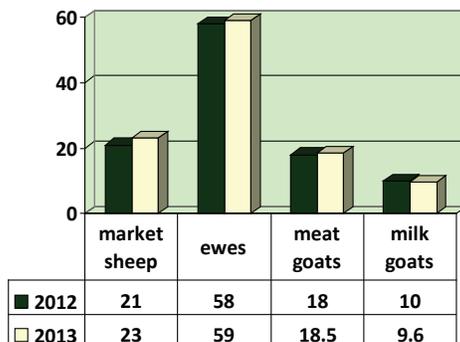


Table 8. Michigan sheep and goat numbers by 1,000 in 2012/2013

Privately Owned Cervids

In December 2013, Michigan had 395 Privately Owned Cervid (POC) - deer, reindeer, elk, and caribou - facilities which are licensed to operate by the Michigan Department of Natural Resources.

There are four classes of POC facilities in Michigan. Each class differs in their identification and record requirements; in their ability to purchase, sell, and move live animals; in their requirements for disease testing; and for the containment of animals (fencing/gates). In 2013, there were 30 facilities in Class I (Hobby); 38 in Class II (Exhibition); 135 in Class III (Ranch); and 192 Class IV (Full).

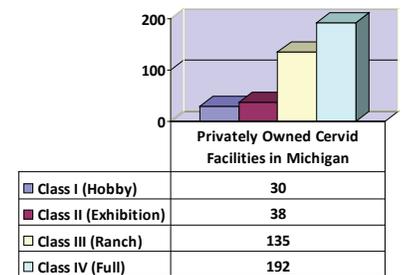


Table 9. POC facilities in Michigan

Chronic Wasting Disease (CWD)

CWD is a neurological disease classified as one of the transmissible spongiform encephalopathies.

Michigan has a CWD Certification Program. Facilities in the program are required to submit all death losses (including cull or harvested animals) over 12 months of age for CWD testing, and submit an annual inventory that includes all sales, deaths, natural additions, and purchases. Certification status is obtained after five or more years of participation in the program with no positive samples. Michigan has 95 CWD Certification Program herds.

Regardless of a certification program or not, all Michigan cervid facilities are required to submit all death losses due to injury or illness over 12 months of age, and 25 percent of culled or harvested animals over 12 months of age. The total number of cervids tested and found negative under the CWD surveillance program in 2013 was 975; and there were no cases of CWD in Michigan in 2013.

The importation process allows Michigan cervid producers, whose herds are bovine TB accredited (116 herds) and CWD certified, to apply for approval to import animals from other states. Each state must be consistent with the new Federal Herd Certification Program for CWD, and producers wishing to move animals into Michigan must meet our fencing and certification requirements on their facilities. Six cervids were approved, by special exception to the moratorium on imports, and allowed to enter Michigan in 2013.

USDA published new federal herd certification program standards during the summer of 2012. Michigan submitted an application to USDA for approval in the new federal program in August 2012. USDA is currently reviewing the application, and Michigan has been granted temporary provisional approval allowing cervid producers to continue to export animals to other states.

Livestock Marketing and Dealer Program

The Livestock Dealer Program provides regulatory oversight regarding licensing, fiscal surety, animal welfare, and disease control issues as they pertain to livestock marketing activities.

Entities engaged in the business of buying, selling, transporting, and/or negotiating the sale and transfer of livestock are required to be licensed and bonded, when appropriate, and to maintain records of such activities. Facilities and transport vehicles are required to be maintained in such condition to assure animal welfare and prevent the spread of disease. Licenses are issued on a fiscal year basis.

There has been some type of Livestock Marketing Program in Michigan since 1937. Today, Michigan has 221 licensed livestock dealers, truckers, auction markets, and collection points.

All Michigan cattle are required to bear RFID tags before they are moved from any property. In 2013, MDARD levied

approximately \$22,000 in fines against two Michigan livestock dealers who illegally moved calves without official RFID tags.

