



Michigan Department of Agriculture

Food and Dairy Division

Annual Report
Fiscal Year 2009

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**Food and Dairy Division
2009 Annual Report**

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Introduction

The economic challenges faced by both the public and private sectors presented us with opportunities to look even more closely at our mission and priorities over the past year. The Michigan Department of Agriculture (MDA) made the decision to close its six regional offices in order to minimize the impact of budget reductions on service delivery while capitalizing on communication tools and new technologies. The department has progressed in the centralization of licensing functions, while also moving toward the centralization of customer service activities. We hope the savings generated through these changes will allow us to continue to deliver the most critical programs to the people of Michigan – programs addressing food safety, environmental protection, and the continued strength and viability of the state's \$71.3 billion food and agriculture sector.

The Food and Dairy Division has continued to hone its priorities, ensuring that limited resources are maximized by identifying and focusing on those areas of highest risk. As we have experienced throughout the United States, manufactured foods, imported foods and certain raw commodities have been the subject of increased scrutiny. Federal, state and local agencies, along with research institutions, are working together to help identify production and manufacturing practices impacting food contamination. MDA's Rapid Response Team, funded in part through a grant from the Food and Drug Administration, has become a key component in ensuring we utilize the Incident Command System during a food safety incident to effectively coordinate activities within MDA; and in cooperation with federal, state, local, university and private partners.

The division has invested resources this past year in the infrastructure needed to support an effective and sound food safety system. Accomplishments include the development of a food safety training institute in Battle Creek for regulators, planning for a new electronic food safety inspection system in cooperation with Oakland County and other county health departments, and updating of policy manuals to reflect changes in priority, risk and standards. The rules to govern new Michigan Food Law requirements for manager certification were put into place, and a communication plan developed to ensure those who are impacted know how to comply.

It is important for any regulatory program to have standards against which we measure ourselves, in order to ensure continued improvement. In FY09, the Food and Dairy Division enrolled in a program to improve our manufactured foods regulatory standards. We also attained the fourth of nine of the FDA Voluntary Retail Program Standards, and five local health departments are now also enrolled in the program. Local health departments have continued to demonstrate great improvement in food service programs, as measured through the accreditation process. The state-local accreditation process is now in its' 12th year, and serves as a national model for other state and local public health programs.

As we look forward, it is clear we will continue to be challenged to deliver strong, effective food safety programs in an uncertain economic environment. But our history continues to demonstrate that MDA staff, in cooperation with so many other valuable partners, will rise to the challenge and give our very best for the people of Michigan.



Katherine Fedder, Director
Food and Dairy Division

Part A – Food Safety and Inspection Program Summary

Michigan's food service establishments, grocery and convenience stores, food processors, and food warehouses are regulated by the Food Section of the Food and Dairy Division, in partnership with Michigan's local health departments. During challenging economic times, the Food and Dairy Division worked aggressively with partners in local, state, and federal agencies, universities, and the food industry to protect consumers and enhance our food and dairy inspection programs.

I Food Establishment Evaluation

Approximately 49 MDA field staff conducted regular evaluations (inspections) 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 and businesses of recalls and foodborne illness outbreaks. MDA staff perform plan reviews, conduct evaluations, process license applications, take enforcement actions, investigate complaints, collect food samples, and respond to fires, power outages, recalls and other emergency situations. The division also works closely with various industry segments, such as grocers, food processors (these include 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 Food and Drug Administration (FDA) and United States Department of Agriculture (USDA) contract evaluations, registration and evaluation of bottled water manufacturers, and provision of certificates of free sale for firms exporting foods around the world.

Accomplishments

Major accomplishments in the Food Program in FY09 include:

Recall Text Alert System

This new system allows consumers and industry to receive a message about each new recall. The system currently has 1,193 subscribers.

International Food Protection Training Institute

The International Food Protection Training Institute (IFPTI) was established and is underway in Battle Creek. The IFPTI is expected to provide training to 1,000 state and local inspectors across the United States this year, eventually increasing to 6,000 per year. Working in conjunction with the Association of Food and Drug Officials, the IFPTI will offer courses for in-person and on-line training that will ensure state and local food inspectors are fully equipped with the knowledge, skills, and abilities to competently assure the safety of the nation's food supply. The W.K. Kellogg Foundation has provided \$5 million in start-up funds for the IFPTI and a \$1 million earmark is being addressed by Congress. Michigan Congressional leaders are working on long term federal funding for the IFPTI. Development of this new center in Michigan was accomplished with significant involvement from key MDA staff.

Manager Certification

MDA developed rules to supplement the food law requirement that certain food establishments (including restaurants and grocery stores) employ a manager who has been certified by passing an accredited food safety exam. The rules include a provision that the enforcement of the manager certification requirement be delayed for two years to allow for development of the necessary training infrastructure.

MI-Inspector System

MDA is in the process of replacing the current electronic inspection system, eInspector, with a new system called MI-Inspector. This project will modernize several department systems (food, dairy and pesticide), improve MDA's ability to manage and monitor its programs, and provide an integrated state/local health food safety system. This system will interface with the department's licensing system and the Michigan Business One Stop system.

Projects

FDA Voluntary Retail Program Standards

The division is continually working to meet these nine voluntary national program standards through its internal food evaluation program. Three of the standards were met in FY07 and FY08 and a fourth was met in FY09 (Standard 2 - Trained Regulatory Staff), with a verification audit scheduled for early 2010.

FDA Manufactured Food Standards

The division completed an initial self-assessment of its compliance with the standards, a verification audit is scheduled for mid-2010.

Farmers' Markets

MDA worked with industry associations to clarify requirements for selling safe food at farmers' markets. Efforts included clarifying questions regarding Michigan's egg law, creating a guidance document for offering food samples, and many updates to MDA's Web site.

Workload

Licensed Establishments	FY08	FY09
Retail Food Establishment.....	13,884	13,695
Extended Retail Food Establishment	926	967
Wholesale Food Processor	606	625
Limited Wholesale Food Processor.....	927	963
Food Warehouse	1,080	1,039
Mobile Food Establishment	51	105
Mobile Food Establishment Commissary	46	48
State/County Fair Temporary.....	1,007	1,049
Special Transitory Food Unit	58	53
Temporary Food Establishment	26	57
Total Licensed Establishments	18,611	18,601
Number of licensed establishments per FTE* assigned to conduct evaluations	380	380

*Full Time Employee

Workforce

	MDA Actual	FDA
Recommended**		
Number of FTEs assigned to conduct food evaluations (all types)	49	61-70
Number of FTEs involved in technical support, management and administrative support	27.5	NA
Total Number of FTEs.....	76.5	NA

**FDA recommended number from FDA Voluntary Program Standard

Program Output

I. Evaluations (Inspections)

Evaluation Type	Evaluations Conducted	Evaluations Due
Routine	10,428 [^]	13,360
Ad-hoc [^]	4,129	N/A
Follow-up	1,797	1,836
Fair vendors.....	1,049	1049
Grand Total.....	17,403	16,245
Total product samples tested.....		1,188
FDA import samples.....		30
Average number of evaluations per FTE assigned to conduct food establishment evaluations		355

[^]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.

