



Michigan Department of Agriculture & Rural Development

Food and Dairy Division

Annual Report
Fiscal Year 2011

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**Food and Dairy Division
2011 Annual Report**

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Introduction

Fiscal Year (FY) 2011 was an historic year that provided both food safety opportunities and challenges in this country. With the passage of the federal Food Safety Modernization Act (FSMA) came a mandate to coordinate federal, state and local food safety efforts as never before. The nation continues to move toward greater integration of food safety efforts spanning the farm to fork spectrum, with implementation of on-farm federal food safety rules for eggs and soon-to-be-announced rules for produce safety and preventative controls for processing establishments. New regulations will provide challenges for Michigan's food businesses to remain among the most safe, efficient and progressive in the global economy.

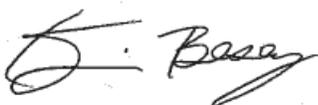
The U.S. Food and Drug Administration (FDA) has involved states in implementing a seamless food safety system through the Manufactured Foods Regulatory Program Standards (MFRPS) as well as Rapid Response Team (RRT) efforts. Michigan has been heavily involved with both and, in many cases, has led national integration efforts. Michigan was one of nine states receiving an RRT grant in 2011. This investment allows us to better integrate response efforts with those of our partners; and better leverage resources at the local, state, and federal levels. Strengthened partnerships with our public health colleagues have resulted in earlier detection of food safety incidents and faster implementation of control measures that can prevent illnesses and save lives. MFRPS is a set of national program standards demonstrating that state food safety work is equivalent to FDA.

The Michigan Department of Agriculture and Rural Development (MDARD) has also worked to integrate food safety with efforts to reduce obesity and increase access to locally grown, healthy foods. This is expected to have a positive impact on creating growth in Michigan's agri-business economy, with the potential for increased demand for farm and food processing capacity.

The past year has also been about rebuilding. The Food and Dairy Division experienced a significant number of staff retirements in early FY11 resulting in increased cooperation with dairy industry partners to assure that dairy farm inspections were completed. We now have a number of new food and dairy inspectors in place and many staff performing new jobs, within a more streamlined regional structure.

We have also increased our ability to use food and environmental sampling to pinpoint sources of contamination so control measures can be targeted to where they will be most effective. When there are foodborne illnesses or contaminated products, it is increasingly common for those problems to be traced back to a specific food establishment's doorstep, whether in Michigan, across the country, or overseas. This only strengthens the need for MDARD to partner with Michigan's food businesses on food safety measures that will prevent consumer illnesses and protect businesses from the financial and reputation losses of being associated with illnesses or contaminated products. One example is the current effort to develop food safety prevention plans for Michigan's retail specialized meat processors that are not inspected by the U.S. Department of Agriculture. This project has involved an active and close collaboration between industry, academia and government.

Sincerely,



Kevin Besey, Director
Food and Dairy Division

Part A – Food Safety and Inspection Program Summary

Assuring a safe and wholesome food supply is an important part of Michigan's \$71.3 billion food and agriculture industry. Michigan produces over 200 commodities on a commercial basis, making the state second in the nation in agricultural diversity; and providing a strong and varied portfolio for our food processing industry. The food processing industry alone has a total economic impact of nearly \$25 billion, and employs nearly 134,000 workers.

Food safety continues to be a concern for our nation. The Centers for Disease Control and Prevention (CDC) estimates each year roughly one out of six Americans gets sick, 128,000 are hospitalized, and 3,000 die from foodborne diseases.

Michigan's food service establishments, grocery and convenience stores, food processors, and food warehouses are regulated by the Food Safety and Inspection Program of the Food and Dairy Division (FDD), in partnership with Michigan's local health departments. FDD staff works with a variety of food industry, regulatory, consumer, and academic partners to assure the food produced, distributed, and sold in Michigan is safe. By working closely with these partners, FDD has been able to identify and resolve public health issues relating to food safety in a timely manner.

In addition to assuring a safe and wholesome food supply, MDARD and local health department food inspectors play a key role in assuring a robust, growing industry. Although the overall number of food establishments has been stable for the past five years, approximately 2,500 new food establishment licenses are issued each year in Michigan. These range from grocery stores and restaurants to small on-farm and specialty food processors and larger processors who distribute their food products worldwide.

Food inspectors assist the owners of these new businesses before, during, and after the licensing process, by giving advice and guidance on building design and processing plans; reviewing labels and standard operating procedures to assure food safety compliance; explaining state and federal regulatory requirements; and connecting new business owners with the resources they need from local health departments, zoning officials and other state departments. Food inspectors also provide marketing resources to new business owners available through MDARD's Office of Agriculture Development and the Michigan State University (MSU) Product Center. This assistance helps new businesses get off to a great start, which directly translates to new jobs and a stronger economy.

I. Food Establishment Evaluation

Michigan Department of Agriculture & Rural Development (MDARD)

Approximately 47 MDARD field staff conducted regular evaluations of grocery and convenience stores, food processors, farmers markets, temporary and fair food operations, and food warehouses, ensuring a safe food supply and informing consumers of recalls and other foodborne illness outbreaks. MDARD staff performs plan reviews; conducts evaluations; processes license applications; takes enforcement actions; investigates complaints; collects food samples; and responds to fires, power outages, recalls and other emergency situations. The division also works closely with various industry segments, such as grocers, food processors (including commodities such as fruits, vegetables, shellfish, wine, cider, honey, venison, maple syrup, beverages, leafy greens, bakeries, etc.), egg producers, growers, and farmers market operators. Other programs include conducting Food and Drug Administration (FDA) and United States Department of Agriculture (USDA) contract evaluations, registration and evaluation of bottled water manufacturers, and providing certificates of free sale for firms exporting foods around the world.

Accomplishments and Projects

During FY11, the Food Section continued work to improve food safety in two major areas: engaging stakeholders, and building organizational efficiency.

Engaging Stakeholders

Food Law – In conjunction with industry partners and workgroups, FDD conducted a complete review of the Michigan Food Law to update the law and adopt the federal 2009 Food Code. HB 5130 has been introduced and is in the process of amending the state's current law. Major focus areas included: adoption of the 2009 FDA Model Food Code; passage of the Cottage Food Law; developing improved small business and local foods regulatory approaches; and updating Michigan's egg safety law.

National Food Safety Integration Efforts - MDARD participated in FDA's 50-state Food Safety Conference aimed at making significant progress in integrating food safety nationally.

FDA Manufactured Food Standards - MDARD received an audit of its self-assessment in 2010. MDARD is also participating in this evolving effort to improve the manufactured foods regulatory standards assessment and audit program.

RRT Grant - Through our existing Rapid Response Team (RRT) grant, MDARD is working with other RRT states and FDA to develop a variety of materials that can be used to improve national consistency in food safety emergency response.

AFDO - MDARD is actively collaborating with the Association of Food and Drug Officials (AFDO) to develop resources and materials to improve Michigan's food safety efforts.

Meat Processing Variances - MDARD has been working with MSU and the Michigan Meat Association to develop and streamline food safety requirements to meet variance requirements for retail meat and other specialized processing.

Building Organizational Efficiency

MI-Inspector Program – MDARD replaced its inspection system, E-Inspector, with a new inspection system, MI-Inspector, in the fall of 2011. This will modernize several systems, and improve MDARD's ability to manage and monitor its programs.

Emergency Response - Significant staff training and use of the incident command system was accomplished throughout the year, with the goal of building several trained incident command response teams. Staff participated in an emergency exercise that focused on building capacity among partners at multiple levels.

Environmental Sampling at Processing Plants - Under contract with FDA, MDARD conducted environmental sampling in Michigan processing plants to determine if bacterial contamination was present. Several environmental contamination issues at processing plants were also investigated and resolved. MDARD has increased environmental sampling capacity across the state in conjunction with FDA contract inspections during FY11.

Workload

Licensed Establishments	2010	2011
Retail Food Establishment.....	13,688	13,784
Extended Retail Food Establishment	976	1,011
Wholesale Food Processor	646	670
Limited Wholesale Food Processor.....	1,102	1,192
Food Warehouse	1,054	1,091
Mobile Food Establishment	104	114
Mobile Food Establishment Commissary	65	61
State/County Fair Temporary.....	977	974
Special Transitory Food Unit	47	42
Temporary Food Establishment	53	63
Total Licensed Establishments	18,712	19,002

Number of licensed establishments per FTE* assigned to conduct evaluations	382	432
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*Full Time Employee

Workforce

	MDARD Actual	FDA Recommended**
Number of FTEs assigned to conduct food evaluations (all types)	44	69-79
Number of FTEs involved in technical support, management and administrative support	30	NA
Total number of FTEs	74	NA
Number of standardized trainers	5	NA

**FDA recommended number from FDA Voluntary Program Standard

Program Output

1. Evaluations (Inspections)

Evaluation Type	Evaluations Conducted	Evaluations Due
Routine	10,539	14,269
Follow-up	1,959	2,008
New License	1,595	1,595
Investigation	1,295	1,295
Fair vendors.....	974	974
Shellfish	27	0
Other Types	31	31
Grand Total	16,389	20,141
Total product samples tested.....		1,060
FDA import samples		53
Environmental samples		1,210
Average number of evaluations per FTE assigned to conduct food establishment evaluations		372

^Ad hoc evaluations: Includes evaluations for new establishments, evaluations associated with complaints, and any other evaluations initiated by the inspector outside of routine or follow-up evaluations.

2. Plan Review

Number of plans received for review 122
Number of plans approved 122

3. Investigations

Consumer complaints investigated (all types) 1,010
 Illness-related 156
 Non-illness related 854

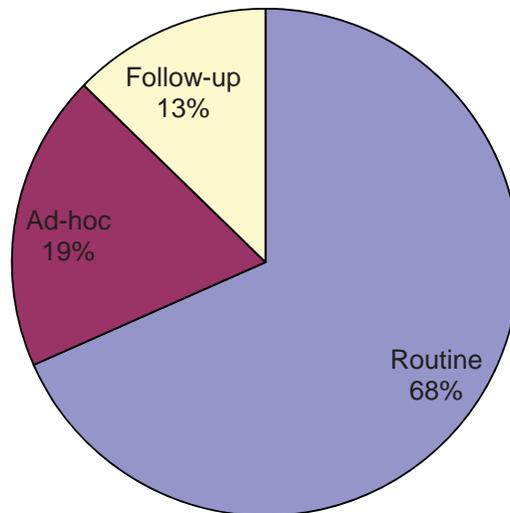
4. Enforcement

Enforcement Letters 64
Compliance Reviews 23
Consent Agreements/Administrative Fines 19/\$22,528
Prosecutions/Fines 0/\$0
Seizures 660 (999,555 lb.)
Dollar Amount of Seized Product \$2,869,037
Informal Hearings 3
Re-inspections/Fees 118/\$6,480

5. Miscellaneous

Certificates of Free Sale 1,693
Freedom of Information Act Requests 69
Bottled Water Registrations 1,379

Michigan Food Program Evaluations by Type



Funding Sources

	FY10	FY11
Fees.....	\$2,777,141	\$2,933,530
Federal/Special Revenue funds	\$ 636,243	\$ 426,349
General fund.....	\$6,065,735	\$5,814,300
Total program revenue.....	\$9,479,119	\$9,174,179

General Statistics

Occurrence per 100,000 population

Number of fixed food establishments*	176
Food related complaints	10

Program dollars spent per

Licensed establishment.....	\$483.00
Michigan citizen (Total Program Revenue).....	\$ 0.91
Michigan citizen (General Fund).....	\$ 0.58
Michigan citizen (License Fees/Others)	\$ 0.33

*Fixed food establishments include retail food stores, food processors, and food warehouses.
Michigan population - 2010 estimate, U.S. Census Bureau

II. Food Service Establishment Evaluation

Local Health Department Food Service Program

Food safety in Michigan’s restaurants is a collaborative effort among MDARD and the state’s 45 independent local health departments. MDARD provides statewide program policy, direction, consultation, and training services to local health department sanitarians. Local health departments perform plan reviews, conduct evaluations, process license applications, take enforcement actions, investigate complaints, and conduct foodborne illness outbreak investigations. Local health department performance is evaluated by MDARD every three years in conjunction with the “Michigan Local Public Health Accreditation Program.” The accreditation program helps to assure accountability for the nearly \$8.3 million in state funds utilized for the Food Service Program. With the addition of locally set fees and local tax contributions, local health departments operate a \$30.5 million overall food service program. This means that for every \$0.27 spent in state funds, local health departments deliver \$1.00 worth of programs and services to Michigan residents.

In Michigan, almost half of all adults (46 percent) are restaurant patrons on a typical day. In an average month, 78 percent of all households use some form of food carryout or delivery service.

Accomplishments

Major accomplishments of the Food Service Program in FY11 include:

- Thirteen local health departments completed successful accreditation reviews with a 100 percent degree of compliance with program standards.
- The Food Service Program’s FDA-certified trainers standardized or restandardized local health department trainers to promote consistent and focused inspection for food service establishments across the state.
- MDARD’s Food Service Program staff provided 1,500 hours of training to local health department inspectors.

Projects

- **Local Health Accreditation** – The Cycle 5 document was finalized with enhancements including updates to foodborne illness reporting.
- **Manager Certification** - Food service consultants continue to work with local health departments to implement the requirement for a certified manager at most food service establishments.
- **FDA Voluntary Retail Standards** – Food service consultants assisted five local health departments with applications in pending status, in addition to the 10 local health departments presently enrolled to meet national food safety program standards.
- **Plan Review** - A workgroup finalized an update to the statewide plan review documents related to Special Transitory Food Units (STFUs). Work has begun to upgrade overall plan review documents. Staff has conducted four regional plan review trainings, combining multiple local health departments.
- **Michigan’s Smoke Free Air Law** - MDARD food service consultants continue to work with the Michigan Department of Community Health and local health departments to aid compliance with the state’s non-smoking law in food service establishments. Michigan’s Smoke Free Air Law, which took effect May 1, 2010, bans smoking in all Michigan restaurants, bars and businesses (including hotels and motels). The law allows exemptions for some cigar bars, tobacco specialty retail stores and casinos that meet certain requirements.