The dealers were also fined for failure to keep adequate records and dealing in livestock without a license, violations of the Livestock Dealers Act (Act 284 of 1937, as amended) and the Animal Industry Act (Act 466 of 1988, as amended), which were established to protect both the cattle industry as well as the consumer.

An animal disease investigation includes tracking cattle sold from a bovine TB positive farm. With an RFID tag, easily scanned with an electronic reader, it only takes a day or two to find the animals. But this investigation took four months, countless additional contacts, and review of books and sales receipts to find the animals – simply because these people did not comply with the law. Without RFID, it's difficult to confirm we are testing the correct animals, so instead of one steer, an entire herd needs to be tested – that's a huge impact on our cattle farmers.

The Gratiot County livestock dealer waived his rights to a formal hearing and agreed to have his Livestock Dealer's License revoked for the remainder of 2013, plus two additional years for improper record keeping. He was assessed a fine of \$11,325 for movement of approximately 53 calves without bearing official RFID. A second livestock dealer waived his rights to a formal hearing and received a fine of \$11,320 for the movement of cattle without official RFID tags from a farm.



Horse Program

Equine Reportable Diseases

The Equine Reportable Diseases program involves follow-up on reportable disease cases in horses. There are currently 26 equine diseases that are reportable and AID typically conducts between five and 10 equine disease investigations each year.

Eastern Equine Encephalitis

Eastern Equine Encephalitis (EEE), commonly called sleeping sickness in horses, is a viral disease transmitted by infected mosquitoes. The primary host is birds, but horses, humans, and other mammals can become infected if bitten by an infected mosquito. EEE requires a bite from an infected mosquito and cannot be transmitted directly from infected horses to other horses or humans. Mosquito precautions for horses are recommended and horses should be vaccinated against the disease to protect them throughout the year. Tips for preventing mosquito-borne sickness in horses include vaccination, mosquito repellants, and stabling horses during prime mosquito exposure hours (dusk and dawn). Hot, wet weather can increase the mosquito population, increasing the risk of EEE.

In 2013, there was one reported case of EEE in Michigan horses. The case was in a 12-year-old grade mare from

Van Buren County. The horse had developed a sudden onset of staggering, depression, and blindness. The horse had not been vaccinated against EEE.

West Nile Virus

West Nile Virus (WNV) is caused by a virus that primarily infects and multiplies in birds, which serve as reservoirs for the virus. The virus is spread between birds through the bite of an infected mosquito. Like EEE, WNV requires a bite from an infected mosquito and cannot be transmitted directly from infected horses to other horses or humans. Mosquitoes can spread the disease to humans and other animals, including horses. Mosquito precautions for horses are recommended and horses should be annually vaccinated against the disease. Taking steps to prevent standing water where mosquitoes can breed, such as by frequently changing the water in bird baths, planter trays, and animal water bowls/troughs, as well as removing old tires and filling puddles, is also advised.

In 2013, there were four reported cases of WNV in animals, three in horses from Allegan, Ingham, and Kent counties, and one in a four-month-old poodle puppy from Livingston County. All had neurologic signs ranging from blindness to incoordination. Two of the horses were not currently vaccinated against West Nile Virus. Please note that while WNV can affect many species of animals, it is rare to see in dogs. There is no vaccine available for dogs.



Companion Animal Programs

Animal Control Officer Program

Most, but not all, counties have animal control agencies. Many local cities and townships, especially in southeast Michigan, also have animal control agencies. Animal control officers are the primary enforcers of the Dog Law. When a jurisdiction has no animal control, enforcement of the Michigan Dog Law falls to local law enforcement.

The Dog Law is important because it provides for the rabies vaccination and licensing of dogs, remuneration of livestock owners for damage to livestock caused by dogs, leash restraint of dogs, animal control officer training, and establishment of animal control agencies. The Michigan Dog Law protects both public health and livestock.

While the Dog Law is largely enforced by animal control officers and local officials (clerks, prosecutors, law enforcement officers, governmental boards), MDARD's Animal Industry Division is the state agency responsible for its oversight. AID reviews and approves animal control officer training and serves as a resource to local agents.