[^]Ad hoc evaluations are often conducted in lieu of routine evaluations, thus a number of ad hoc evaluations completed fulfill part of the 13,360 routine evaluations due. MDA focuses time and resources on highest risk establishments.

II. Plan Review

Number of plans received for review	204
Number of plans approved	202

III. Investigations

Consumer complaints investigated (all types)	1,015
Illness-related	83
Non-illness related.....	932

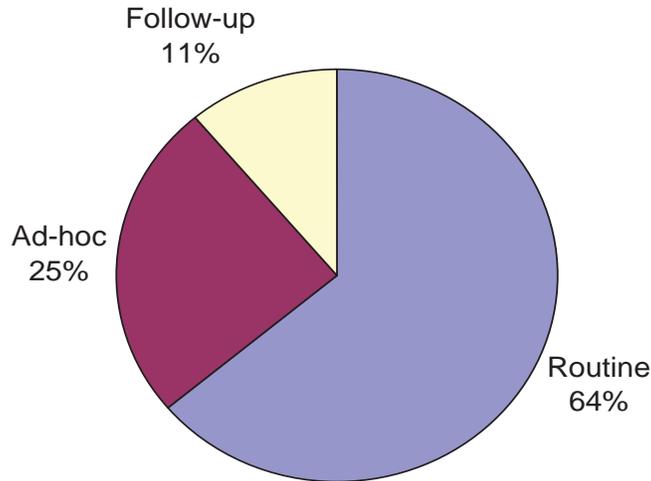
IV. Enforcement

Enforcement Letters	148
Compliance Reviews	19
Consent Agreements/Administrative Fines.....	156/\$67,175
Prosecutions/Fines	1/\$500
Seizures.....	742
Dollar Amount of Seized Product.....	\$3,052,943
Informal Hearings	5
Reinspections/Fees	116/\$6,960

V. Miscellaneous

Certificates of Free Sale	1,315
Freedom of Information Act Requests	54
Bottled Water Registrations	1,281

Michigan Food Program Evaluations by Type



Funding Sources

	FY08	FY09
Fees.....	\$2,629,218	\$2,537,204
Federal/Special Revenue funds	\$455,018	\$425,284
General fund.....	\$6,151,731	\$6,007,930
Total program revenue.....	\$9,235,967	\$8,970,418

General Statistics

Occurrence per 100,000 population

Number of fixed food establishments*	171
Food related complaints	10

Program dollars spent per

Licensed establishment.....	\$482
Michigan citizen (Total Program Revenue).....	\$0.89
Michigan citizen (General Fund).....	\$0.60
Michigan citizen (License Fees/Others)	\$0.29

**Fixed food establishments include retail food stores, food processors and food warehouses.
Michigan population- 2006 estimate, U.S. Census Bureau*

II Food Service – Local Health Departments

Local Health Department Food Service Program

Food safety in Michigan's restaurants is a collaborative effort between MDA and the state's 45 independent local health departments. MDA 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 every three years in conjunction with the "Michigan Local Public Health Accreditation Program." The accreditation program helps to assure accountability for the more than \$8.2 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.

Accomplishments

Major accomplishments of the Food Service Program in FY09 include:

Accreditation

Sixteen local health departments completed successful accreditation reviews with a 94 percent degree of compliance with program standards. Two local health departments chose to be evaluated under the new "Self-Assessment Option," where MDA reviews and verifies the agency's own self-assessment.

FDA Voluntary Retail Standards

Three additional local health departments chose to enroll in the FDA National Voluntary Retail Food Regulatory Program Standards in 2009, making a total of five local health department enrollments.

Risk-Based Focus Increased

Fifteen local health departments began using a risk-based evaluation schedule in order to more efficiently use their resources and focus on foodborne illness risk factors.

Training

Fifteen local health department trainers were standardized by MDA's FDA certified trainers, helping to assure consistent and focused evaluations. Seventy state and local standardized trainers also attended a training session designed to maintain and enhance their training skills. Trainers also began using a new "Field Evaluation Worksheet" to assure competency of new and existing inspectors. MDA worked extensively with local health in training new food inspectors moving into the food safety program due to staffing changes that resulted from budget cutbacks and layoffs.

Projects

Continental Breakfast Licensing

A new continental breakfast licensing guidance document was jointly developed by MDA, local health, and the Michigan Lodging and Tourism Association.

Risk-Based Evaluation Form

A risk-based "Food Establishment Evaluation Form" and marking instructions was created by state and local partners to be used as a supplemental evaluation form by inspectors. The form focuses the evaluation on foodborne illness risk factors.

Workload

	FY08	FY09
Licensed Establishments		
Fixed Food & Mobile Commissary.....	31,839	31,702
Temporary.....	10,937	11,402
Mobile.....	493	455
Vending.....	4,462	4,020
Special Transitory Food Unit (STFU).....	726	720
Total Licensed Establishments	48,457	48,299
Number of licensed establishments per FTE* assigned to conduct evaluations	247	249

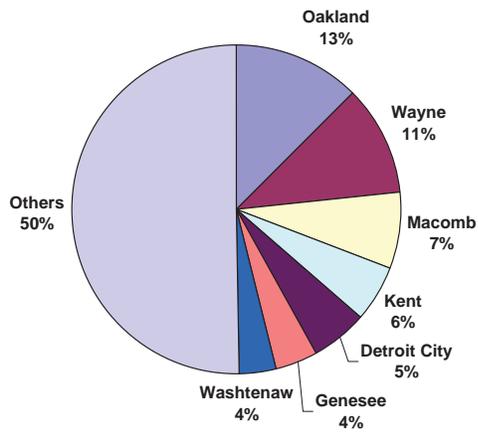
**FTE= Full time employee, taken from MDA's License 2000 system*

Workforce

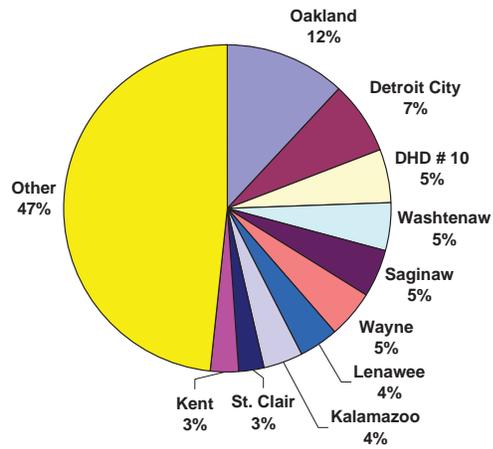
	LHD Actual	FDA Minimum	FDA Recommended
Number of FTEs assigned to conduct food establishment evaluations (all types).....	194	202	284
Number of FTEs involved in plan review, management and administrative support	127	NA	NA
Total number of FTEs	321	NA	NA
Number of standardized trainers	66	NA	NA