The following information was reported by local health departments (LHDs) to MDARD:

Workload

	FY2010	FY2011
Licensed Establishments		
Fixed Food & Mobile Commissary.....	31,890	31,098
Temporary.....	11,041	10,326
Mobile.....	441	379
Vending.....	3,785	3,425
Special Transitory Food Unit (STFU).....	791	888
Total Licensed Establishments	47,948	46,116
Number of licensed establishments per FTE* assigned to conduct evaluations.....	253	238

*FTE = Full time employee.

NOTE: See pie charts on page 9 for breakdown by local health department.

Workforce

	LHD Actual	FDA Recommended Minimum	FDA Recommended Maximum
Number of FTEs assigned to conduct food establishment evaluations (all types).....	194	193	273
Number of FTEs involved in plan review, management and administrative support	140	NA	NA
Total number of FTEs	334	NA	NA
Number of standardized trainers	57	NA	NA

Program Output

1. Evaluations (Inspections)

Establishment Type	Evaluations Conducted	Evaluations Due
Fixed food service - routine	56,071	
Mobile, Vending, STFU.....	3,701	
Sub-Total	59,772	58,267
Follow-up evaluations.....	15,767	
Temporary food service	10,326	
Grand Total	85,865	

Average number of evaluations per FTE
assigned to conduct food establishment inspections444

2. Plan Review

Number of plans received for review	1,512
Number of plans approved	1,305

3. Investigations

Consumer complaints investigated (all types)	3,942
Foodborne illness outbreaks (met MI definition).....	92

4. Enforcement

Administrative action (office conference, informal hearing, formal hearing, civil fine, order)	1,410
Court action (civil, criminal)	13

Funding Sources

	FY10	FY11
Fees collected by local health department	\$14,495,341	\$14,427,517
Local tax dollars.....	\$6,664,189	\$4,999,099
State dollars - local public health operations (LPHO).....	\$8,424,431	\$9,317,287
Total local health program revenue	\$29,583,961	\$28,743,903

General Statistics

Occurrence per 100,000 population

Number of fixed food service establishments.....	314
Food related complaints	40
Foodborne illness outbreak investigations	0.9

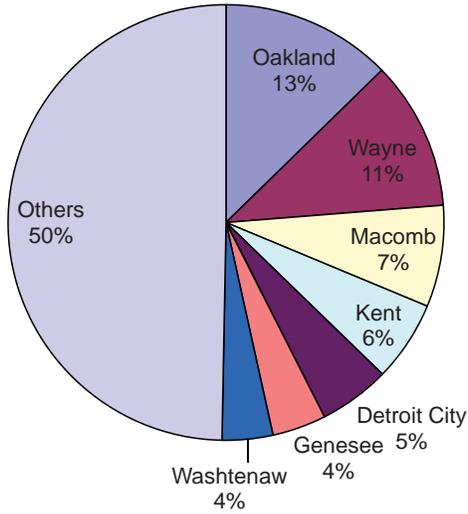
Program Dollars Spent Per

Licensed establishment.....	\$803.00
Michigan Citizen (Total Program Revenue).....	\$ 2.90
Michigan citizen (Fees collected by LHDs).....	\$ 1.46
Michigan citizen (Local tax dollars).....	\$ 0.50
Michigan citizen (LPHO/state dollars)	\$ 0.94

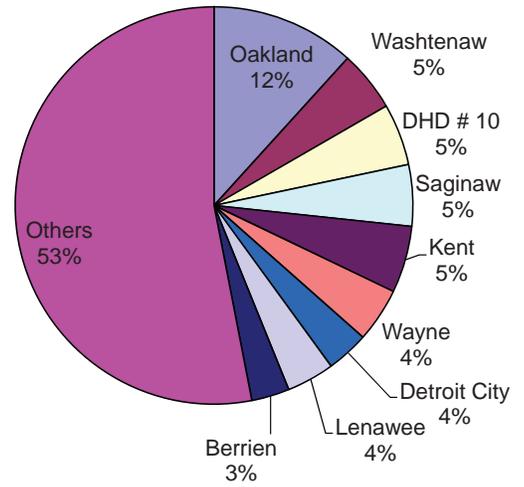
Michigan population - 2010 estimate, U.S. Census Bureau

Distribution of License Types by Local Health Department

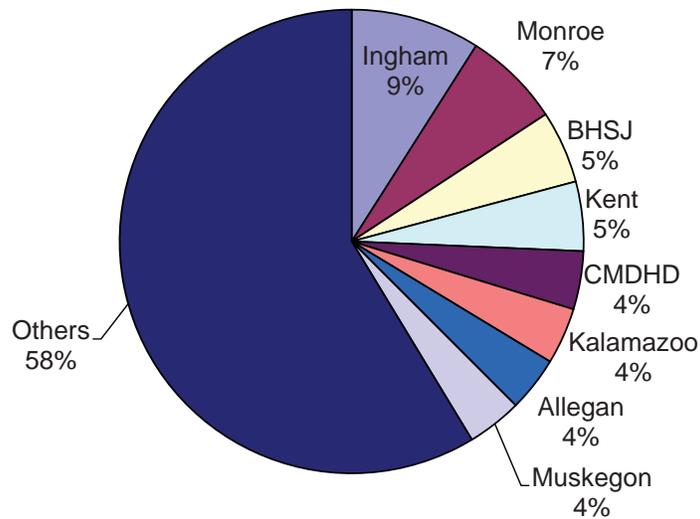
Fixed Licenses



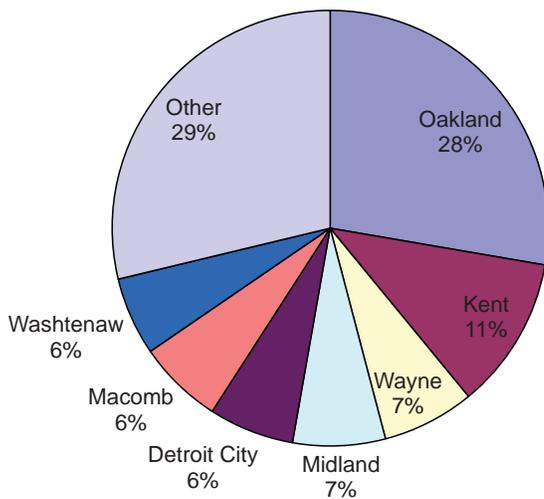
Temporary Licenses



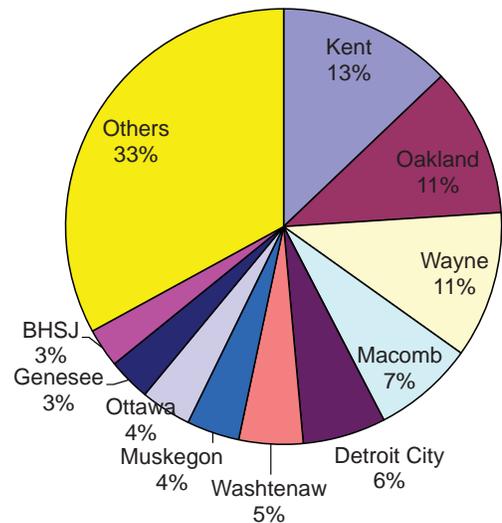
Special Transitory Food Unit (STFU) Licenses



Mobile Licenses



Vending Licenses



Part B – Milk and Dairy Product Safety and Inspection Program Summary

Michigan's dairy industry is the largest single segment of Michigan agriculture. Milk is the top ranked commodity in terms of cash receipts, with the dairy industry contributing about 24 percent of the total cash receipts for Michigan's agriculture industry annually. Michigan ranks 8th nationally in milk production with a \$5.9 billion impact on the state's economy. Our state's dairy farms produced approximately 8.3 billion pounds of milk in 2011.

Michigan boasts 2,170 dairy farms, including 1,890 Grade A farms and 280 manufacturing farms, which are inspected by MDARD Dairy Section staff. In addition, the Milk and Dairy Product Safety and Inspection Program licenses and inspects 84 Michigan dairy processing plants and 36 other dairy facilities; and 1,837 milk hauler/samplers, milk tank trucks, and milk transportation companies. Enforcement is a strong component of the program. Law violations resulted in 57 dairy farm permit suspensions and the removal of 860,998 pounds of suspect milk from the market with an estimated dollar value of \$173,317.

MDARD's Milk and Dairy Product Safety and Inspection Program serves the people of Michigan by: assuring a safe, high quality supply of dairy products; providing programs which help to maintain a strong, economically viable dairy industry; and ensure Michigan dairy products continue to move freely in interstate commerce; and participating, in a leadership role, with representatives of the dairy industry, universities and other government agencies in the development of policies and programs to further those aims.

In addition to assuring a safe and wholesome supply of milk and dairy products, MDARD inspectors also play a key role in assuring growth in the state's dairy industry, to help create new jobs and strengthen Michigan's economy. Michigan's dairy industry saw the addition of six new dairy processing facilities in 2011. MDARD dairy inspectors assist these businesses, before, during and after start-up to assure all regulatory requirements are met, and the businesses have the resources they need to succeed.

Inspectors provide advice and guidance on building design and processing plans; reviewing labels and standard operating procedures to assure food safety compliance; explaining state and federal regulatory requirements; and connecting new business owners with the resources they need from local health departments, zoning officials and other state departments. Dairy inspectors also provide marketing resources to new business owners that are available through MDARD's Office of Agriculture Development and the MSU Product Center. This assistance helps new businesses get off to a great start, which directly translates to new jobs and a stronger economy for Michigan.

Accomplishments

Major accomplishments of the Milk and Dairy Product Safety and Inspection Program in FY11 include:

Pasteurized Milk Ordinance (PMO) Streamlined

MDARD's milk safety inspection staff led a committee of 24 members from across the nation representing the dairy industry, state regulatory agencies, and FDA. The committee has developed and implemented a nation-wide program streamlining PMO requirements and reducing regulatory duplication for aseptic milk processing plants while maintaining milk safety.

New Value-Added Milk Processing Facilities

MDARD's milk safety inspection staff continued to receive inquiries in 2011 from dairy farmers and others who are interested in starting up local, value-added milk processing facilities. These facilities include manufacturers of goat, sheep and water buffalo cheese as well as on-farm milk bottling facilities. The milk safety inspection staff works with these entrepreneurs from the initial planning stage all the way through construction and start-up. A continuing inspection program of these new facilities helps assure a smooth transition from planning to the production of safe, wholesome dairy products. Dairy processing facilities continued to increase in number from 79 in FY10 to 84 in FY11.

New Dairy Plant Slated for Michigan

MDARD's milk safety inspection staff reviewed and approved plans for a new dairy plant in Coopersville. MDARD staff from the Milk and Dairy Product Safety and Inspection Program and the Office of Agriculture Development was instrumental in securing the building of the new dairy plant in Michigan. Staff met with company representatives to discuss the requirements for the plant to meet the PMO and USDA milk safety standards for statewide and interstate sale of their milk and milk products. The new plant broke ground in the fall of 2010 and is expected to begin operation in the spring of 2012.

Projects

Certified Industry Farm Inspection Program

During 2011 six staff members from the MDARD Dairy Section retired. Without funding to replace these positions, the Dairy Section, with the cooperation from the dairy industry, instituted the Certified Industry Farm Inspection Program to cover dairy inspections throughout the state. This program, as outlined in Section 5 of the Grade A PMO, enables Certified Industry Field Representatives (CIFRs) to conduct Grade A dairy farm inspections in place of regulatory inspections normally conducted by MDARD staff. In the past, certified industry field representative inspections have occasionally been used in place of the regulatory inspections normally conducted by MDARD staff; however, for the most part, MDARD has had sufficient staff to conduct virtually all of the required on-farm milk safety inspections in Michigan.

MDARD Dairy Section staff had oversight of the inspections conducted by the CIFRs as well as the responsibility of training and evaluating these individuals. MDARD conducted evaluations of the CIFRs and reviewed the corresponding inspection paperwork. With partial restoration of funding to the Dairy Section, three of the six vacant MDARD positions were filled and the CIFR program will be reduced to a nine county area effective February 1, 2012. This will leave approximately 23 percent of the dairy farms under the inspection responsibility of the dairy industry.

Extended Processing Runs

Currently, MDARD has one dairy processing plant that has been approved for many years to conduct extended processing runs. This risk-based approach allows the plant to fully utilize its capital investment while assuring dairy product safety. MDARD milk safety inspection staff continued to work with a second dairy processor regarding a request to allow extended dairy processing at their facility which began last year. Dairy staff reviewed the proposal submitted and are working with the facility to conduct trial runs with extended processing times. MDARD milk safety inspection staff conducted a thorough inspection for cleaning and sanitation of all equipment used in the extended processing run along with analyzing sample data results to determine if the parameters set for assuring a safe product are met. MDARD milk safety inspection staff continues to work with this processor to meet the required parameters to gain final approval for this extended processing proposal. If extended processing runs are approved, the dairy processing plant can gain efficiencies in production and reduce some of the costs associated with processing their product. MDARD milk safety inspection staff will continue to work with this facility during this approval process.