To be employed as an animal control officer in Michigan, an individual must be either a certified police officer or have had a minimum of 100 hours of training approved by AID. To become familiar with state laws and regulations, animal control officers are advised to have eight ride-along hours with AID staff. In 2013, animal control officers conducted eight ride-along trainings and MDARD approved the training of 16 individuals.

Animal control officers, and local law enforcement, also enforce Michigan's cruelty laws, animals running at large laws, dangerous animal laws, and prohibited animals laws (wolf-dog and large carnivore laws). To enhance the division's partnership with individuals performing animal control, AID has been conducting regular visits with animal control officers and

local law enforcement to provide updates, discuss ways animal control agencies and local law enforcement can assist AID, and determine how we can better serve animal control and local law enforcement agencies. In 2013, AID conducted 123 visits with individuals performing animal control activities. Likewise, AID assists animal control and local law enforcement agencies in animal welfare and cruelty investigations. In 2013, AID assisted in five animal control investigations.

Companion Animal Reportable Diseases

Diseases of companion animals that could affect humans, domestic animals, agriculture, or the economy are reportable to MDARD. Depending on the specific circumstances, investigations and trace backs from the index case may be conducted. Some reportable diseases are considered zoonotic diseases since they are capable of infecting humans.

Psittacosis

Psittacosis is a bacterial disease primarily affecting pet birds, but can also affect humans. Infection typically occurs from inhalation of infected droppings, feather dust, or respiratory discharge. There is no vaccine currently available for birds. Prevention of the disease includes testing and a four-week period of isolation for newly acquired birds, following good husbandry practices, and maintaining proper sanitation and records. People are advised to wear gloves, protective clothing, caps, goggles, and a mask when cleaning or handling ill birds.

In 2013, there was one case of Psittacosis in a 5-7 week old lovebird at a breeding aviary in Ottawa County. The breeder had several birds suddenly die including the lovebird, and decided to submit the lovebird for testing. The breeder opted to euthanize 12 birds. The remaining 27 birds in the aviary were placed under quarantine until successfully treated.

Rabies

Rabies is a viral disease that can infect all mammals, including humans. Rabies infection is most often the result of a bite or scratch from an infected animal and is considered universally fatal. Rabies is endemic in Michigan's skunks and bats. Vaccination of domestic animals, particularly dogs, is used to create a barrier between wildlife and humans.

There are licensed and approved rabies vaccinations available for dogs, cats, ferrets, cattle, sheep, and horses, as well as humans. State law requires ferrets be vaccinated against rabies and that dogs be currently vaccinated against rabies to obtain an individual dog license; state law requires all dogs six months of age and older to be licensed. In 2013, there were 41 rabies positive animals in the state, all in bats.

AID monitors all cases of rabies reported in the state assuring domestic animals are considered in an outbreak. This includes epidemiological investigation of possible contacts, determination of rabies vaccination status, issuing and monitoring quarantines, and making recommendations based on standard rabies control documentation (Rabies Compendium, etc.).

AID staff also serve as resources to groups, associations, and communities in providing education concerning rabies virus, disease, prevention, prophylaxis, and control.

Canine Leptospirosis

Leptospirosis is a bacterial disease that can affect animals and humans. There are many different strains of the bacteria. The disease is usually contracted by contact with infected urine, soil, water, or other surfaces, but can be contracted via introduction into wounds and bites or by eating infected tissues.

Wild rodents are common shedders of the disease in the environment. The disease can cause liver and/or kidney disease in dogs, and can lead to death. Treatment includes undergoing a course of antibiotics. There is a vaccine available for dogs that protects against some of the most common strains.