Distribution of License Types by Local Health Department

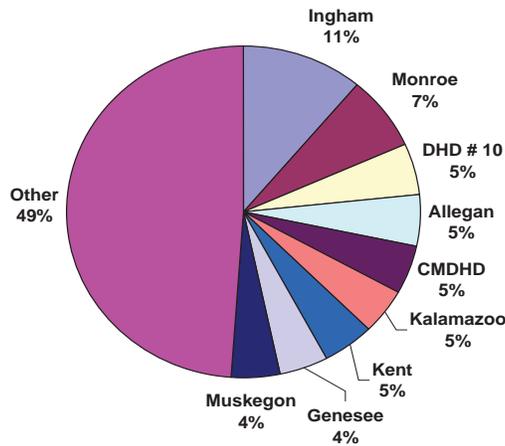
Fixed Licenses



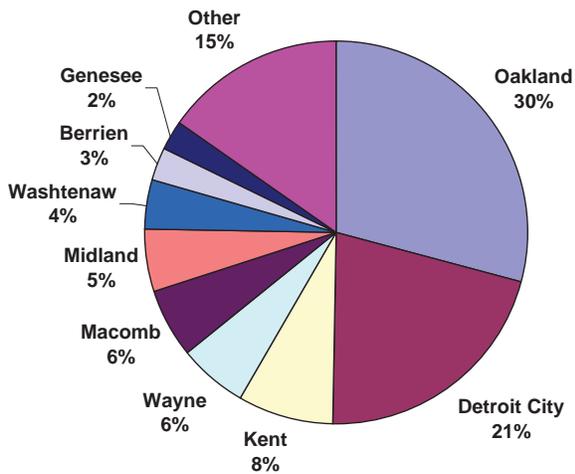
Temporary Licenses



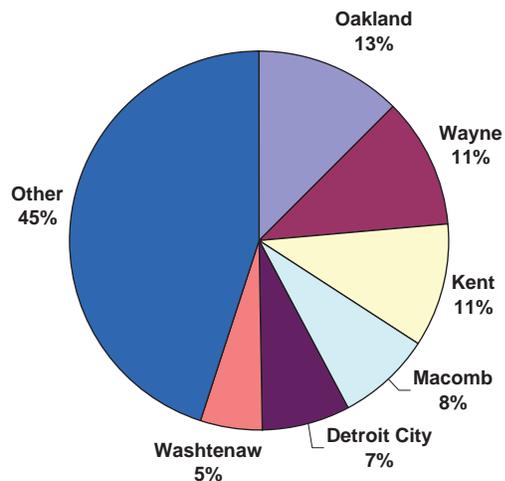
Special Transitory Food Unit (STFU) Licenses



Mobile Licenses



Vending Licenses



Program Output

I. Evaluations (Inspections)

Establishment Type	Evaluations Conducted	Evaluations Due
Fixed food service- routine	59,538	
Mobile, Vending, STFU.....	3,894	
Sub- Total	63,432	62,784
Follow-up evaluations.....	19,548	
Temporary food service	11,402	
Grand Total.....	94,382	

Average number of evaluations per FTE assigned to conduct food establishment inspections487

II. Plan Review

Number of plans received for review	1,547
Number of plans approved	1,389

III. Investigations

Consumer complaints investigated (all types).....	4,382
Foodborne illness outbreaks (met MI definition).....	150

IV. Enforcement

Admin action (office conference, informal hearing, formal hearing, civil fine, order).....	1,142
Court action (civil, criminal)	3

Funding Sources

	FY08	FY09
Fees collected by local health department	\$12,817,478	\$13,646,533
Local tax dollars.....	\$7,633,642	\$8,627,701
State dollars- local public health operations (LPHO).....	\$8,345,613	\$8,268,245
Total local health program revenue	\$28,796,733	\$30,542,479

General Statistics

Occurrence per 100,000 population

Number of fixed food service establishments.....	314
Food related complaints	43
Foodborne illness outbreak investigations	1.5

Program Dollars Spent Per

Licensed establishment.....	\$828
Michigan Citizen (Total Program Revenue).....	\$3.03
Michigan citizen (Fees collected by LHDs).....	\$1.35
Michigan citizen (Local tax dollars).....	\$0.86
Michigan citizen (LPHO/state dollars)	\$0.82

Part B – Dairy Program Summary

Dairy inspectors in the Food and Dairy Division carry out a clear mission: ensure safe and wholesome dairy products for consumers. Michigan boasts 2,299 dairy farms – 1,992 Grade A farms and 307 manufacturing farms which are inspected by the Dairy Section. In addition, the Dairy Section licenses and inspects 75 Michigan dairy processing plants as well as 37 other dairy facilities; and 1,616 milk hauler/samplers, milk tank trucks, and milk transportation companies. Enforcement is a strong component of the Dairy Section's work. Law violations resulted in 114 dairy farm permit suspensions and the removal of 2,806,320 pounds of suspect milk from the market with an estimated dollar value of \$366,222.

Accomplishments

Major accomplishments of the Dairy Program in FY09 include:

New Dairy Technology

MDA's milk safety inspection staff have been working closely with dairy farmers on new technology such as robotic milking systems. Michigan now has two dairy farms using robotic milking systems with another being planned for a farm in mid-Michigan. The installations have required extensive research and coordination between MDA's milk safety inspection staff, the dairy producer, the builder, and the robot manufacturer.

Michigan State University's Kellogg Biological Station (KBS) dairy farm was one of the locations where a robotic milking system was installed. KBS located their new LEED (Leadership in Energy and Environmental Design) certified dairy buildings in the center of existing pastures in order to research the use of robotic milking systems in conjunction with the latest innovations in intensive, rotational grazing techniques. The new facility will provide dairy farmers who are considering grazing systems with information on new grazing techniques and labor savings that a robotic milking system might provide.

New Value-Added Milk Processing Facilities

MDA's milk safety inspection staff have received many inquiries from dairy farmers and others who are interested in starting up local, value-added milk processing facilities. These facilities include manufacturers of goat and sheep 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 Plant Expansions

In 2009, MDA's milk safety inspection staff worked with several existing dairy processing facilities during their expansions. These processing plant expansions were designed to increase production capabilities and efficiencies at the various plants. MDA's milk safety inspection staff worked with plant personnel, equipment installers and builders on building design, product protection requirements and pasteurization systems. Both traditional and innovative state of the art equipment were reviewed by MDA dairy inspectors for compliance with milk safety requirements. These expansions exemplify the dairy industry's faith in a continuing, plentiful supply of quality milk in Michigan and reinforce the reputation of cooperation for which MDA's milk safety inspection staff is known.