Workload

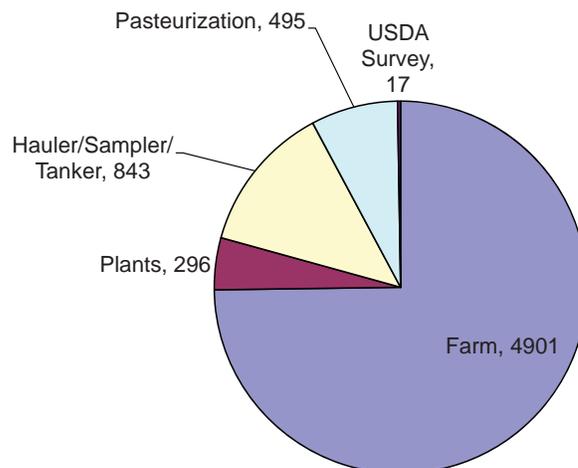
Licensed Establishments	FY10	FY11
Farms	2,200	2,170
Grade A Plants.....	32	33
Manufacturing Plants (includes cheese & ice cream).....	47	51
Grade A Milk Distributors	15	13
Grade A Transfer Stations/Receiving Stations/Tank Truck Cleaning.....	15	15
Grade A Single Service.....	9	8
Milk Tank Trucks and Can Milk Trucks	626	704
Milk Transportation Companies	124	123
Milk Haulers/Samplers (currently licensed)	813	1,010
Certified Fieldpersons.....	31	34
Total Licenses.....	3,912	4,161

Labs Approved/Certified	FY10	FY11
Certified Industry Labs.....	10	10
Approved Drug Screening Sites	34	36
Certified Commercial Labs	2	4
Approved/Certified Industry Analysts.....	193	200
Number of licensed establishments per FTE assigned to conduct inspections.....	230	320

Workforce

Number of FTEs assigned to conduct dairy inspections (dairy farm, plant and other inspections, and pasteurization evaluations)	12
Number of FTEs involved in management, technical and administrative support	8
Total number of FTEs	20

Number of Inspections by Type, Performed by the Michigan Dairy Program



Program Output

1. Inspections and Evaluations

Inspection/Evaluation Type	Inspections/Evaluations Conducted
Farm*	4,901
Plants.....	296
Hauler/Sampler/Tanker.....	845
Pasteurization.....	495
USDA Survey.....	17
Total Inspections	6,554

Average number of inspections per FTE assigned to conduct dairy establishment inspections*.....	142
Grade A Survey	71
Laboratory Analysts Evaluated.....	64
Laboratories Evaluated.....	25
Drug Residue Screening Sites Evaluated	18
Total milk and milk product samples taken.....	5,610

* Note: Certified Industry Field Representatives conducted a portion of the farm inspections in FY11.

2. Investigations

Consumer complaints investigated (all types).....	18
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3. Enforcement

Enforcement letters	221
Informal Hearing/Compliance Reviews	4
Administrative Fines Issued.....	70
Administrative Fines Collected by MDARD	\$9,150
Reinspection Fees Collected.....	\$2,400
Drug Residue Fines Collected.....	\$2,750
Prosecutions.....	0
Seizures.....	2
Dollar amount of seized products.....	\$15,205
Total Permit Suspensions.....	57
Total Pounds of Contaminated Milk Disposal	860,998 lbs. (\$173,317)

4. Miscellaneous

Certificate of Free Sale.....	369
Freedom of Information Act Requests.....	50

Funding Sources

	FY10	FY11
Fees collected by MDARD*	\$195,860	\$157,629
Special Revenue Funds	\$34,421	\$31,689
General Funds.....	\$2,783,965	\$2,721,100
Total Program Revenue	\$3,014,246	\$2,910,418

General Statistics

Occurrence Per 100,000 Population

Number of dairy farms.....	21.5
Number of dairy manufacturers.....	0.8

Program Dollars Spent Per:

Licensed establishment.....	\$699.00
Michigan citizen (Total Program Revenue).....	\$ 0.29
Michigan citizen (General Fund).....	\$ 0.27
Michigan citizen (License Fees/Other)	\$ 0.02

Michigan population - 2010 estimate, U.S. Census Bureau

Part C – Foodborne Illness Outbreaks and Food Recalls

The increasingly globalized and complex nature of our food supply requires the Food and Dairy Division and our food safety partners work more closely than ever to rapidly detect, investigate, and control food contamination incidents.

MDARD and Michigan’s 45 local public health departments provide the front line investigators for foodborne illness investigations. Tough budget realities have resulted in reduced staffing and increased staff turnover. Continued strong working relationships between local, state, and federal public health and food regulatory agencies in Michigan helped to offset some of the impacts of staffing reductions at the local and state levels. Staff from multiple agencies identified the ongoing need for practical training in foodborne illness surveillance and investigation techniques.

Division staff worked with feed inspectors, veterinarians, and other professionals from other MDARD divisions to develop increased multi-disciplinary sampling and Incident Command System (ICS) management capacities for large scale incidents.

Multi-state collaboration can lead to earlier detection of food contamination incidents, sometimes when only a few people are known to be ill. The multi-state investigation of the E. coli 0157:H7 outbreak associated with hazelnut consumption was a good example of what can be done through effective team work. Investigation of seven identified human illnesses in three Midwest states resulted in a California nut distributor initiating a nationwide recall.

Division staff participated in labor intensive traceback investigations throughout the year as part of larger multi-state investigations. Without accurate tracebacks, outbreaks often cannot be tracked to their sources and the root causes of the outbreaks identified.

The division expanded the use of environmental sampling as part of routine regulatory inspections and outbreak investigations. Division staff partnered with public health officials to gather samples from private homes, as well as food establishments licensed by local health departments or MDARD.

CDC statistics indicate Salmonella is the number one cause of foodborne illness-related hospitalizations and deaths. Listeria monocytogenes is the third leading cause of foodborne illness deaths. Both organisms can survive in niches in food facilities or equipment and can exploit suboptimal cleaning, sanitizing, maintenance, and food handling practices.

Environmental sampling results have helped both regulators and food industry officials to better understand how microorganisms like Listeria monocytogenes and Salmonella contaminate foods in a variety of environments. In 2011, for example, the MDARD RRT Food Processing Specialist and Regional Food Processing Seniors developed and provided statewide training of MDARD staff to help increase the quality of food processing evaluations, and better target these and other disease causing organisms.

Overview of Foodborne Illness Outbreak Results

Investigations of foodborne illness outbreaks are often multi-disciplinary efforts involving sanitarians, food regulators, communicable disease specialists, epidemiologists, and laboratory staff from multiple agencies.

Under Michigan's Public Health Code, PA 368 of 1978 (MCL 333.2433), local health departments are required to investigate the causes of disease. The Michigan Food Law of 2000, sec. 3129(2), requires local health departments to notify MDARD of foodborne illness outbreaks they are conducting. MDARD uses foodborne illness data to:

- Investigate emerging threats;
- Illustrate trends; and,
- Ensure accurate reports are reflected at the state and national level.

A total of 96 events meeting the Michigan definition of a foodborne illness outbreak were reported by local health departments to MDARD in FY11. Final reports were received for 91 percent of reported potential foodborne illness outbreaks. Additionally, accreditation findings show 100 percent of local health departments were found to respond to a foodborne illness complaint within 24 hours of notification, and 89 percent met foodborne illness investigation procedure requirements relating to documentation and reporting of foodborne illness outbreaks.

Note: Accreditation minimum program requirement reviews are based on a summary of random sample evaluations, and are not an evaluation of every foodborne illness complaint received.

Although ill individuals in reported outbreaks shared common food sources, it was often not possible to rule out other routes of illness transmission, particularly in smaller incidents. Of the 96 reported foodborne illness outbreaks, local health departments identified a total of 18 incidents as confirmed or probable foodborne illness outbreaks after complete investigation. This number is low due to indeterminate conclusions or lack of conclusions stated in final reports.

Total # of incidents reported to MDARD	96 (1,236 illnesses)
Total # of incidents identified as confirmed or probable foodborne illness outbreaks.....	18 (284 illnesses)
Median number of illnesses reported per confirmed or probable foodborne outbreak	10

Leading causative agents of foodborne outbreaks reported to MDARD:

<i>Salmonella</i> species.....	7
Norovirus	3
<i>E. coli</i> 157:NM	1
<i>Shigella</i> sp.....	1
<i>Campylobacter</i>	1

Of the incidents reported to MDARD, 9.8 percent identified a causative agent.

Foodborne Illness Outbreaks Caused by Norovirus

National data recently released by the CDC identified norovirus as the leading cause of foodborne illness in the U.S. Norovirus continues to be a public health challenge in multiple settings throughout Michigan. MDCH reports 157 norovirus outbreaks were reported by local health departments in 2011. Of the 157 outbreaks, only 12 outbreaks (8 percent) were subsequently categorized as restaurant/food related. Healthcare settings and schools reported a greater proportion of outbreaks.

1. Noteworthy Incidents from FY11

Alfalfa Sprouts Contaminated With Salmonella

An alfalfa sprout sample routinely collected by MDARD staff as part of a federal produce monitoring program was found to be contaminated with *Salmonella* Senftenberg. Extensive environmental sampling was conducted by MDARD staff and a product recall was initiated by the firm. MDARD worked with the FDA to trace product throughout the distribution chain to insure potentially contaminated product was removed from commerce.

Cluster of Q Fever (*Coxiella burnetti* infection) Cases

In May, three cases of Q Fever were identified in two southeastern Michigan counties. All three cases had consumed raw milk from a single cow-share operation. Michigan law does not strictly prohibit the distribution of raw milk to cow-share members. The disease can be fatal if left untreated and may be transmitted through direct or indirect contact with infected animals. Raw milk from infected animals can contain the organism and may be responsible for some cases. Since there are no known strategies for eliminating this disease on-farm, MDARD's Animal Industry Division worked with MDCH epidemiologists, local health department staff, and the farm veterinarian to share information with the farm owners regarding on-farm risk reduction strategies to help mitigate the risks of disease transmission.

***Cronobacter sakazakii* Infections in Formula-fed Infants**

Illnesses due to *Cronobacter sakazakii* infections in infants are rare, but can be life threatening. Given the severity of these infections, public health and food regulatory agencies place a high priority on investigating even isolated cases. CDC is sharing information to help parents and caregivers better understand how to prevent infections (<http://www.cdc.gov/Features/Chronobacter>). Historically, *Cronobacter sakazakii* infections in infants have been associated with consumption of powdered infant formula. It is, however, often difficult to determine the contamination source, since the bacteria can be found in hospitals and homes where commercial infant formula is mixed with water or otherwise prepared for feeding. MDARD collaborated with local, state, and federal public health and food regulatory officials to investigate two isolated cases of *Cronobacter sakazakii* meningitis that were identified in March and April 2011. The infants were fed different brands of infant formula. Environmental samples were collected from one of the infant's home. The samples were then submitted to the CDC for analysis. Investigators found no evidence that commercially manufactured infant formula was the source of infection in either case.

***Salmonella* Ouakam in Fresh Cilantro**

A sample of fresh cilantro was found to be contaminated during routine monitoring conducted by MDARD under a Federal produce monitoring program. Traceback efforts by MDARD and FDA determined the product originated from an out-of-state processor. A sample of parsley collected in Canada and processed at the same facility as the cilantro was also found to be contaminated, but with a different strain of *Salmonella*. An international recall of multiple produce items was initiated and no human illnesses were linked to this incident.

2. Noteworthy Outbreaks from FY11:

Multistate *E. coli* O157 Outbreak Associated with Hazelnuts

MDARD collaborated with MDCH epidemiologists, officials in multiple states, CDC and FDA to investigate a multistate outbreak of *E. coli* O157:H7 infections associated with consumption of in-shell hazelnuts. The nuts were purchased during the 2010 Christmas season and the outbreak was detected when public health officials identified a small cluster of seven ill persons living in three Midwest states – Minnesota, Wisconsin, and Michigan. The outbreak strain of bacteria had a rare genetic fingerprint. MDARD collaborated with other state agencies and the FDA to conduct a traceback investigation that led to a California nut processor. The California firm initiated a national recall, and MDARD staff conducted recall audit checks at a number of Michigan retailers to verify that the nuts had been removed from commerce.

***Salmonella* Muenchen Outbreak Associated with Clover Sprouts**

An outbreak of *Salmonella* Muenchen infections involving six lab-confirmed cases was linked with consumption of sandwiches containing clover sprouts. The sandwiches were prepared in different stores operated by the same sandwich shop chain. This was the first outbreak associated with clover sprouts consumption reported in Michigan. MDARD staff conducted a traceback investigation that found the sprouts originated from an out-of-state processor. The information provided by MDARD was used by FDA and state regulatory officials in that state to conduct their investigations at the production facility.

Multistate *Salmonella* Newport Outbreak

During a period of several months, over 100 lab-confirmed cases of illness were identified in 17 states, including 10 cases in Michigan. Epidemiologic information suggested infections could potentially be associated with consumption of various produce items served in Mexican-style restaurants. MDARD conducted traceback investigations for several food items of interest and shared the findings with Federal investigators. Lack of produce distribution records contributed to the fact that the source of the outbreak could not be determined.

***Salmonella* Derby Outbreak Associated with Pulled Pork**

MDARD was notified by a local health department of several lab-confirmed cases of *Salmonella* Derby infection among persons who had attended a private party. The epidemiologic investigation implicated pulled pork, and the outbreak organism was isolated by laboratory testing of leftover pork samples. The pulled pork was produced in an MDARD-licensed meat processing firm. MDARD evaluated the firm's operations and limited its license until the firm strengthened food safety controls.