In addition to vaccination, prevention for dogs includes:

- Not allowing dogs to drink from rivers, stream, ponds, lakes, or stagnant water
- Minimizing the dog's contact with wildlife, livestock, and other dogs
- Preventing the dog from ingesting animal carcasses

Prevention measures for people include wearing gloves when cleaning or handling animal urine, promptly cleaning and disinfecting areas contaminated with animal urine, and hand-washing. Rodent control is important in reducing cases of leptospirosis as well.



MDARD received a total of 71 reported cases of leptospirosis in dogs, and one case of leptospirosis in a horse in 2013.

Leptospirosis strains identified in these cases included *L. autumnalis*, *L. bratislava*, *L. grippityphosa*, *L. icterohaemorrhagiae*, and *L. pomona*. *L. grippityphosa* accounted for approximately half of the cases with identified strains. In 2011, MDARD saw a significant increase in Leptospirosis cases in dogs, especially *L. icterohaemorrhagiae*, a strain which can cause severe disease and is often found in rats. MDARD has since increased its activities related to Leptospirosis, including epidemiological investigations, news releases, veterinary education, and outreach to animal shelters.

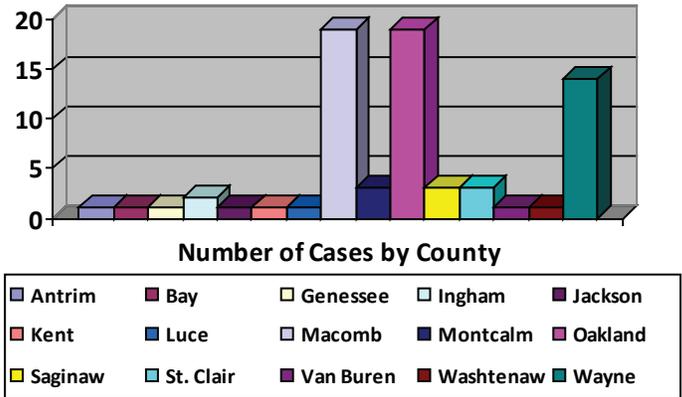


Table 10. Canine Leptospirosis cases reported by county in 2013



Canine Brucellosis

Brucellosis is a bacterial disease that affects animals and people. The disease is spread via contact with fluids, especially reproductive and birthing fluids, but also saliva, urine, eye and nasal fluids, and as feces.

Dogs infected with brucellosis can have abortions, fail to conceive, stillbirths, as well as have eye abnormalities and back pain. People infected with brucellosis can experience “flu-like” symptoms such as fever, headache, chills, and body aches, but can also develop serious, chronic conditions. It is important to note that a child in New York made headlines this last year after acquiring brucellosis from a puppy purchased at a pet shop. While spaying and neutering can help, once a dog is infected with brucellosis it is infected for life and can transmit the disease to other animals and people. There is no vaccine for brucellosis at this time.

Dog owners are advised to take the following actions to help prevent brucellosis:

- Anyone wishing to breed dogs should ensure all breeding dogs have tested negative for brucellosis prior to breeding, as well as follow a brucellosis screening program.
- Anyone purchasing a puppy from a breeder should ask for proof that the parents tested negative for brucellosis.
- Anyone acquiring a dog from a pet shop or animal shelter should speak with their veterinarian regarding screening the dog for Brucellosis.
- Anyone with a dog experiencing reproductive problems, back pain, and/or certain eye disorders should speak with their veterinarian regarding screening for Brucellosis.

In 2013, Michigan had three reported cases of Brucellosis in dogs: one case each in Calhoun, Mackinac, and Montcalm Counties. The Calhoun County case involved

a dog breeder of small breed dogs including Maltese, Pomeranians, poodles, and Shetland sheep dogs. The breeder decided to test four of the 14 breeding dogs for Brucellosis when one of the females aborted. The breeder had not tested for brucellosis prior. One dog out of the four tested was found to be positive for Brucellosis. The breeding kennel was quarantined and the breeder opted to depopulate the kennel, except for one dog which is undergoing testing.