Projects

Enforcement

The Dairy Section held a total of 13 compliance meetings and three informal hearings during this fiscal year. These meetings included Grade A dairy farms, manufacturing farms, Grade A dairy plants, manufacturing dairy plants and bulk milk hauling companies. Various issues were addressed, such as equipment and facility cleanliness, Listeria contamination, and illegal somatic cell counts. Permit holders were given the opportunity to explain the causes of these conditions. As a result, recommendations for corrections were discussed and implemented. Law violations are tracked for dairy farms, dairy processing plants, bulk milk haulers, milk transportation companies and other licensed dairy facilities to determine if a sanction is warranted. The Dairy Section conducted five seizures of dairy products in FY09 with a total dollar value of \$311,368. In FY09, the Dairy Section issued 124 administrative fines resulting in the collection of \$13,700 by MDA.

Producer Security Provisions Employed

Michigan is one of just a few states that have producer security provisions to ensure payments to dairy farmers, both in-state and out of state, that are shipping to Michigan processing plants. In 2009, a Michigan dairy plant failed to pay its producers for milk received at the plant for processing. Under the Michigan milk laws' producer security provisions, claims were made by these producers to MDA. Over 120 Michigan and Indiana producers made claims for approximately \$70,000. With the help of MDA staff, these producers are receiving checks for their milk deliveries from the plant's insurance company.

2009 National Conference on Interstate Milk Shipments (NCIMS)

The NCIMS, in conjunction with FDA, has the responsibility of reviewing and updating the Pasteurized Milk Ordinance (PMO) every two years. The PMO is the national model milk ordinance used by all 50 states. The PMO is adopted by Michigan's Grade A Milk Law. Michigan's milk safety inspection staff has a strong tradition of participation and leadership in the NCIMS and once again had the opportunity to participate in the 2009 conference. There were 133 proposed changes to the PMO and other conference documents introduced at the conference and voted on by the delegates. Michigan's milk safety inspection staff submitted three proposals, two of which passed.

Workload

Licensed Establishments	FY08	FY09
Farms	2,385	2,299
Grade A Plants.....	31	30
Manufacturing Plants (includes cheese & ice cream).....	43	45
Grade A Milk Distributors	10	15
Grade A Transfer Stations/Receiving Stations/Tank Truck Cleaning.....	14	13
Grade A Single Service.....	7	9
Milk Tank Trucks and Can Milk Trucks	597	650
Milk Transportation Companies	127	129
Milk Haulers/Samplers (currently licensed)	674	837
Certified Fieldpersons.....	25	27
Total Licenses.....	3,913	4,054

Labs Approved/Certified	FY08	FY09
Certified Industry Labs.....	7	9
Approved Drug Screening Sites	35	35
Certified Commercial Labs	2	2
Approved/Certified Industry Analysts.....	193	190
Number of licensed establishments per FTE assigned to conduct inspections	218	225

Workforce

	MDA Actual
Number of FTEs assigned to conduct dairy inspections (dairy farm and other plant inspections, and pasteurization evaluations)	18
Number of FTEs involved in management, tech and admin support	9
Total number of FTEs	27

Program Output

I. Inspections and Evaluations

Inspection Type	Inspections Conducted
Farm	5,680
Plants.....	288
Hauler/Sampler/Tanker.....	836
Pasteurization.....	444
USDA Survey.....	20
Total Inspections	7,268
Grade A Survey	81
Laboratory Analysts Evaluated	77
Laboratories Evaluated.....	8
Drug Residue Screening Sites Evaluated	15
Shelf life samples	86
Total milk and milk product samples taken	5,308
Average number of inspections per FTE assigned to conduct dairy establishment inspections	404

II. Investigations

Consumer complaints investigated (all types)	11
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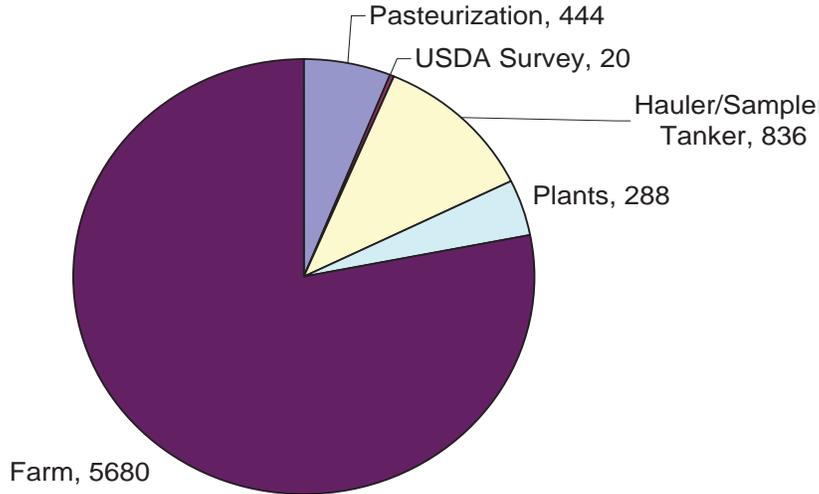
III. Enforcement

Enforcement letters	309
Informal Hearing/Compliance Reviews	16
Administrative Fines collected by MDA	\$13,700
Prosecutions.....	0
Seizures.....	5
Dollar amount of seized products	\$311,368
Total Permit Suspensions	114
Total Pounds of Contaminated Milk Disposal	2,806,320 lbs. (\$366,222)

IV. Miscellaneous

Certificate of Free Sale.....317
 Freedom of Information Act Requests.....37

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



Funding Sources

	FY08	FY09
Fees collected by MDA.....	\$59,145	\$52,410
Special Revenue Funds	\$32,263	\$33,100
General Funds.....	\$3,055,369	\$3,080,100
Total Program Revenue	\$3,146,777	\$3,165,610

General Statistics

Occurrence per 100,000 population

Number of dairy farms	23
Number of dairy manufacturers	1

Program dollars spent per

Licensed establishment.....	\$781
Michigan citizen (Total Program Revenue).....	\$0.32
Michigan citizen (General Fund).....	\$0.31
Michigan citizen (License Fees/Other)	\$0.01

Part C – Foodborne Illness Recalls and Outbreaks

Food contamination incidents continued to grab headlines in 2009 and indicated the vulnerability of our increasingly complex, globalized and interconnected food supply. Foodborne illness outbreaks and food recalls that impacted Michigan citizens during FY09 highlighted the the following contamination sources as being particularly important:

- o Production or transportation conditions resulting in food ingredient contamination before ingredients reach processing establishments,
- o Complex food processing systems that may introduce sporadic and low levels of contamination, and
- o Sick workers who contaminate foods at the retail level.

MDA spent approximately 8,000 staff hours on food recalls, traceback investigations, and other emergency responses to incidents associated with human illness. This represents a 116% increase from the previous year.

During a successful first year of a three-year FDA grant, the department's multi-disciplinary Rapid Response Team (RRT) served as a catalyst for increasingly effective department-wide food and feed emergency responses. The RRT helped expand the division's early detection, rapid assessment and response capabilities. The FDA grant is also designed to better coordinate emergency responses of local, state, and federal food regulatory agencies.