II. Food Recalls

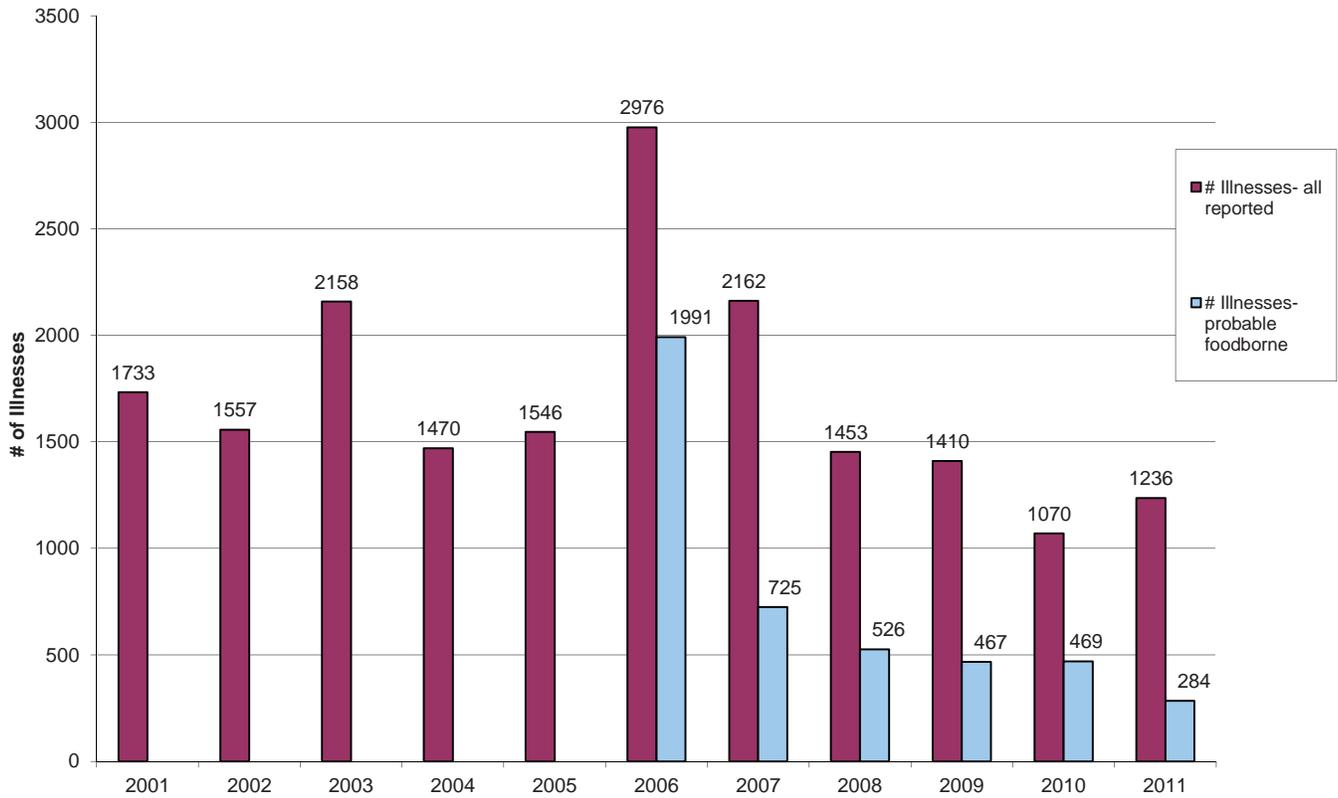
***Listeria monocytogenes* contamination in a retail food establishment**

Listeria monocytogenes was isolated from a routine surveillance sample of guacamole manufactured at a retail food establishment. Subsequent investigation and sampling by MDARD at the firm, found the organism in the processing environment, in cilantro held at the firm, and in several foods containing cilantro that were manufactured at the firm. Recalls were initiated of the cilantro and foods manufactured by the firm that contained cilantro. The firm worked closely with a hired consultant and MDARD to develop improved cleaning and food handling procedures.

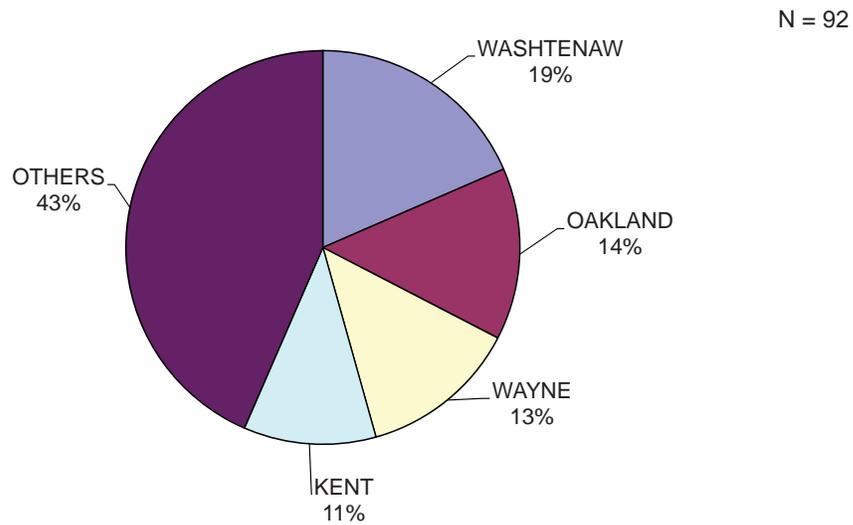
Michigan ground beef recall associated with *E. coli* O157: Non-Motile outbreak.

A total of 13 laboratory-confirmed and probable cases of *E. coli* O157:Non-Motile infections were identified in six counties during July and August of 2011. Local and state epidemiological investigations linked illnesses with consumption of ground beef produced by a meat processing facility whose processing operations were regulated by U.S. Department of Agriculture's Food Safety Inspection Service (FSIS). MDARD regulated the firm's retail operations. MDARD worked closely with both public health investigators and the USDA FSIS to coordinate the epidemiologic and on-site food regulatory investigations. The firm voluntarily initiated a recall and later expanded it. An MDARD supervisor played an active role in ensuring that adulterated product was removed from distribution during the early phases of the investigation and likely prevented additional illnesses. The outbreak organism was later found in ground beef samples collected from the home of an ill person.

Ten-Year Summary of Foodborne Illness Outbreaks, by Number of Reported Illnesses 2001-2011

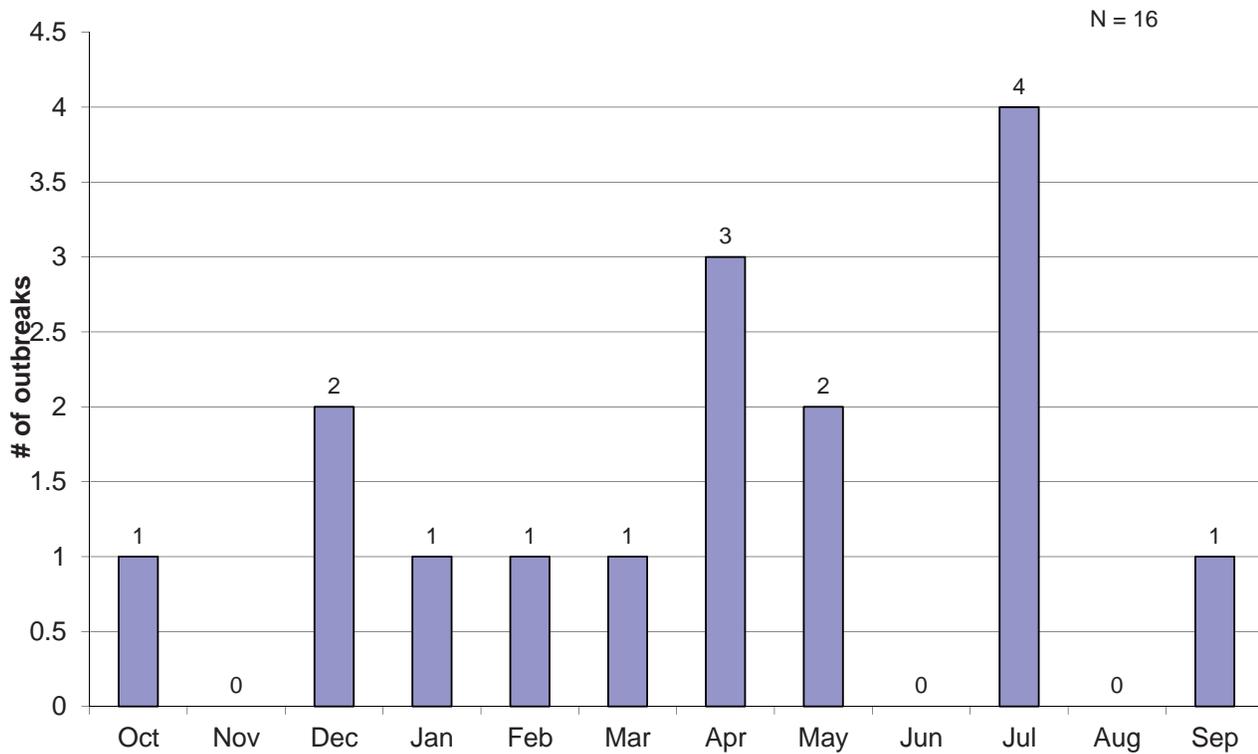


Foodborne Illness Outbreaks, by Local Health Department

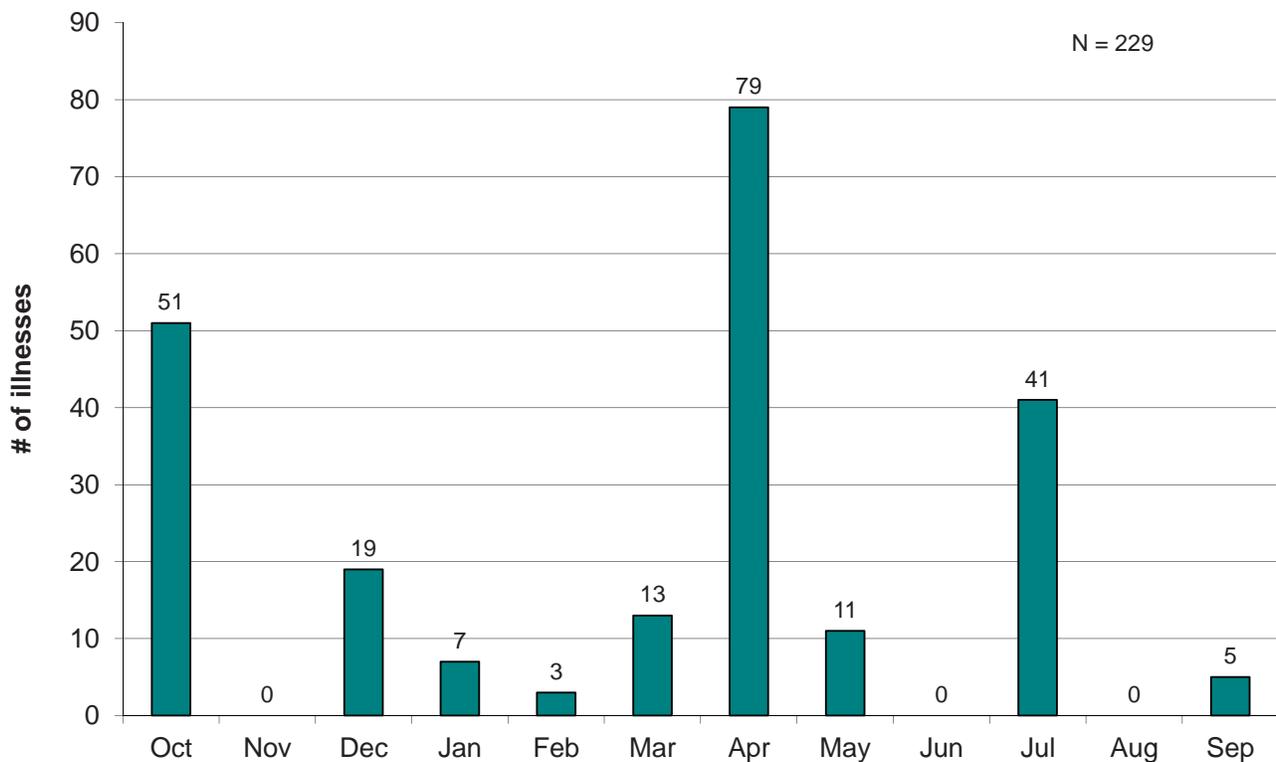


Note: Data cannot be interpreted as an indicator of the relative safety of foods in any jurisdiction. Health departments with larger populations would be expected to have larger numbers of outbreaks.

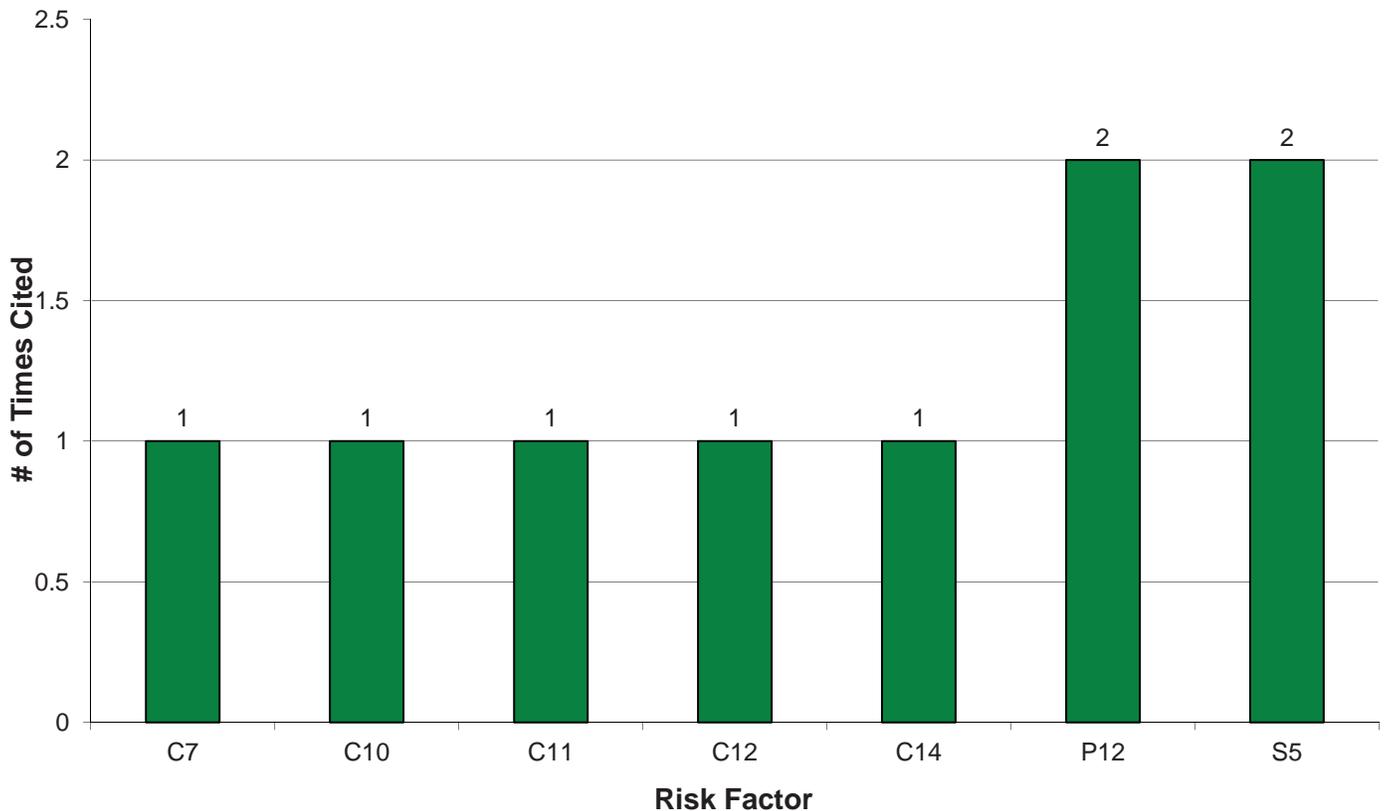
Probable Foodborne Illness Outbreaks, Number of Events, by Month