The Mackinac County case involved two 3-year-old Labrador retriever littermates that were imported into Michigan as puppies. Both dogs had an ongoing history of back pain and were subsequently tested for Brucellosis. Both dogs tested positive. The owners elected to euthanize the dogs. A third littermate was imported with the other two dogs, but was given away shortly after importation to an unknown individual.

The Montcalm County case involved a dog breeder with six breeding dogs. The breeder tested the dogs due to two of the dogs experiencing reproductive problems including abortions and failure to become pregnant. Five of the six dogs were found to be infected with Brucellosis. The kennel was quarantined and the breeder opted to euthanize the positive dogs. In addition to breeding within the kennel, the breeder had bred the dogs to dogs owned by other individuals. The breeder had not tested for brucellosis prior.

The department has worked to identify potentially exposed dogs as well as publish a press release on brucellosis.

Aquaculture Program

MDARD licenses aquaculture facilities in Michigan; however each of the Quality of Life (QOL) agencies, MDARD, and the departments of Natural Resources (DNR) and Environmental Quality (DEQ) have regulations important to the industry.

Beginning in 2011, a multi-faceted group, including MDARD, DNR, DEQ, the Michigan Economic Development Corporation, the Michigan Aquaculture Association, MSU, Originz, and other interested parties, was formed to address “Growing Aquaculture in Michigan” and the “Aquaculture in Michigan” (AIM) group was created. Continuing into 2013, this group remains committed to making progress on this initiative. During 2013, the QOL team continued to work on improving regulatory processes. An existing Memorandum of Understanding with DNR was expanded and updated to include DEQ and to address regulatory issues that may impact aquaculture. In addition, the QOL team held meetings with prospective new aquaculture businesses to provide guidance on getting started in Michigan.

The AIM team continues to support the development and growth of the aquaculture industry by improving regulatory processes, identifying markets for aquaculture products, and nurturing development of financial support for the sector. We currently have 65 licensed aquaculture facilities and of these, 20 farms were inspected in 2013 with no notifiable diseases reported to MDARD last year.



Avian Programs

Michigan currently has 24 avian reportable diseases and we follow-up on reported diseases, working closely with our poultry producers and university resources to ensure the birds in our state are healthy. MDARD also collaborates with these partners to plan response actions in the case of a disease outbreak. In 2013, MDARD followed-up on multiple avian disease reports, including Avian infectious laryngotracheitis and Duck viral enteritis. We addressed several reportable diseases or conditions in poultry including *Mycobacterium avium* which was diagnosed in a small pigeon flock in Oakland County. The owners elected to voluntarily depopulate their flock to avoid continued disease. They destroyed the coop and planned to rebuild should they decide to repopulate.

A toxicity event in turkeys was reported. The feed was determined to be the source of the toxicant, which was monensin. This case was referred to the Pesticide and Plant Pest Management (PPPM) division for follow-up.

Infectious Laryngotracheitis was reported in a small flock of chickens. The farm also had waterfowl and pea fowl on the property. This was determined to have been caused by the introduction of vaccinated birds into the naïve flock. MDARD depopulated this flock because of the proximity to a commercial breeding operation.

Mycoplasma gallisepticum was reported in a commercial turkey flock. This was serology only, not a confirmatory test. However, the company did provide the information to Michigan Allied Poultry Industry (MAPI) for notification of any nearby chicken operations. These birds went to slaughter as scheduled.

The National Poultry Improvement Plan (NPIP) has been responsible for great strides in reducing avian diseases since the early 1900s and continues to provide support to the poultry industry and regulatory communities to keep poultry healthy in the United States.

MDARD works with the NPIP and USDA-APHIS to maintain our state's salmonella pullorum-free status and avian influenza surveillance programs.

AID maintains and updates the Michigan Avian Emergency Disease Manual and the Notifiable Avian Influenza Emergency Response Plan in coordination with the Emergency Management Program Manager. In 2013, AID conducted two emergency preparedness exercises with industry and stakeholders and provided four hands-on poultry medicine training sessions for private veterinarians, in collaboration with MSU Extension and USDA-APHIS. In 2013, the "Secure Egg Supply" workgroup, comprised of MDARD, industry, university, and federal regulatory officials, was convened to enhance planning efforts for continuity of business in the event of a serious poultry disease outbreak.