Two of the four core RRT members are Food and Dairy Division employees:

- Our Food Processing Specialist allows the division to conduct in-depth assessments of higher-risk food processing establishments. As food processors adopt new technologies to remain competitive in the global economy, having a Food Processing Specialist allows the division to better assess how these increasingly complex conditions impact food safety.
- Our Epidemiologist has improved information sharing between public health and food regulatory agencies, and provided surge capacity to assist both state and local agencies during outbreak investigations. This has resulted in identifying potential sources of contamination more quickly so timely control measures can be implemented and additional illnesses prevented. RRT members helped update the Michigan Food Emergency Management Plan and completed farm-to-fork assessments of selected commodities from Michigan's diverse food and agricultural systems. The results of these assessments will help guide allocation of government resources to more cost-effectively reduce risks.

In addition, a division staff person serves as a representative of the Association of Food and Drug Officials on the national Council for the Improvement of Foodborne Outbreak Response (CIFOR). CIFOR is a multi-disciplinary working group tasked with developing the "Guidelines for Foodborne Disease Outbreak Response" in 2009. Once implemented, the guidelines will help to prevent foodborne illnesses and deaths by increasing the timeliness and quality of foodborne illness investigations in the United States.

I. Overview of Foodborne Illness Outbreak Results

Investigations of foodborne illness outbreaks are typically multi-disciplinary efforts that can involve 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 MDA of foodborne illness outbreaks that they are conducting.

MDA uses foodborne illness data to:

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

A total of **150** events meeting the Michigan definition of a foodborne illness outbreak were reported by local health departments to MDA. 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 (Minimum Program Requirement 19), and 69 percent met foodborne illness investigation procedure requirements relating to documentation and reporting of foodborne illness outbreaks (Minimum Program Requirement 20).

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 **150** reported foodborne illness outbreaks, local health departments identified a total of **20** 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 MDA.....	150 (1,410 illnesses)
Total # of incidents identified as confirmed or probable foodborne illness outbreaks.....	20 (467 illnesses)
Median number of illnesses reported per confirmed or probable foodborne outbreaks.....	14.5

Leading causative agent of foodborne outbreaks reported to MDA:

Norovirus.....	3
<i>Salmonella</i> species.....	3
<i>Clostridium</i> Perfringens.....	2
<i>E. coli</i> O157:H7.....	2

Only 11 percent of incidents reported to MDA identified a causative agent.

Norovirus outbreaks were often associated with retail level food workers who contaminate foods during retail preparation or service.

The *Clostridium* Perfringens outbreaks were associated with inadequate temperature control during preparation, service, or holding of foods at the retail level.

The *Salmonella* and *E. coli* O157:H7 outbreaks were associated with foods or food ingredients contaminated during production or processing.

Noteworthy outbreaks from FY09:

Outbreak of illness associated with health department luncheon, February 2009

An outbreak affecting approximately 50 people was associated with consumption of kahlua pork at a catered luncheon. Local health department investigators found problems with improper cooling and inadequate reheating of food by the caterer, which allowed for bacterial growth. *Clostridium Perfringens* was suspected, but because no specimens were available for analysis, the causative agent was never identified. Investigators addressed food handling concerns with the caterer to prevent a future occurrence.

Multi-state *Salmonella* Saintpaul outbreak associated with alfalfa sprouts, February-May 2009

Multiple outbreaks of *Salmonella* Saintpaul infections were associated with the consumption of raw alfalfa sprouts grown from a contaminated lot of seeds. In Michigan, 19 cases were identified; all reported consuming sandwiches that contained sprouts. MDA staff collaborated with other state and federal agencies to complete traceback and traceforward investigations resulting in nationwide recalls.

***E. coli* O157 associated with kibbeh consumption, March 2009**

An outbreak of *E. coli* O157 resulted in five cases of lab-confirmed illness in a southeastern Michigan ethnic population. Additional cases of non-confirmed illness were reported among family members. Investigation of the food histories indicated a potential association with consumption of kibbeh. Kibbeh is a dish made with meat and other ingredients and is often eaten raw. MDA staff conducted traceback investigations of the meats used and environmental assessments of the various retail facilities where cases reported having purchased the product. No common supplier or processor was found.

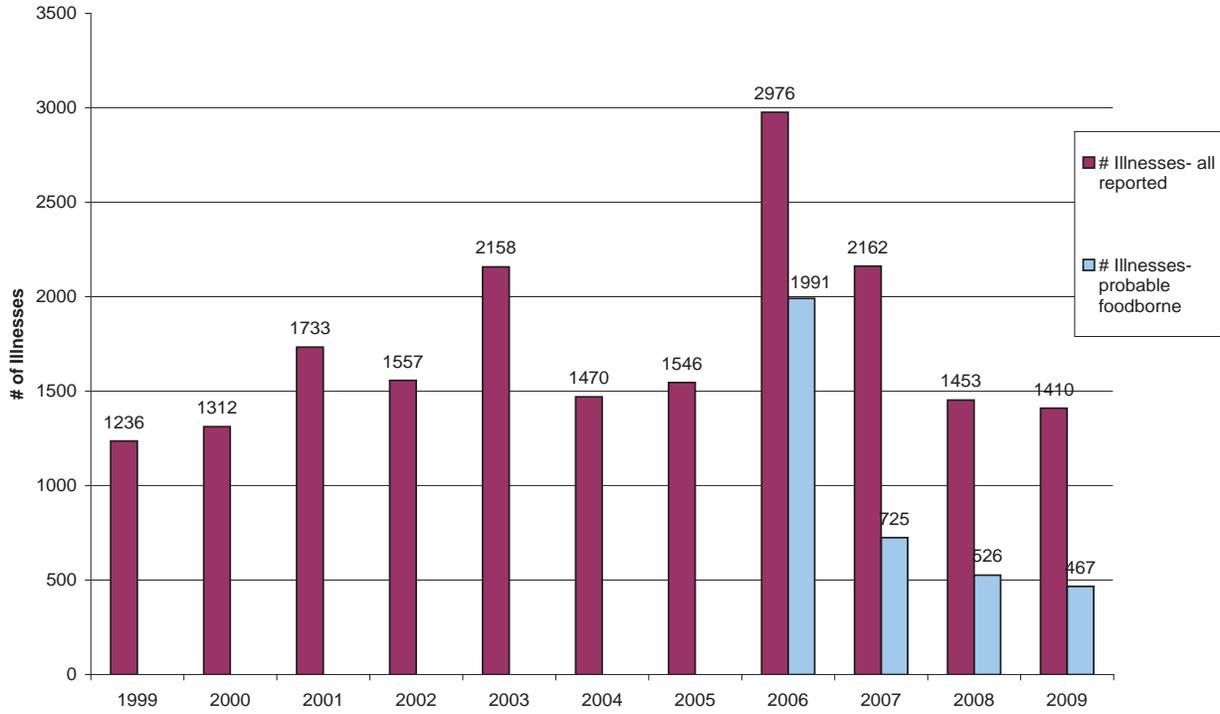
Norovirus outbreak in West Michigan, April 2009

A Norovirus outbreak involving at least 176 ill people occurred at a local restaurant in West Michigan. Local health department investigators cited a vomiting incident in the restaurant entry area as a possible avenue for Norovirus transmission. Vomitus particles can aerosolize and remain in the air for significant periods of time following a vomiting incident. Investigators further concluded that asymptomatic spread by employee(s) or customer(s), as well as improper food storage and preparation practices, may have contributed to the outbreak. Investigators made several recommendations to the restaurant, including thorough disinfection of the facility with a bleach solution.