Probable Foodborne Illness Outbreaks, Number of Illnesses, by Month



CDC Risk Factors Reported by MDARD and Local Health Departments, Fiscal Year 2011



Key: Partial list of risk factors, from CDC form 52.13

C6	Contaminated raw product- food was intended to be consumed after a kill step
C7	Contaminated raw product- food was intended to be consumed raw or undercooked/processed
C8	Foods originating from sources show to be contaminated or polluted
C9	Cross-contamination of ingredients
C10	Bare-hand contact by handler/worker/preparer who is suspected to be infectious
C11	Glove-hand contact by handler/worker/preparer who is suspected to be infectious
C12	Other mode of contamination (excluding cross-contamination) by a food handler/worker/preparer
C13	Foods contaminated by non-food handler/worker/prepared who is suspected to be infectious
C14	Storage in contaminated environment
C15	Other source of contamination
P1	Food preparation practices that support proliferation of pathogens (during food preparation)
P2	No attempt was made to control the temperature of implicated food or the length of time food was
P4	Improper cold holding due to malfunctioning refrigeration equipment
P5	Improper cold holding due to an improper procedure or protocol
P6	Improper hot holding due to malfunctioning equipment
P7	Improper hot holding due to improper procedure or protocol
P8	Improper/slow cooling
P12	Other situations that promoted or allowed microbial growth or toxic production
S1	Insufficient time and/or temperature control during initial cooking/heat processing
S2	Insufficient time and/or temperature during reheating
S4	Insufficient or improper use of chemical processes designed for pathogen destruction
S5	Other process failures that permit the agent to survive

III. Recommendations

General Recommendations for Food Regulators

- During routine food safety inspections, focus on finding and eliminating unsafe food handling practices that are highly associated with foodborne illness.
- Evaluate cleaning and sanitizing practices for food equipment and utensils.
- Evaluate cooling practices, to ensure compliance with proper time and temperature standards.
- Insure timely information sharing during multi-agency investigations.
- Continue to work with food safety partners to improve food product traceability and recordkeeping.
- Sponsor and encourage participation in foodborne outbreak investigation training.

MDARD Recommendations for Local Health Departments

- Submit a completed CDC Form 52.13 with all events deemed probable foodborne illness outbreaks.
- In final reporting and termination reports for outbreaks, give a conclusion stating whether or not the outbreak was deemed foodborne based on investigation findings.

Consumer Food Safety Information

For more information about the Michigan Department of Agriculture & Rural Development, Food and Dairy Division, or to receive Food Recall Alerts from MDARD, visit www.michigan.gov/foodsafety.

Appendix I – Workload Data by LHD

FY11 Workload – Output

Michigan Local Health Department Quarterly Reports Summary, 2011											
	INSPECTIONS CONDUCTED					INSPECTION S DUE	PLAN REVIEW		INVESTIGATIONS		EVALUATION SCHEDULE
	3. Fixed food establishments	4. Mobile, vending & sifu	5. Temporary food establishments	6. Follow-up inspections	Total Number of Inspections Conducted (all inspection types)	7. Fixed, mobile, vending & sifu inspections due (annual total)	8. Number of plans received for review	9. Number of plans approved	10. Consumer Complaints Investigated	Number of Consumer Complaints per 100,000 People	11. Current evaluation frequency schedule in risk category order- ZNYX (i.e. 6/6/12, 6/12/12, 6/12/18, etc. Indicate 6/6/6 if the standard 6 month schedule is used.
Allegan	595	50	118	168	931	521	12	12	10	8.98	6/6/6
BEDHD	790	50	147	140	1,127	840	46	43	45	26.96	6/6/6
Bay	505	23	72	141	741	31	4	7	32	29.69	6/6/6/
Benzie-Leelanau	330	8	132	57	527	341	4	3	12	30.59	6/6/6
Berrien	1,116	75	319	156	1,666	1,159	19	12	36	22.96	6/6/6
BHSJ	952	153	267	140	1,512	1,106	22	17	38	24.80	6/6/6
Calhoun	682	22	123	16	843	0	20	14	32	23.50	6/12/12
CMDHD	1,038	112	253	191	1,594	1,378	30	20	62	32.49	6/6/6
Chippewa	315	12	37	45	409	317	6	7	6	15.58	6/6/6
Delta-Menominee	330	22	214	123	689	352	5	4	11	18.00	6/6/6
Detroit City	2,228	190	356	511	3,285	0	45	36	76	10.65	6/12/18
Dickinson-Iron	374	4	53	122	553	553	4	3	4	10.53	6/6/6
DHD # 2	423	34	155	26	638	638	11	9	34	50.62	6/12/18
DHD # 4	619	26	74	63	782	672	11	7	5	6.34	6/6/6
DHD # 10	1,595	158	519	239	2,511	1,753	34	24	76	29.05	6/6/6
Genesee	2,275	162	205	201	2,843	2,439	33	27	131	30.77	6/6/12
Grand Traverse	512	65	87	102	766	577	27	20	19	21.84	6/6/12
Holland City*	245	60	57	171	533	262	11	10	18	54.46	6/6/12
Huron	259	24	132	125	540	286	5	4	3	9.06	6/12/12
Ingham	1,754	152	109	1,230	3,245	2,383	69	59	343	122.11	6/6/6/
Ionia	339	25	105	44	513	25	4	3	12	18.78	6/6/6
Jackson	813	89	102	56	1,060	882	22	12	55	34.32	6/6/6/
Kalamazoo	1,616	71	226	308	2,221	1,829	32	21	90	35.95	6/6/12
Kent	3,845	228	561	703	5,337	4,073	94	87	273	45.30	6/6/6
Lapeer	397	49	80	33	559	444	14	10	18	20.38	6/6(12Sea)/6
Lenawee	634	53	401	40	1,128	647	27	27	54	54.06	6/6/6
Livingston	752	42	104	39	937	794	14	11	85	46.97	6/6/6/
LMAS	398	13	199	20	630	630	4	7	6	16.75	6/6/6
Macomb	4,247	134	285	1,189	5,855	4,381	107	80	306	36.39	6/6/6
Marquette	369	20	101	97	587	469	8	6	30	44.72	6/12/18
Midland	592	86	119	67	864	862	10	11	23	27.50	6/6/6
Mid-Michigan	1,000	107	274	200	1,581	828	29	18	32	17.66	6/6/12
Monroe	850	18	159	64	1,091	868	22	12	61	40.13	6/6/12
Muskegon	1,060	120	254	400	1,834	1,180	30	28	112	65.05	6/6/6/
Northwest	987	71	177	154	1,389	1,060	10	20	9	8.46	6/6/6
Oakland	8,584	629	1,210	4,613	15,036	8,872	322	281	1,075	89.41	6/6/6
Ottawa	1,047	81	213	492	1,833	1,128	24	14	34	12.89	6/6(12Sea)/6
Saginaw	1,026	39	517	149	1,731	1,731	12	10	62	30.97	6/12/12
Sanilac	247	18	52	13	330	191	5	6	5	11.60	6/6/6/
Shiawassee	294	20	61	16	391	305	6	6	7	9.91	6/12/18
St. Clair	1,132	60	221	139	1,552	1,342	22	22	103	63.17	6/6/6
Tuscola	304	17	146	143	610	610	14	12	5	8.97	6/6/6
VanBuren-Cass	516	23	141	35	715	741	6	5	1	0.78	6/6/6
Washtenaw	2,279	90	510	461	3,340	2,382	78	77	196	56.85	6/6/6
Wayne	5,211	185	456	2,199	8,051	5,776	156	159	281	25.39	6/12/12/
Western UP	595	11	223	126	955	609	22	22	14	19.76	6/12/18
Totals	56,071	3,701	10,326	15,767	85,865	58,267	1,512	1,305	3,942	39.75	XXX
Average	1,219	80	224	343	1,867	1,267	33	28	86	39.75	XXX
Median	717	52	157	140	1,008	768	20	12	33	26	XXX
Minimum	245	4	37	13	330	0	4	3	1	1	0
Maximum	8,584	629	1,210	4,613	15,036	8,872	322	281	1,075	122	0
Holland City inspections reported through Allegan and Ottawa Health Departments											

Appendix II – Output Data - Licensing by LHD

Michigan Local Health Department Quarterly Reports Summary 2011														
	NT CONDUCTED		LICENSED FACILITIES											
	12. Administrative Action: office conference, informal	13. Court Action: civil, criminal	Licensed Fixed Food Establishments	Fixed Licenses- % of Total Fixed Licenses		Mobile Licenses- % of Total Mobile Licenses	Licensed STFU Establishments	STFU Licenses- % of Total STFU Licenses	Licensed Vending Establishments	Vending Licenses- % of Total Vending Licenses	Licensed Temporary Establishments (Number of temporary inspections)	Temporary Licenses- % of Total Temporary Licenses	Total Licensed Establishments (excluding temporary)	Fixed Food Establishments per 100,000 people
Allegan	12	0	291	1	0	0	34	4	27	1	118	1	352	261
BEDHD	28	6	494	2	5	1	28	3	53	2	147	1	580	296
Bay	5	0	389	1	5	1	3	0	15	0	72	1	412	361
Benzie-Leelanau	0	0	185	1	1	0	4	0	1	0	132	1	191	472
Berrien	5	0	606	2	19	5	9	1	59	2	319	3	693	386
BHSJ	1	0	505	2	2	1	45	5	99	3	267	3	651	330
Calhoun	1	0	457	1	6	2	7	1	1	0	123	1	471	336
CMDHD	7	0	423	1	1	0	36	4	20	1	253	2	480	222
Chippewa	7	0	179	1	0	0	1	0	6	0	37	0	186	465
Delta-Menominee	7	0	256	1	0	0	13	1	12	0	214	2	281	419
Detroit City	87	4	1642	5	24	6	2	0	211	6	356	3	1879	230
Dickinson-Iron	14	0	203	1	0	0	1	0	17	0	53	1	221	534
DHD # 2	9	0	323	1	0	0	16	2	6	0	155	2	345	481
DHD # 4	2	0	396	1	1	0	15	2	1	0	74	1	413	502
DHD # 10	28	0	884	3	4	1	33	4	80	2	519	5	1001	338
Genesee	5	0	1243	4	11	3	32	4	108	3	205	2	1394	292
Grand Travers	8	0	323	1	7	2	27	3	35	1	87	1	392	371
Holland City	0	0	104	0	1	0	12	1	41	1	57	1	158	315
Huron	2	0	171	1	1	0	19	2	19	1	132	1	210	516
Ingham	98	0	973	3	0	0	80	9	70	2	109	1	1123	346
Ionia	2	0	170	1	1	0	11	1	22	1	105	1	204	266
Jackson	5	0	462	1	0	0	24	3	61	2	102	1	547	288
Kalamazoo	24	0	830	3	4	1	35	4	91	3	226	2	960	332
Kent	98	0	1861	6	43	11	43	5	441	13	561	5	2388	309
Lapeer	10	0	226	1	2	1	12	1	18	1	80	1	258	256
Lenawee	8	0	317	1	1	0	1	0	53	2	401	4	372	317
Livingston	8	0	413	1	3	1	33	4	25	1	104	1	474	228
LMAS	0	0	269	1	2	1	5	1	8	0	199	2	284	751
Macomb	318	1	2345	8	24	6	18	2	258	8	285	3	2645	279
Marquette	37	0	263	1	0	0	9	1	15	0	101	1	287	392
Midland	0	0	277	1	26	7	15	2	13	0	119	1	331	331
Mid-Michigan	13	0	503	2	1	0	31	3	67	2	274	3	602	278
Monroe	1	0	482	2	7	2	60	7	37	1	159	2	586	317
Muskegon	31	0	568	2	3	1	34	4	134	4	254	2	739	330
Northwest	0	0	632	2	6	2	12	1	29	1	177	2	679	594
Oakland	111	1	3942	13	105	28	15	2	380	11	1,210	12	4442	328
Ottawa	30	0	556	2	0	0	14	2	129	4	213	2	699	211
Saginaw	40	0	562	2	0	0	6	1	90	3	517	5	658	281
Sanilac	1	0	176	1	2	1	8	1	10	0	52	1	196	408
Shiawassee	0	0	205	1	2	1	19	2	10	0	61	1	236	290
St. Clair	24	0	468	2	6	2	9	1	72	2	221	2	555	287
Tuscola	4	0	152	0	1	0	11	1	17	0	146	1	181	273
VanBuren-Cass	0	0	371	1	3	1	4	0	23	1	141	1	401	289
Washtenaw	54	0	1170	4	22	6	13	1	163	5	510	5	1368	339
Wayne	161	0	3439	11	26	7	24	3	373	11	456	4	3862	311
Western UP	104	1	392	1	1	12	5	1	5	0	223	2	403	553
Totals	1,410	13	31,098	XXX	379	XXX	888	XXX	3,425	XXX	10,326	XXX	35,790	16,310
Average	31	0	676	XXX	8	XXX	19	XXX	74	XXX	224	XXX	778	314
Median	8	0	418	XXX	2	XXX	15	XXX	32	XXX	157	XXX	473	329
Minimum	0	0	104	0	0	0	1	0	1	0	37	0	158	211
Maximum	318	6	3,942	13	105	28	80	9	441	13	1,210	12	4,442	751