A Poultry Wet Lab was offered to private practice veterinarians who are seeing more backyard poultry in their practices on September 19, 2013, at the Diagnostic Center for Population and Animal Health. Two sessions were offered by Dr. Richard "Mick" Fulton, and limited to 11 participants per session (veterinarians and veterinary technicians only). They learned how to conduct a proper physical examination on backyard poultry, draw blood, swab tracheas, obtain other appropriate diagnostic samples for laboratory submission, and how to perform a necropsy. Attendees also got the chance to see some of the normal causes of death in laying hens by performing necropsies on recent layer mortality.



Swine Programs

In the past couple of years, much attention has been paid to the threat of human influenza illnesses associated with exposure to swine at county fairs. MDARD continues to work with fair staff, public health partners, MSU Extension, and the swine industry to provide accurate and timely information in an effort to prevent spread of disease and provide accurate information. In 2013, MDARD sent veterinary field staff and veterinary student employees to fairs and exhibitions and provided educational materials and assistance to fair staff in an effort to prevent swine and human illness.

On August 29, 2013, MDCH and MDARD, along with the Berrien County Health Department (BCHD) identified one case of an H3N2 variant (H3N2v) in a child who was a swine exhibitor at the Berrien County Youth Fair, which took place August 12-17, 2013.

The child, who was not hospitalized, was reported to have contracted H3N2v after exposure to swine at the fair. In addition, a sick pig from the fair tested positive for Influenza A H3N2 at the National Veterinary Services Laboratories in Ames, Iowa.

MDCH, MDARD, and BCHD worked with the Berrien County Youth Fair board to reach out to swine exhibitors who attended the fair to identify additional illnesses. As a precaution, Michigan public health agencies conducted an extensive multi-state outreach to meat processing plants that were identified as being in receipt of live swine from the fair. These facilities were made aware of the potential exposure to their employees, symptoms of illness, and were given instruction on seeking care and testing. MDARD notified managers at eight additional fairs scheduled to take place later in the summer, and asked them to reach out to swine exhibitors and fair veterinarians about the H3N2v case and to use proper safety measures to prevent spreading illnesses.

Symptoms of H3N2v infection in people are similar to

those of seasonal flu viruses and can include fever and respiratory symptoms, such as cough and runny nose, and possibly other symptoms, such as body aches, nausea, vomiting, or diarrhea. Infections with influenza viruses (including variant viruses like H3N2v) can sometimes cause severe disease, even in healthy people. This can include complications, such as pneumonia, which may require hospitalization, and sometimes results in death. People who are at high risk of developing complications if they get influenza include children younger than 5 years of age, people 65 years of age and older, pregnant women, and people with certain long-term health conditions, such as asthma, diabetes, heart disease, weakened immune systems, and neurological or neurodevelopmental conditions.

The incubation period for influenza H3N2 variant (v), like the usual seasonal influenza, is one to seven days; and most commonly two days. To date, there is no vaccine for H3N2v and the seasonal flu vaccine will not protect against H3N2v.

Below are some steps MDARD advised fair goers to take to prevent the spread of any illness:

1. Avoid close contact with sick people.
2. Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it.
3. Wash your hands often with soap and water. If soap and water are not available, use an alcohol-based hand rub.
4. Do not eat or drink in livestock barns or show rings.
5. Avoid touching your eyes, nose, and mouth. Germs spread this way.
6. If you are sick, stay home from work or school until your illness is over.
7. Avoid contact with pigs if you have flu-like symptoms. Wait seven days after your illness started or until you have been without fever for 24 hours without the use of fever-reducing medications, whichever is longer.

If you must have contact with pigs while you are sick, take the protective actions listed above.