***Salmonella* Typhimurium outbreak associated with alfalfa sprouts, September-October 2009**

An outbreak of *Salmonella* Typhimurium infections in Michigan and neighboring states was found to be associated with the consumption of raw alfalfa sprouts. Cases reported consuming a variety of sandwiches containing raw sprouts purchased from retail stores. Traceback investigations quickly identified a single food processor as the supplier for all the identified food retailers. The Michigan processor voluntarily removed their sprouts from the market as a precautionary measure. MDA conducted extensive sampling as part of an in-depth assessment of the processing facility. All samples collected were negative for the pathogen.

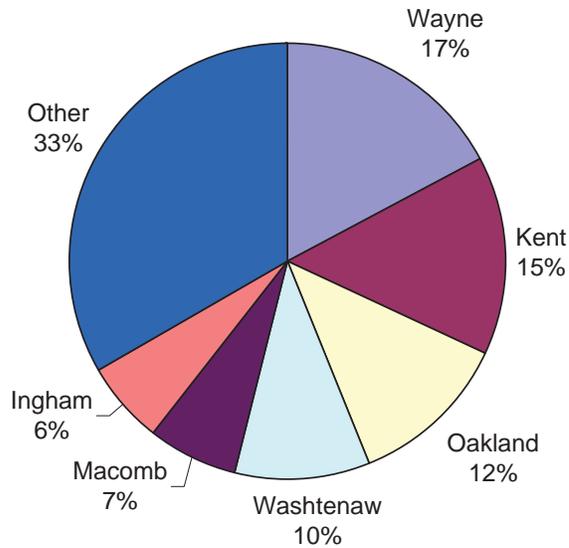
**Ten-Year Summary of Foodborne Illness Outbreaks,
by Number of Reported Illnesses, 1999-2009**



Note: Statistics prior to 2002 were based on the calendar year rather than the fiscal year.

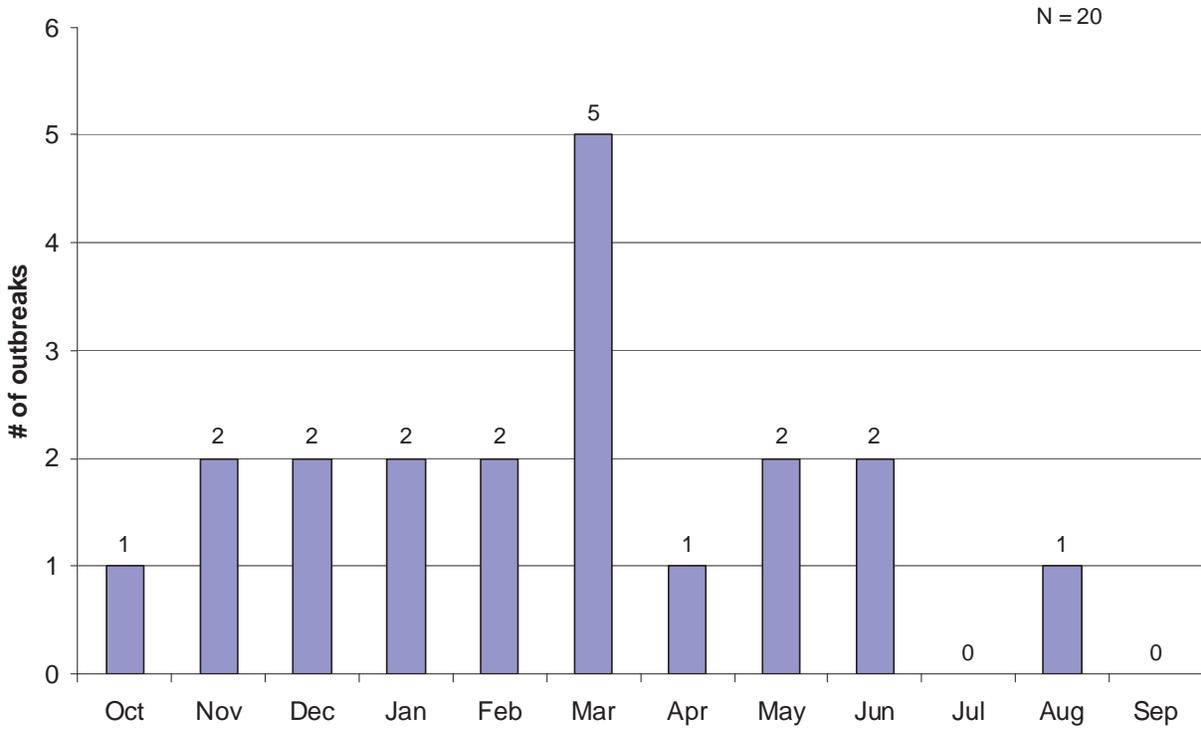
**Foodborne Illness Outbreaks
by Local Health Department**