Appendix III – Program Staffing – Program Revenue by LHD

Michigan Local Health Department Quarterly Reports Summary 2011														
	IMPORTANT FACTOR IV STAFFING						FINANCIAL						Population	
	14. Total number of FTE's assigned to the food program in the	15. Total number of FTE's assigned to conduct food	Total FTE's	Minimum Inspection Staffing per FDA	Recommended Inspection Staffing per FDA	Average Number of Inspections per FTE Assigned to Conduct Food Establishment Inspections	Fees Collected	Local Tax Dollars	LPHO Dollars	Total Program Revenue	Program Dollars per Licensed Establishment	Program Dollars per FTE		Program Dollars per Citiz
Allegan	2.50	2.00	4.5	2.0	2.7	466	145,728	85,555	177,930	409,213	1,163	90,936	3.67	111,408
BEDHD	4.35	3.00	7.35	3.1	4.4	376	286,830	221,995	129,927	638,752	1,101	86,905	3.83	166,932
Bay	2.60	5.00	7.6	2.1	3.0	148	123,500	91,861	89,481	304,842	740	40,111	2.83	107,771
Benzie-Leelanau	0.90	0.50	1.4	1.3	1.7	1,054	79,671	21,796	40,387	141,854	743	101,324	3.62	39,233
Berrien	1.00	4.50	5.5	4.1	5.7	370	143,401	50,000	151,434	344,835	498	62,697	2.20	156,813
BHSJ	1.40	3.50	4.9	3.8	5.2	432	234,000	50,092	127,166	411,258	632	83,930	2.68	153,231
Calhoun	1.20	2.65	3.85	2.5	3.6	318	209,163	89,987	177,696	476,846	1,012	123,856	3.50	136,146
CMDHD	4.10	2.20	6.3	3.0	4.0	725	272,950	73,154	212,073	558,177	1,163	88,600	2.93	190,805
Chippewa	0.46	0.25	0.713	1.0	1.4	1,617	85,152	44,596	43,230	172,978	930	242,606	4.49	38,520
Delta-Menominee	2.11	1.48	3.59	2.0	2.6	466	98,000	16,701	50,844	165,545	589	46,113	2.71	61,098
Detroit City	4.00	9.00	13	9.5	13.7	365	688,000	126,837	522,380	1,337,217	712	102,863	1.87	713,777
Dickinson-Iron	1.50	1.50	3	1.2	1.7	369	90,164	20,764	54,732	165,660	750	55,220	4.36	37,985
DHD # 2	3.03	0.90	3.93	2.1	2.8	709	119,705	31,380	73,367	224,452	651	57,112	3.34	67,168
DHD # 4	0.70	1.92	2.62	2.1	3.0	407	140,000	63,830	77,954	281,784	682	107,551	3.57	78,891
DHD # 10	7.00	6.00	13	6.2	8.4	419	318,414	128,050	209,403	655,867	655	50,451	2.51	261,616
Genesee	12.00	10.00	22	6.9	10.0	284	862,143	672,019	446,386	1,980,548	1,421	90,025	4.65	425,790
Grand Travers	0.70	2.00	2.7	2.0	2.9	383	172,500	34,307	82,999	289,806	739	107,336	3.33	86,986
Holland City	0.80	0.80	1.6	0.9	1.2	666				0	0	0	0.00	33,051
Huron	0.64	0.55	1.19	1.4	1.8	982	94,794	0	34,218	129,012	614	108,413	3.90	33,118
Ingham	8.00	6.75	14.75	5.4	7.9	481	593,254	398,166	208,875	1,200,295	1,069	81,376	4.27	280,895
Ionia	0.52	0.48	1	1.3	1.7	1,069	73,000	19,380	53,000	145,380	713	145,380	2.27	63,905
Jackson	1.50	2.00	3.5	2.8	4.0	530	249,910	0	118,727	368,637	674	105,325	2.30	160,248
Kalamazoo	8.00	6.00	14	5.0	7.2	370	30,700	96,901	290,356	417,957	435	29,854	1.67	250,331
Kent	11.00	9.00	20	12.5	17.8	593	874,853	94,618	333,773	1,303,244	546	65,162	2.16	602,622
Lapeer	1.30	1.15	2.45	1.4	2.0	486	110,700	29,666	76,257	216,623	840	88,418	2.45	88,319
Lenawee	1.00	1.50	2.5	3.0	3.8	752	196,260	16,432	102,801	315,493	848	126,197	3.16	99,992
Livingston	1.00	2.75	3.75	2.5	3.5	341	350,600	44,389	188,532	583,521	1,231	155,606	3.22	180,967
LMAS	0.88	1.81	2.69	1.9	2.6	348	129,078	23,342	120,947	273,367	963	101,623	7.63	35,830
Macomb	5.00	16.00	21	12.7	18.6	366	791,888	308,005	545,641	1,645,534	622	78,359	1.96	840,978
Marquette	0.61	1.20	1.81	1.6	2.3	489	146,000	26,192	51,754	223,946	780	123,727	3.34	67,077
Midland	1.80	1.40	3.2	1.9	2.6	617	105,891	23,632	66,645	196,168	593	61,303	2.35	83,629
Mid-Michigan	5.00	4.50	9.5	3.6	4.9	351	234,487	93,652	266,723	594,862	988	62,617	3.28	181,200
Monroe	0.40	1.40	1.8	3.1	4.4	779	215,000	63,425	76,816	355,241	606	197,356	2.34	152,021
Muskegon	3.96	2.48	6.44	4.1	5.8	740	337,428	265,199	99,305	701,932	950	108,996	4.08	172,188
Northwest	6.00	3.25	9.25	3.6	5.1	427	275,250	124,357	88,440	488,047	719	52,762	4.59	106,387
Oakland	12.60	30.18	42.78	23.8	33.6	498	1,105,716	187,008	821,317	2,114,041	476	49,417	1.76	1,202,362
Ottawa	2.60	4.50	7.1	3.8	5.4	407	351,171	316,933	137,140	805,244	1,152	113,415	3.05	263,801
Saginaw	1.21	2.68	3.89	4.6	6.1	646	295,114	57,082	255,998	608,194	924	156,348	3.04	200,169
Sanilac	1.67	1.20	2.87	1.0	1.5	275	68,863	500	46,556	115,919	591	40,390	2.69	43,114
Shiawassee	0.30	0.90	1.2	1.3	1.8	434	86,186	49,346	70,686	206,218	874	171,848	2.92	70,648
St. Clair	1.50	4.00	5.5	3.2	4.4	388	144,100	199,211	160,674	503,985	908	91,634	3.09	163,040
Tuscola	0.40	0.65	1.05	1.3	1.7	938	64,449	4,343	40,984	109,776	606	104,549	1.97	55,729
VanBuren-Cass	1.30	1.50	2.8	2.3	3.1	477	96,000	142,637	96,459	335,096	836	119,677	2.61	128,551
Washtenaw	2.80	9.20	12	7.8	10.8	363	643,198	521,338	267,157	1,431,693	1,047	119,308	4.15	344,791
Wayne	8.00	17.50	25.5	18.7	27.3	460	2,524,306	44,976	1,060,250	3,629,532	940	142,335	3.28	1,106,807
Western UP	0.90	1.80	2.7	2.5	3.4	531	170,000	25,445	101,867	297,312	738	110,116	4.20	70,851
Totals	140.24	193.53	334	193	273	24,711	14,427,517	4,999,099	8,449,287	27,875,903	36,462	4,449,144	144	9,916,691
Average	3.05	4.21	7	4	6	444	320,611	111,091	187,762	605,998	779	83,518	2.81	215,580
Median	1.50	2.10	4	3	4	463	172,500	57,082	118,727	361,939	741	96,479	3.07	132,349
Minimum	0.30	0.25	1	1	1	148	30,700	0	34,218	0	0	0.00	0.00	33,051
Maximum	12.60	30.18	43	24	34	1,617	2,524,306	672,019	1,060,250	3,629,532	1,421	242,606	7.63	1,202,362

Note: Holland City inspections reported through Allegan and Ottawa Health Departments.

Appendix IV – Foodborne Illness Outbreaks by LHD

Potential Foodborne Illness Outbreaks by Local Health Department							
Jurisdiction	FBI Outbreaks	% of Total FBIs	% of Total MI FSEs	Population	% of Total Population	Reports Filed w/ State	Missing Reports
WASHTENAW	17	18.5%	11.1%	1,100,732	11%	17	0
OAKLAND	13	14.1%	5.8%	599,524	6%	13	0
WAYNE	12	13.0%	12.5%	1,214,255	12%	10	2
KENT	10	10.9%	3.7%	344,047	3%	10	0
MULTI-JURISDICTIONAL	5	5.4%	1.6%	155,858	2%	0	5
DHD #10	4	4.3%	3.0%	276,898	3%	4	0
LENAWEE	4	4.3%	1.0%	84,952	1%	4	0
BARRY-EATON	3	3.3%	1.5%	167,136	2%	3	0
GENESEE	3	3.3%	2.8%	266,085	3%	3	0
MACOMB	3	3.3%	1.3%	184,511	2%	3	0
BR-HILLS-STJOE	2	2.2%	4.0%	441,966	4%	2	0
CALHOUN	2	2.2%	0.5%	64,821	1%	2	0
ST CLAIR	2	2.2%	1.4%	163,851	2%	2	0
DETROIT	1	1.1%	1.0%	102,191	1%	0	1
GRAND TRAVERSE	1	1.1%	1.8%	230,617	2%	1	0
INGHAM	1	1.1%	1.6%	175,993	2%	1	0
IONIA	1	1.1%	7.4%	832,861	8%	1	0
JACKSON	1	1.1%	1.8%	175,231	2%	0	1
KALAMAZOO	1	1.1%	1.2%	108,390	1%	1	0
LIVINGSTON	1	1.1%	1.9%	161,705	2%	1	0
MUSKEGON	1	1.1%	1.5%	137,991	1%	1	0
NORTHWEST MI	1	1.1%	1.3%	81,971	1%	0	1
SAGINAW	1	1.1%	1.0%	106,310	1%	1	0
VANBUREN-CASS	1	1.1%	0.8%	64,675	1%	1	0
WESTERN UP	1	1.1%	1.0%	69,395	1%	1	0
	92	100.0%	~	~	~	82	10

Note: The number of reported illnesses cannot be interpreted as indicating the relative risk or safety of food in any jurisdiction.

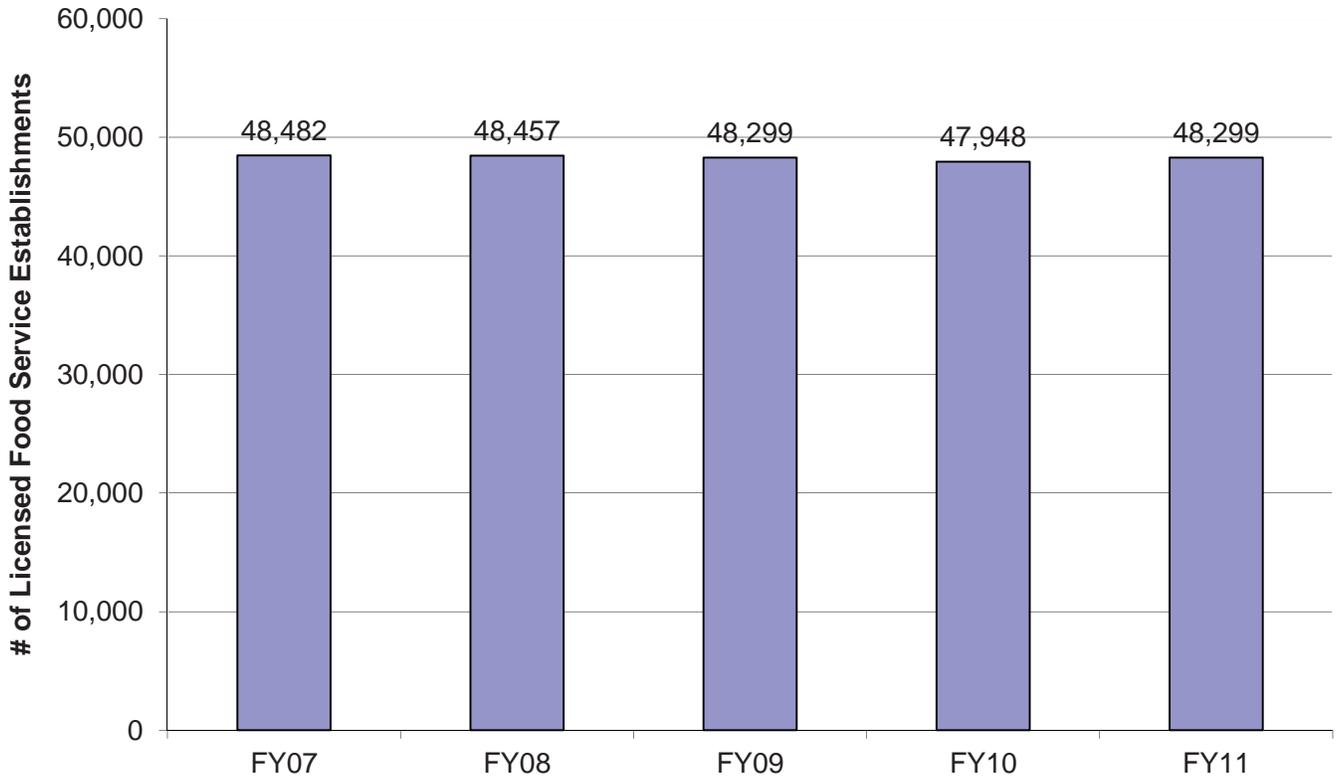
Michigan Population Estimate, 2006: 10,095,643 (Source: U.S. Census Bureau)