8. Get an annual influenza vaccination.

AID's focus for the swine industry is to maintain Stage V (free) Pseudorabies Virus (PRV) and Swine Brucellosis free status through testing and monitoring of pigs, to follow up on all reportable swine diseases, to prepare and plan our response in the event of a swine disease outbreak, and to protect the health of commercial swine operations by all these efforts as well as control of feral swine populations in collaboration with USDA-APHIS-WS and DNR.

In 2013, a workgroup was established to implement the "Secure Pork Supply Plan" to ensure continuity of business during a serious swine disease outbreak.



Feral Swine

AID's Feral Swine Program is conducted under a cooperative agreement between MDARD, USDA- APHIS- WS and the DNR with an emphasis on reducing feral swine numbers and monitoring for the presence of certain swine diseases in the feral swine population. If present in this free-ranging swine population, these diseases could impact our domestic swine herds.

Feral swine are hogs that have become free-ranging, without human husbandry. When feral swine become established, they are a threat to the health and welfare of domestic swine. Feral swine can host many parasites and diseases that threaten humans, domestic livestock, and wildlife; and can cause extensive damage to forests, agricultural lands and Michigan's water resources.

Samples are taken, whenever possible, from feral hogs that are trapped or shot and are then tested for a variety of diseases of concern to swine producers, including classical swine fever, brucellosis, PRV, bovine TB, trichinosis, toxoplasmosis, Hepatitis E Virus, and swine influenza.

MDARD partners with USDA-WS to work with private

landowners who are willing to trap feral hogs on their property. Many hogs have been trapped and sampled as a result of this effort. USDA-WS also follows up on all reports of hog damage, sightings, or hunter shot feral hogs to confirm the reports and develop a true picture of the feral swine population in the state.

In calendar year 2013, USDA-WS trapped seven feral hogs and took reports from the public of 20 hogs killed. Wildlife Services staff visited 38 sites and verified the presence of 29 hogs at those sites.

In 2013, USDA-WS tested 12 feral swine for diseases that may cause great economic loss to the commercial swine industry in Michigan including Classical swine fever, PRV, Swine Influenza Virus, Hepatitis E virus, Tuberculosis, Trichinosis, Toxoplasmosis, and Porcine Reproductive and Respiratory Syndrome (PRRS). Two of the swine captured and tested were positive for Toxoplasmosis. Since testing began in 2007, 152 feral hogs have been captured and tested; 10 were PRV positive, one was Trichinosis positive, six were positive for Toxoplasmosis, and 19 were positive for PRRS.

Emergency Management Programs

MDARD must be ready to aid in all-hazards emergency response and recovery efforts for animals. These efforts range from preventing the spread of disease to protecting animal health during a physical disaster event.

National/Regional Involvement

MDARD continues to be involved in many regional and national level projects. In January, the Emergency Management program participated with USDA-APHIS Animal Care, the National Animal Rescue and Sheltering Coalition (NARSC), and the National Alliance of State Animal and Agricultural Emergency Programs (NASAAEP) in developing an After Action Report for the SuperStorm Sandy response effort. In May, the program was the NASAAEP representative that worked with FEMA for five days during the Norman, Oklahoma tornado response. In November, the Emergency Management program participated with USDA-APHIS Animal Care, NARSC, and NASAAEP in planning and developing a new series of best practice working groups that are creating templates for national use.

MDARD is a member of the Multi-State Partnership for Security in Agriculture. This is a 14-state consortium that allows member states facing similar issues to pool resources to prepare for agricultural emergencies (whether disaster or disease). This regionalization effort allows a state to further plan efforts that would not otherwise be accomplished. In January and April, the Emergency Management program participated in meetings looking at various issues that face animal agriculture during an emergency event. Additionally, staff also participated in the Kansas RIPSTOP exercise in October.

The purpose of this exercise was to evaluate plans and procedures that have been developed and revised since the Stop Animal Movement Statewide Kansas-Oklahoma border exercise was conducted with Oklahoma in 2009.