N= 150

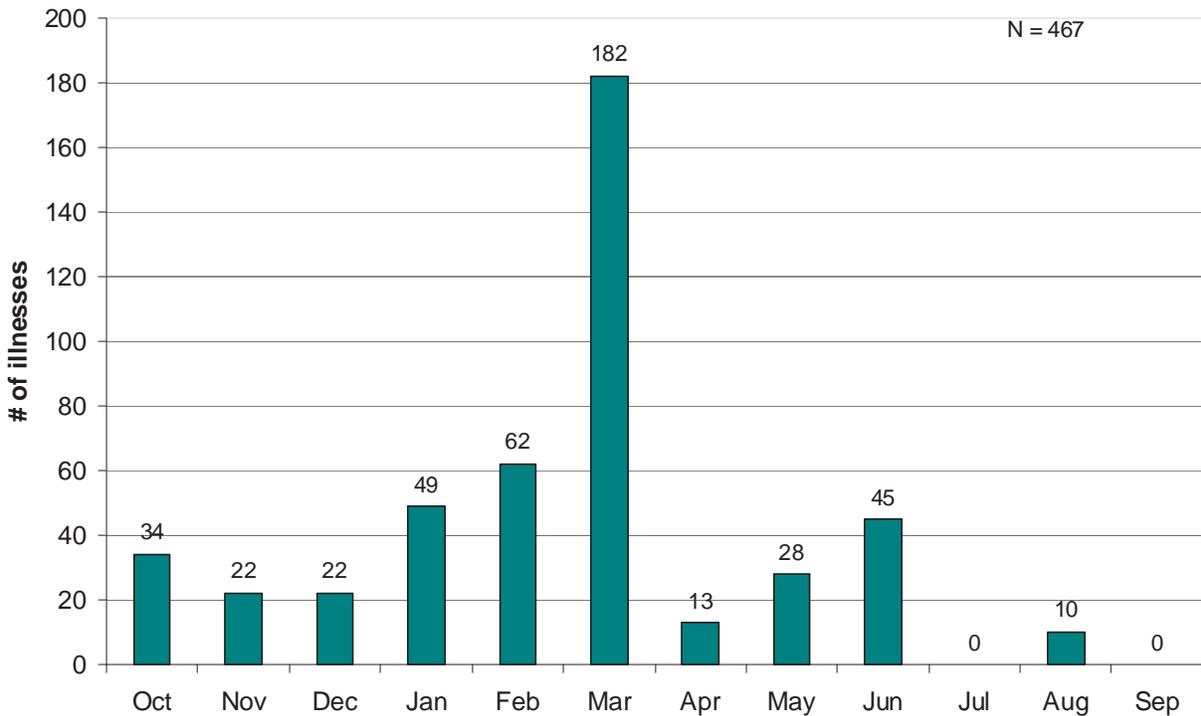


Note: Data cannot be interpreted as an indicator of the relative safety of foods in any jurisdiction. Health departments with larger populations would be expected to have larger numbers of outbreaks.

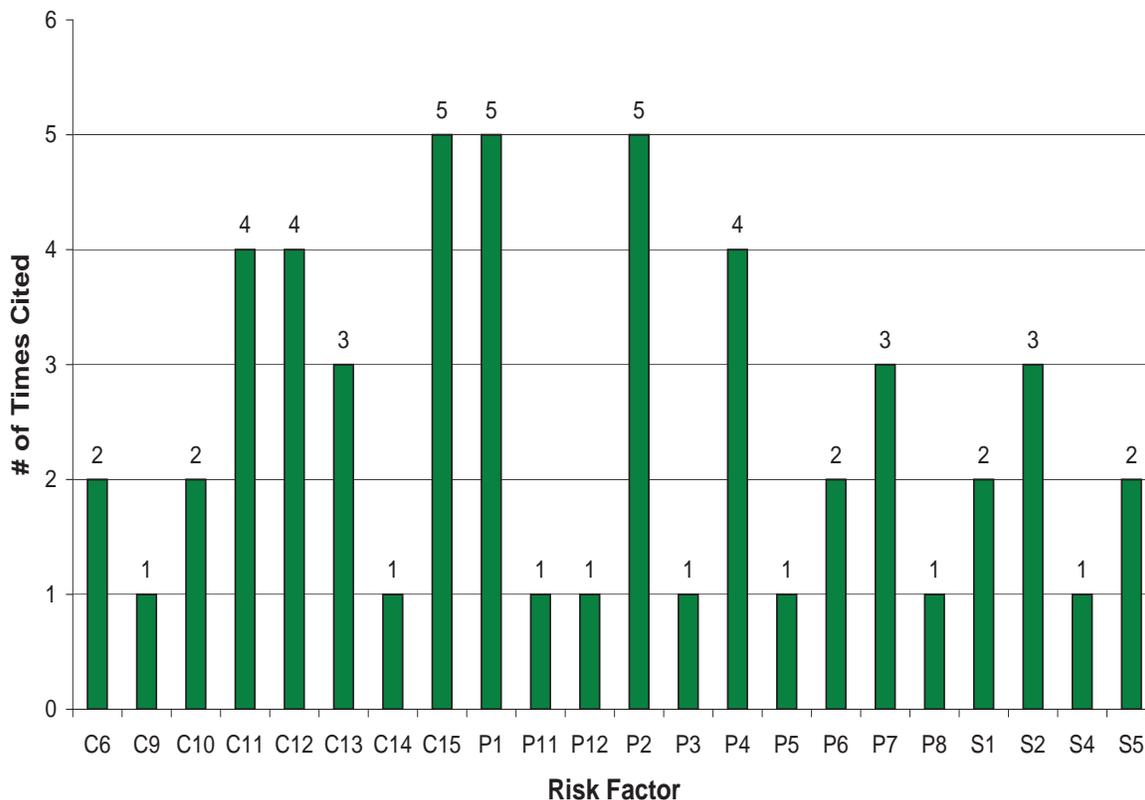
Probable Foodborne Illness Outbreaks, # of Events, by Month



Probable Foodborne Illness Outbreaks, # of Illnesses, by Month



CDC Risk Factors Reported, Fiscal Year 2009



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
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 suspected to be infectious
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 out of temperature control (during food service or display of food)
P3	Improper adherence of approved plan to use Time as a Public Health Control
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
P11	Inadequate processing (acidification, water activity, fermentation)
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

II. Food Recalls

In FY09:

- Information was shared with stakeholders regarding 468 significant product actions - primarily Class I recalls, recall expansions and alerts - involving food products distributed in Michigan.
- This represents a 311 percent increase in the number of recalls from FY08 (114).
- MDA staff completed approximately 1,770 formal recall audits and additional informal audits.
- Ingredient recalls provided unique challenges to industry and regulators; ingredients are distributed widely and food products containing recalled ingredients are also recalled.

Recall Causes

<i>Salmonella</i>	396 (85%)
Undeclared Allergens	34 (7%)
<i>Listeria Monocytogenes</i>	9 (2%)
Melamine	8 (2 %)
Extraneous Material	7 (1%)
<i>E. coli</i> O157:H7	5 (1%)
Unapproved Source	4 (<1%)
<i>Clostridium Botulinum</i>	1 (<1%)
Food Grade Sanitizer	1 (<1%)
Unapproved Pesticide	1 (<1%)
Underprocessed	1 (<1%)
Produced without Inspection	1 (<1%)

Recall Spotlight: Peanut-Containing Products Contaminated with *Salmonella* Typhimurium, November 2008 - March 2009

Potentially contaminated peanut products were linked to a nationwide *Salmonella* Typhimurium outbreak. A total of 714 cases of confirmed illness and nine deaths were identified nationwide; Michigan had 38 cases. The outbreak resulted in recalls of over 3,900 potentially contaminated peanut products. These recalls accounted for 63 percent (294) of all recalls in Michigan for FY09. MDA staff dedicated close to 8,000 work hours protecting public health by visiting over 2,300 food establishments across the state and verifying that establishments removed and disposed of the recalled products from store shelves. In comparison, the Food and Dairy Division devoted approximately 3,000 staff hours to all emergency response activities during calendar year 2008. The costs of mounting this over 13-week effort are estimated at more than \$750,000. The division followed up by providing additional Incident Command System (ICS) training to staff to build on the lessons learned during outbreak responses.

Additional noteworthy recalls from FY09:

Pistachios/Various Strains of *Salmonella*, March - June 2009

- Multiple samples of pistachio nuts and pistachio-containing products from a single company were found to be contaminated with various serotypes of *Salmonella*, including Montevideo, Newport and Senftenberg.
- Several potentially contaminated products were recalled; these recalls accounted for 15 percent (69) of all recalls in Michigan for FY09.
- Definitive links between recalled products and illness could not be made.