Michigan Foodservice Establishments= 31,890

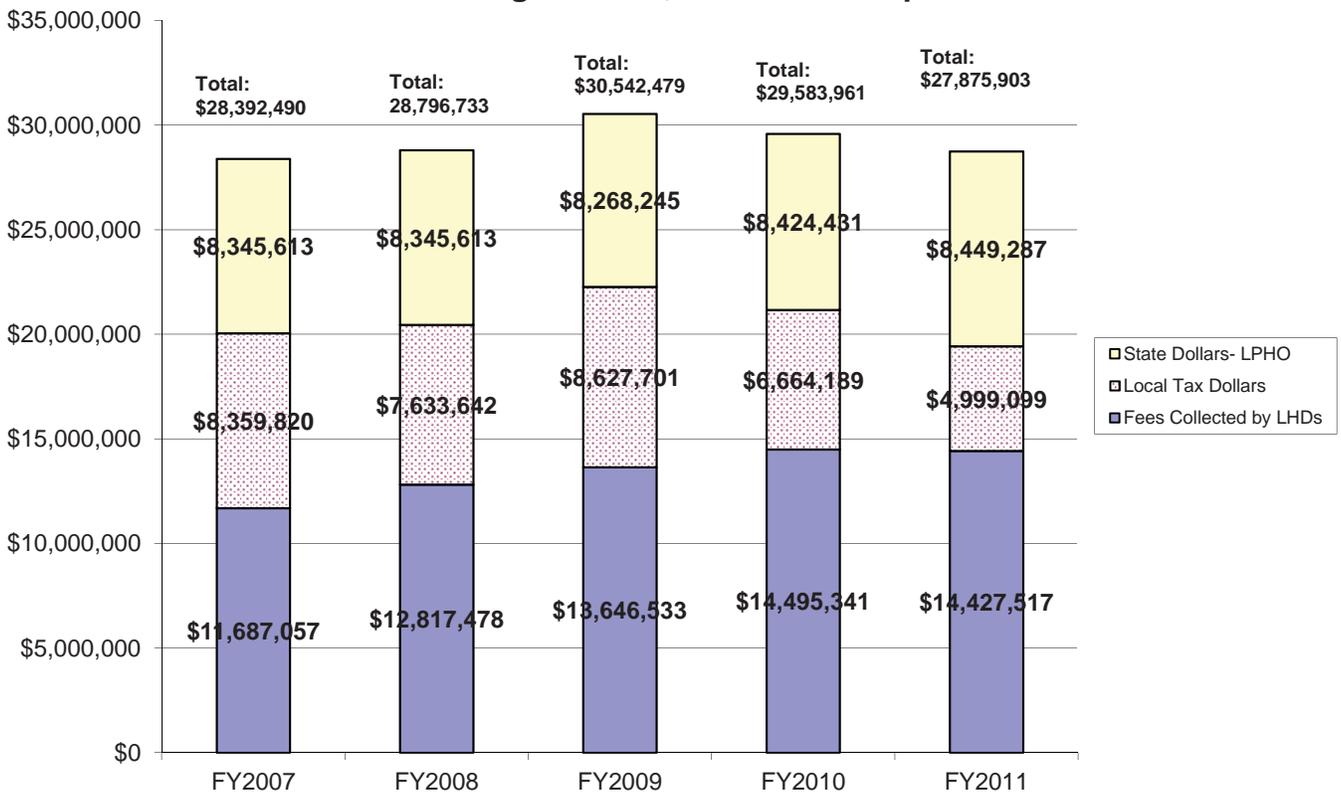
Appendix V – Five-Year Trend Analysis Charts