Staff also gave presentations at the Iowa State Homeland Security Division Conference in October, and at the Illinois State Veterinary Medical Association's Annual Veterinary Conference. Both presentations were on the SuperStorm Sandy Response efforts and best practices learned.

State and Local Involvement

Conferences, training exercises, and simulated events assure MDARD personnel and partners are ready for a response.

In February, emergency response staff worked with the Poultry Animal Health Unit and the Martin Fire Department in testing equipment that would be required for animal disease response. Also during this month, both units worked with the poultry industry in hosting two tabletop avian influenza exercises.

In March, the program worked with a coalition of Michigan State University medical and veterinary schools and the MDCH Office of Public Preparedness (OPHP) in developing an exercise for a One Health Event that looked at having the students from the various medical fields work together to respond and solve an emergency response that also involved humans and animals. In June, the program exercised with MDCH-OPHP and supplied potential animal related issues for testing zoonotic disease state response plans.

Veterinary Corps

In April, a new recruitment drive was started to increase the membership in the Michigan Veterinary Corps.

The Michigan State Animal Response Team (MI-SART), working with MDARD, received a grant from the American Veterinary Medical Foundation (AVMF) and held a second MI-SART Summit in August 2013 at Schoolcraft College in Livonia. The course included some of the American Veterinary Medical Association's Veterinary Medical Assistance Teams (VMAT) University

Modules. The event was attended by 120 MI-SART members, veterinarians, veterinary technicians, county emergency management personnel, and police and fire first responders, as well as several out-of-state animal response groups.

MDARD's program continued to work with the Be Aware, Be Prepared group, consisting of livestock industry stakeholders and federal and state government emergency preparedness organizations. The focus this past year was to begin adapting and incorporating the national Secure Food Supply plans into the department's emergency plans allowing for continuity of business for Michigan's agribusinesses.

Animal Disease Traceability

In January 2013, USDA-APHIS Veterinary Services released the Traceability for Livestock Moving Interstate Final Rule. This final rule took effect in March 2013, changing many requirements for livestock identification and import/export rules. The division has redefined the unit into a new program based on these changes, and is working on updating what Michigan is currently following under state law(s) and what it needs to do to become compliant with the new federal ruling. Further changes will be occurring throughout 2014.

National Animal Reportable Diseases

MDARD is a participant in USDA's voluntary National Animal Health Reporting System (NAHRS). NAHRS uses the World Organization for Animal Health reportable animal disease list to track incidences of livestock animal diseases. In 2013, MDARD reported the diseases listed in the table on page 24, to NAHRS.



2013 Reported Diseases	Species	Cases Reported
Bovine Parainfluenza Virus 3	Bovine (cattle)	7
Bovine TB	Bovine (cattle)	6
Bovine TB	Cervid (deer)	9
Canine Brucellosis	Canine (dog)	8
Caprine Arthritis/Encephalitis	Caprine (goat)	7
Eastern Equine Encephalitis	Equine (horse)	1
Enzootic Bovine Leukosis (BLV)	Bovine (cattle)	43
Epizootic Hemoragic Disease	Bovine (cattle)	1
Equine Influenza	Equine (horse)	1
Infectious Laryngotracheitis	Poultry	1
Leptospirosis	Canine (dog)	71
Leptospirosis	Equine (horse)	1
Listeria Monocytogenes	Bovine (cattle)	1
Malignant Catarrhal Fever Virus	Caprine (goat)	2
Mycoplasmosis	Turkey	1
Mycobacterium Avium Complex	Pidgeons	9
Paratuberculosis (Johne's)	Caprine (goat)	3
Paratuberculosis (Johne's)	Bovine (cattle)	1,656
Porcine Reproductive & Respiratory Diseases	Swine (pig)	2
Psittacosis	Budgerigar (commonly called parakeet)	1
Q fever	Ovine (sheep)	2
Rabies	Bats	41
West Nile Virus	Equine (horse)	2
West Nile Virus	Canine (dog)	1
Total cases investigated		1,877

Michigan



Department of
AGRICULTURE
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