Local Health Departments

Licensed Food Service Establishments (LHD), Five-Year Comparison

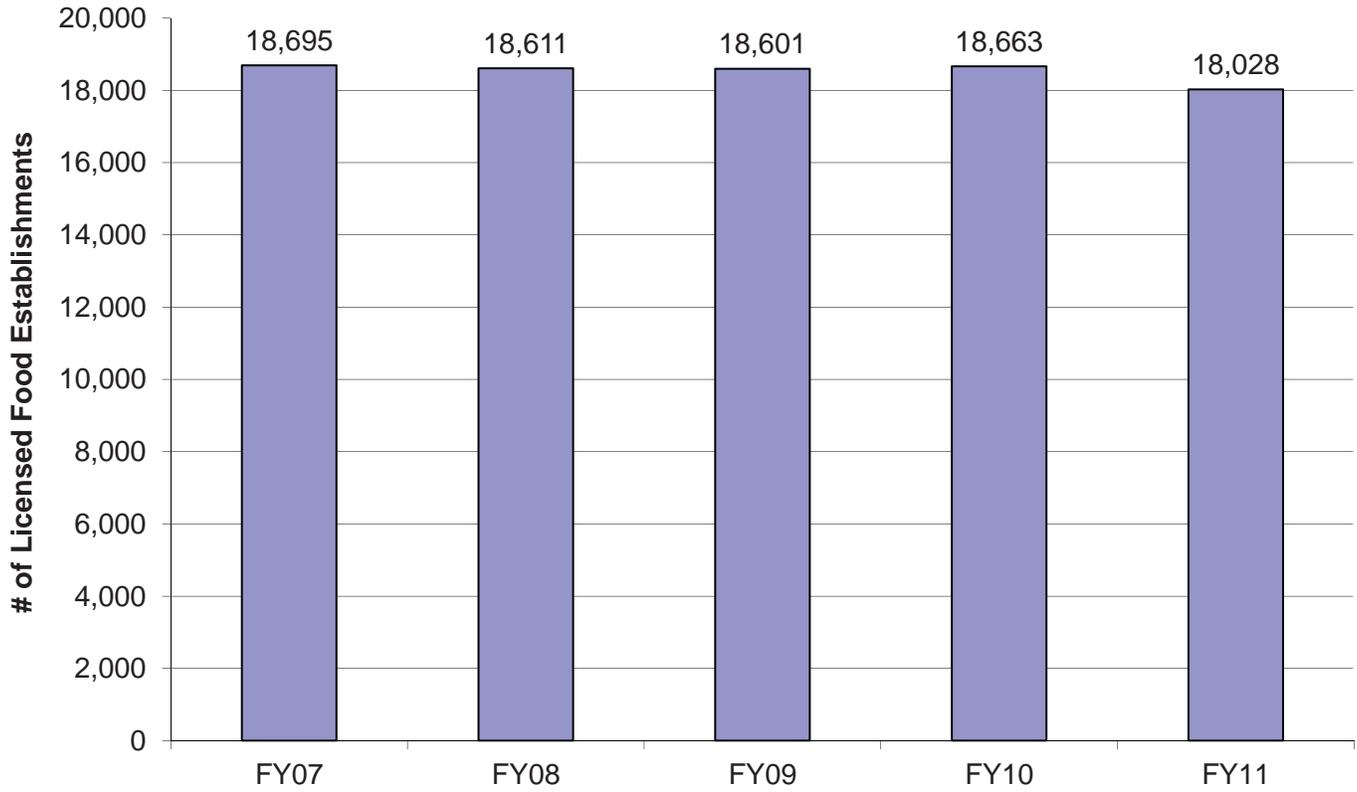


LHD Funding Sources, Five-Year Comparison

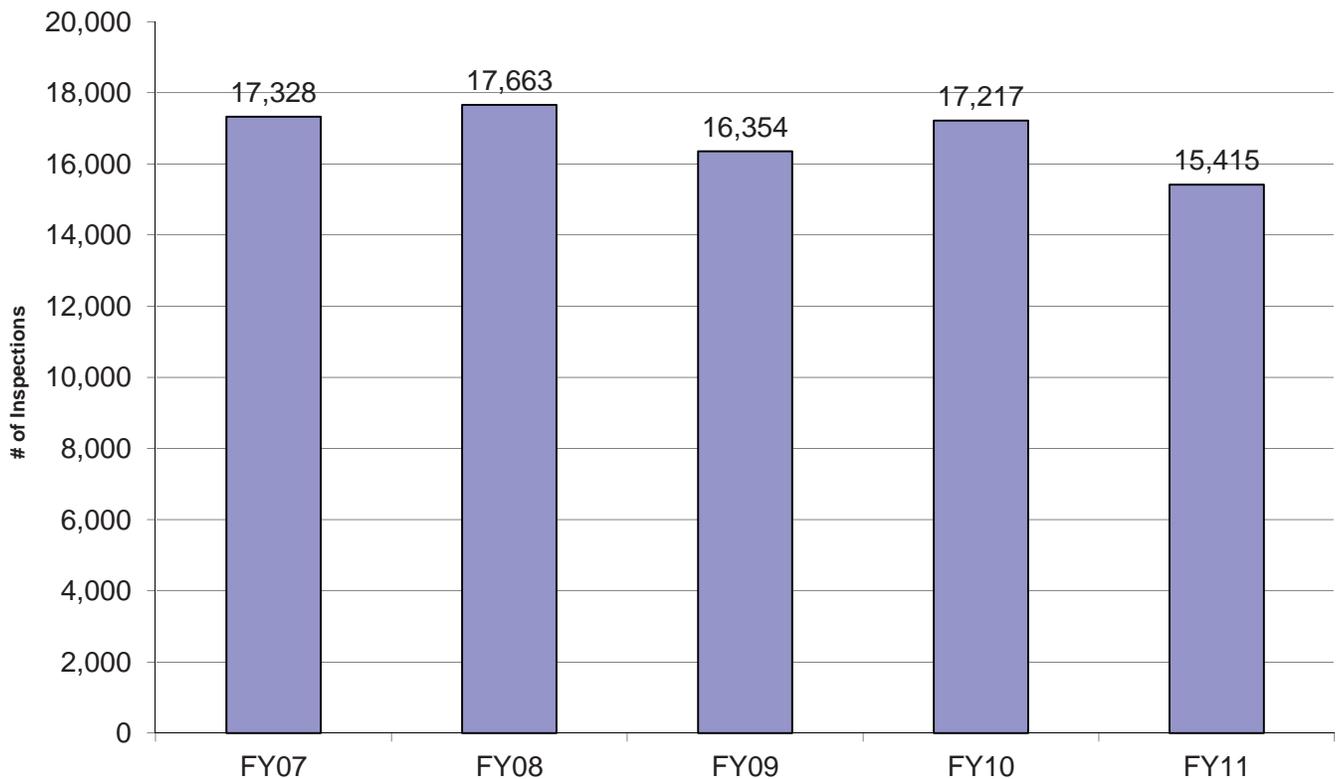


MDARD Food Safety and Inspection Program

Licensed Food Establishments (MDARD), Five-Year Comparison

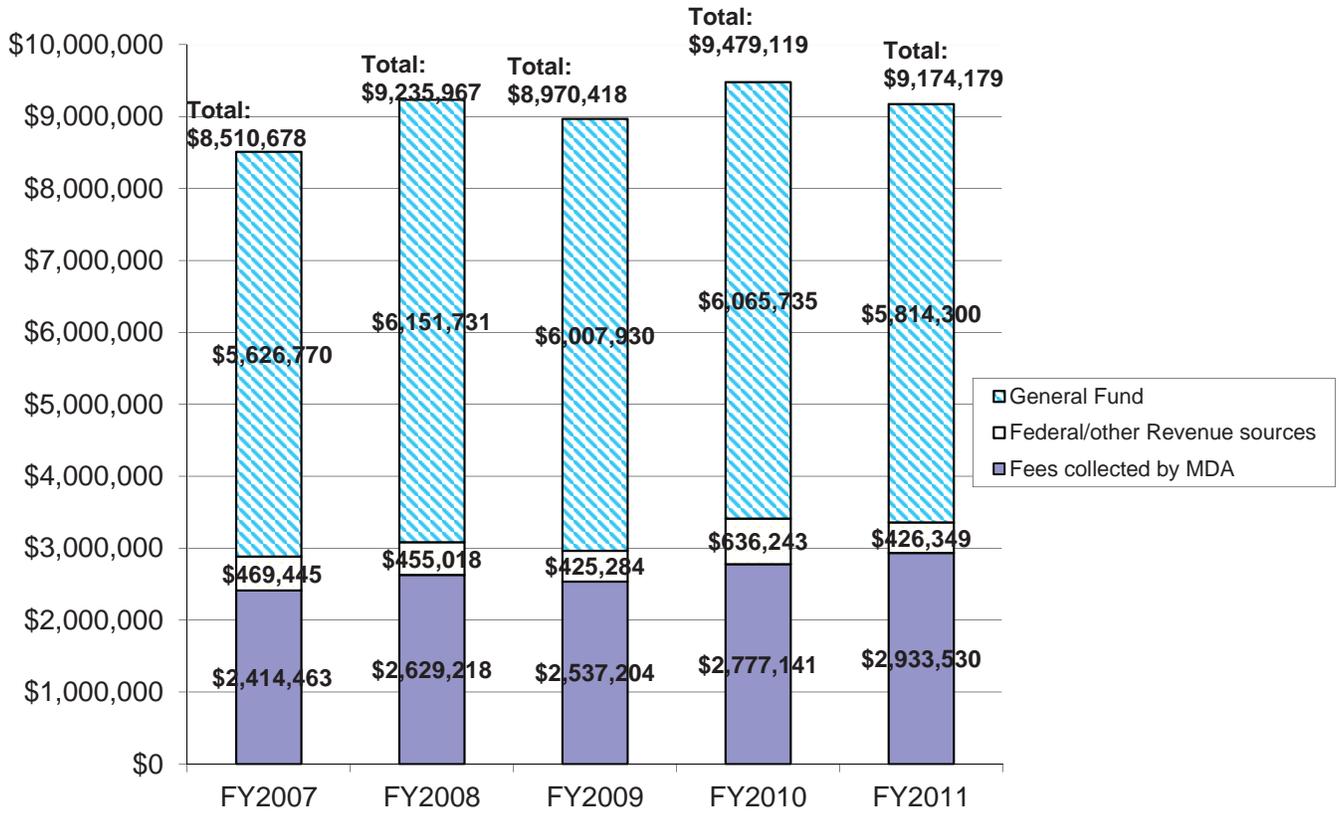


Number of MDARD-Conducted Food Inspections, Five-Year Comparison



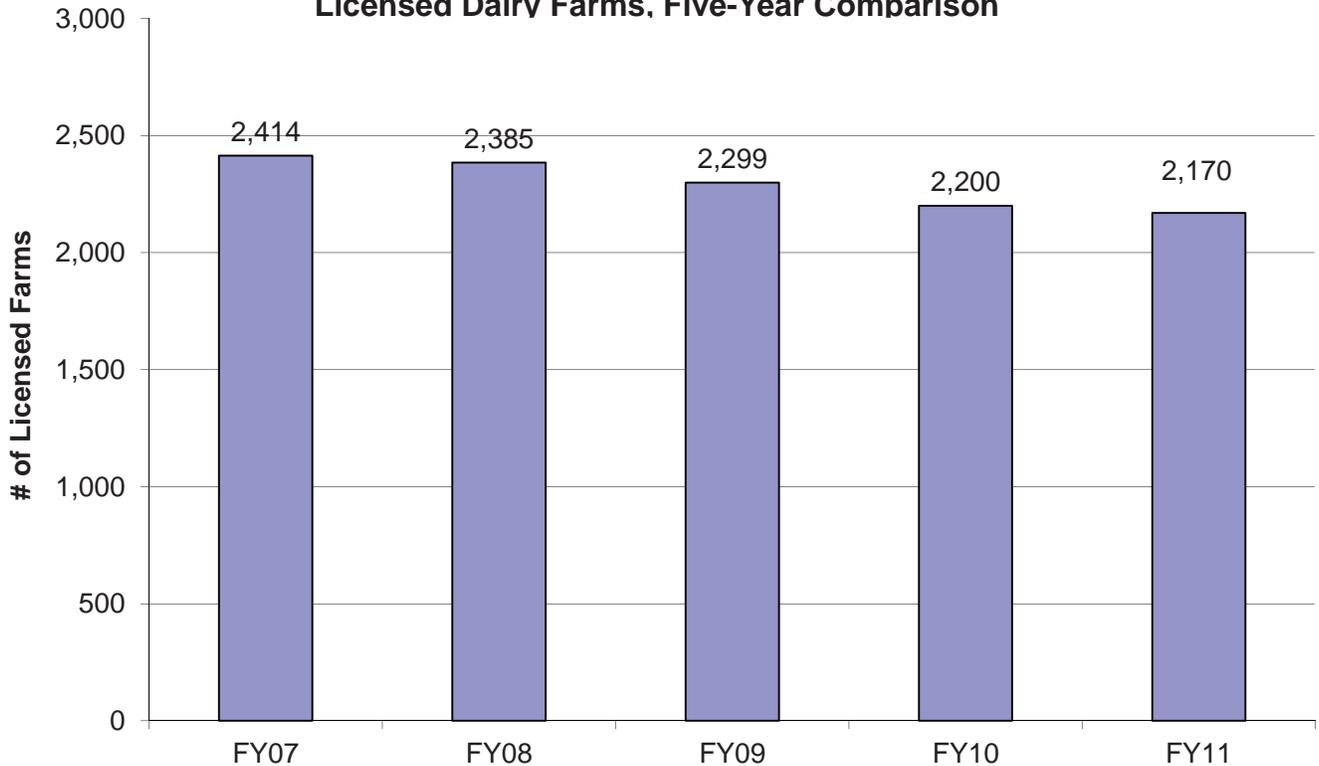
Note: Fair inspections are not included in the food inspection counts for this graph.

MDARD Food Safety Funding Sources, Five-Year Comparison

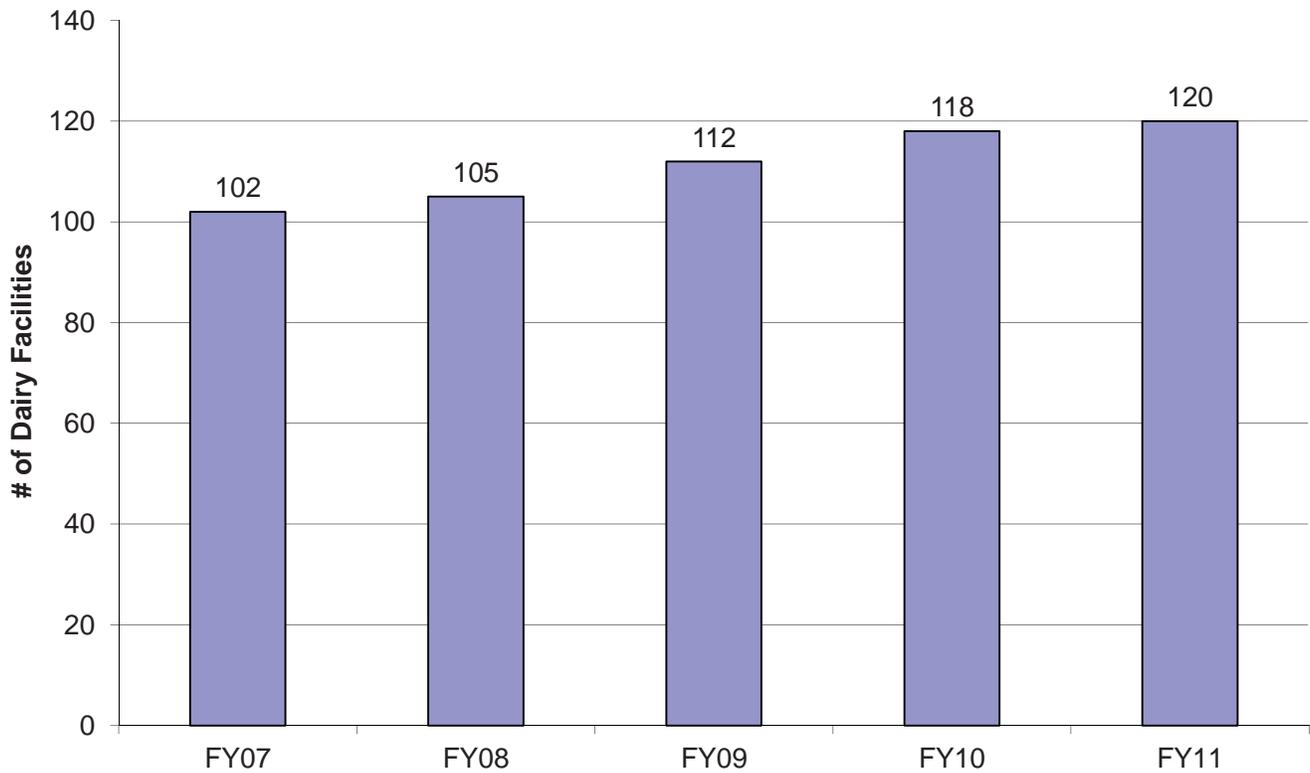


MDARD Milk and Dairy Product Safety and Inspection Program

Licensed Dairy Farms, Five-Year Comparison

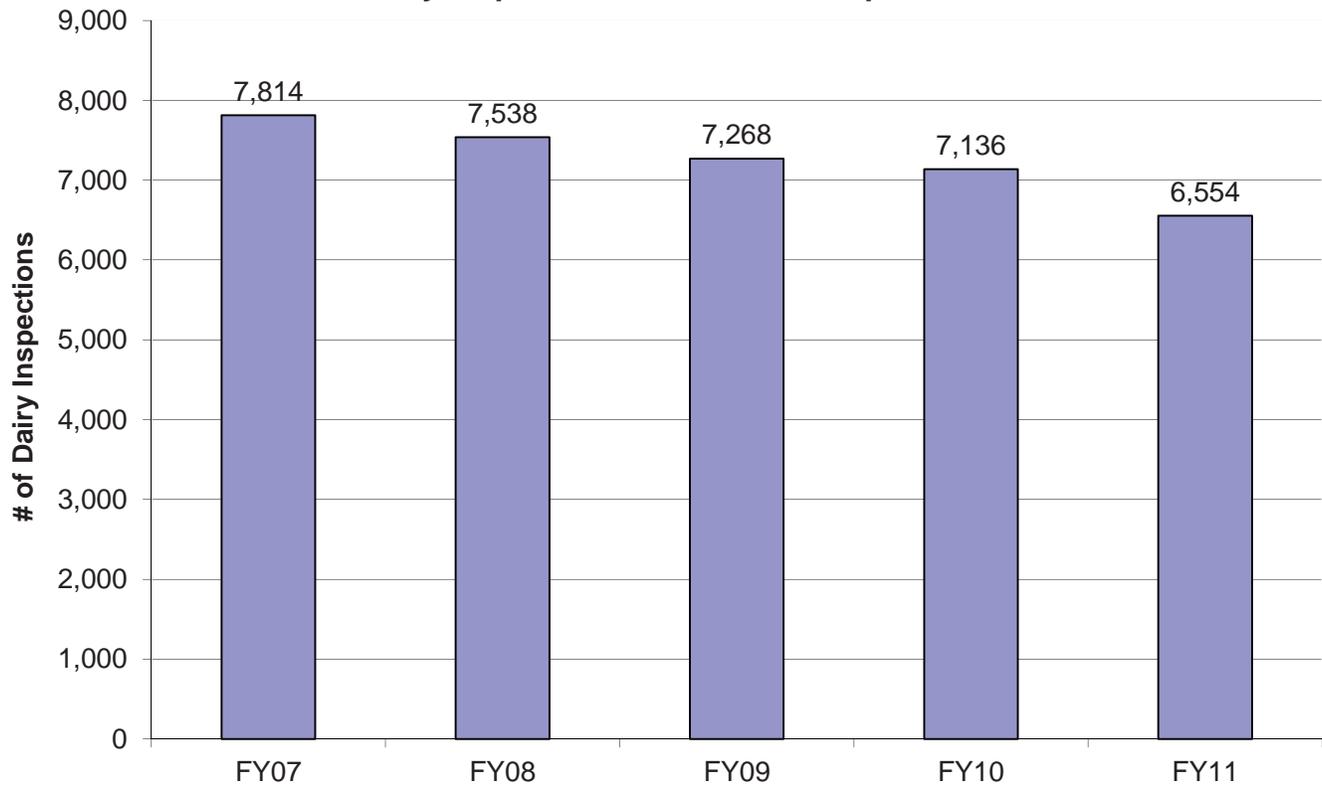


Licensed Dairy Facilities, Five-Year Comparison



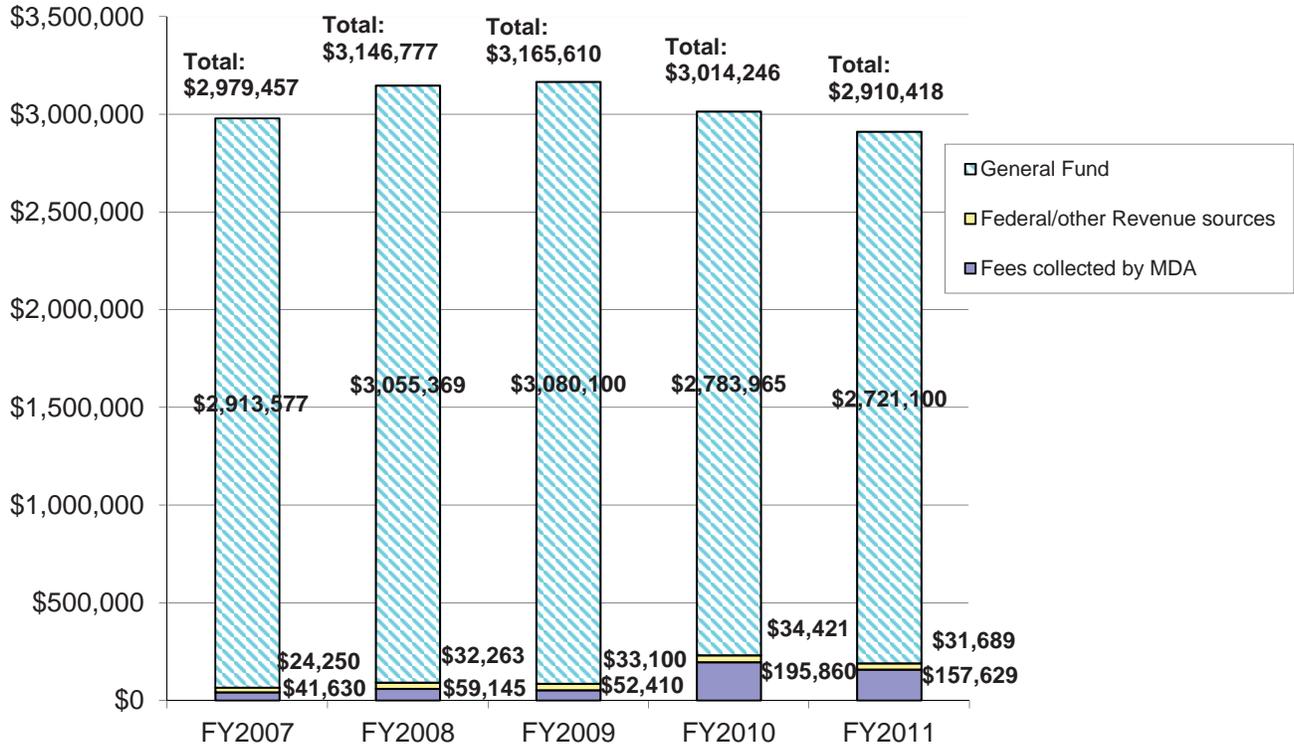
Licensed Facilities Includes: Grade A Plants, Manufacturing Plants, Grade A Milk Distributors, Grade A Transfer Stations/Receiving Stations/Tank Truck Cleaning and Grade A Single Service.

Dairy Inspections, Five-Year Comparison



Inspections Include: Farm, Plant, Hauler/Sampler/Tanker, Pasteurization, and USDA Survey.

MDARD Milk and Dairy Product Safety Funding Sources, Five-Year Comparison





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