Various Dry Milk and Other Ingredient Products/*Salmonella* Typhimurium, June - July 2009

- Several ingredient products, including nonfat dried milk, whey protein, fruit stabilizers or gums (thickening agents) were recalled due to possible contamination by *Salmonella* Typhimurium. Products using the recalled ingredients were also recalled.
- The recalling firm discovered *Salmonella* contamination on its equipment.
- These recalls accounted for 5 percent (23) of all recalls in Michigan for FY09.
- The recalls were not associated with any cases of illness.

Hispanic Soft Cheese/*Listeria* Monocytogenes, March - June 2009

- A routine food surveillance sample collected by MDA at a Michigan manufacturer was found to be contaminated with *Listeria* Monocytogenes.
- The strain recovered genetically matched those recovered from cases in other states who reported a history of Hispanic soft cheese consumption.
- The manufacturer voluntarily recalled several Hispanic soft cheese products.
- Intensive investigation and environmental sampling by MDA and FDA investigators subsequently found contamination on equipment in the cheese plant.

Multi-state *E. coli* O157 Outbreak Associated with Undercooked Beef Products, June 2009

- A total of six ill Michigan residents were identified as part of a multi-state outbreak of *E. coli* O157:H7 associated with beef consumption.
- MDA worked closely with the USDA Food Safety Inspection Service to conduct traceback investigations from a local retail meat market where several Michigan cases had purchased meat.
- The Michigan retailer recalled products after the outbreak strain was found in ground beef patties recovered from the freezer of one of the ill customers.
- The investigations by MDA, USDA and other states ultimately resulted in a much larger recall of approximately 380,000 pounds of meat products from a Colorado processor who supplied meat to the Michigan retailer.

I. MDA Recommendations for Regulators Conducting Food and Dairy

Inspections:

- Emphasize exclusion and/or restriction of ill food handles, discuss risk of transmission and the health and financial consequences that could ensue.
- Focus on finding and eliminating unsafe food handling practices that are highly associated with foodborne illness during routine food safety inspections.
- Review handwashing and glove-use procedures.
- Evaluate cleaning and sanitizing practices for food equipment and utensils.
- Evaluate slow-cooling practices, to ensure proper time and temperature standards for foods.

II. MDA Recommendations for Local Health Departments:

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

Appendix I – Workload Data by LHD

FY 08/09 Workload – Output

Michigan Local Health Department Quarterly Reports Summary, 2009											
	INSPECTIONS CONDUCTED					INSPECTIONS DUE 7. Fixed, mobile, vending & sfvu Inspections due (annual total)	PLAN REVIEW		INVESTIGATIONS		EVALUATION SCHEDULE 11. Current evaluation frequency schedule in risk category order- Z/Y/X (i.e. 6/6/12, 6/12/12, 6/12/18, etc. Indicate 6/6/6 if the standard 6 month schedule is used.
	3. Fixed food establishments	4. Mobile, vending & sfvu	5. Temporary food establishments	6. Follow-up inspections	Total Number of Inspections Conducted (all inspection types)		8. Number of plans received for review	9. Number of plans approved	10. Consumer Complaints Investigated	Number of Consumer Complaints per 100,000 People	
Allegan	544	35	135	275	989	594	13	12	15	14.11	6/6/6
BEDHD	904	68	164	177	1,313	972	54	46	67	40.09	6/6/6
Bay	680	11	125	76	892	809	18	26	42	38.75	6/6/6
Benzie-Leelanau	336	7	130	43	516	295	8	6	11	27.66	6/6/6
Berrien	1,156	46	281	92	1,575	1,127	11	8	34	21.03	6/6/6
BHSJ	1,202	232	246	165	1,845	1,110	25	23	42	26.95	6/6/6
Calhoun	702	21	153	94	970	893	17	17	17	12.32	6/12/12
CMDHD	1,284	53	271	232	1,840	993	40	34	94	49.26	6/6/12
Chippewa	346	2	46	45	439	230	1	0	21	54.30	6/6/6
Delta-Menominee	396	29	148	230	803	803	5	6	16	25.46	6/6/6
Detroit City	2,634	187	834	703	4,358	2,821	43	24	182	20.89	6/12/18
Dickinson-Iron	418	11	44	171	644	379	5	6	8	20.09	6/6/6
DHD # 2	369	25	175	45	614	481	8	8	32	46.11	6/12/19
DHD # 4	628	47	80	81	836	429	18	14	29	35.38	6/6/6
DHD # 10	1,594	162	603	249	2,608	1,756	26	21	77	28.94	6/6/6
Genesee	2,095	182	255	213	2,745	2,598	41	41	472	106.80	6/6/12
Grand Traverse	639	59	62	35	795	792	18	16	17	20.01	6/6/6
Holland City*	240	60	71	220	591	278	10	6	29	84.68	6/6/6
Huron	290	37	150	152	629	327	2	3	2	5.86	6/12/12
Ingham	1,950	179	145	996	3,270	3,273	42	35	249	89.92	6/6/6
Ionia	339	33	152	84	608	376	6	7	17	26.23	6/6/6
Jackson	850	21	115	5	991	855	24	7	68	41.50	6/6/6
Kalamazoo	1,639	56	414	406	2,515	921	55	44	98	40.71	6/6/12
Kent	3,639	301	312	860	5,112	3,708	89	80	285	47.54	6/6/6
Lapeer	415	45	86	35	581	581	16	13	23	24.53	6/6/6
Lenawee	649	59	464	43	1,215	647	36	31	56	54.80	6/6/6
Livingston	768	50	126	62	1,006	788	19	18	94	50.95	6/6/6
LMAS	472	17	240	40	769	769	9	6	13	35.97	6/6/6
Macomb	4,286	146	259	1,101	5,792	4,432	136	116	340	40.82	6/6/6
Marquette	526	32	102	127	787	558	18	12	23	35.56	6/6/6
Midland	524	81	124	82	811	823	17	17	30	35.80	6/6/6
Mid-Michigan	999	83	235	301	1,618	83	33	25	14	7.95	6/6/6
Monroe	922	43	135	95	1,195	946	23	19	107	69.02	6/6/6
Muskegon	1,091	132	224	495	1,942	1,221	48	47	73	41.66	6/6/6
Northwest	970	50	146	194	1,360	1,102	12	11	7	6.41	6/6/6
Oakland	8,939	761	1,352	6,293	17,345	9,700	221	236	804	66.21	6/6/6
Ottawa	1,022	98	242	469	1,831	1,049	37	34	99	42.93	6/6/6
Saginaw	1,169	34	533	272	2,008	1,203	42	9	99	47.99	6/6/12
Sanilac	268	1	50	22	341	268	6	6	4	9.00	6/6/6
Shiawassee	244	23	60	19	346	259	4	4	2	2.74	6/12/18
St. Clair	1,250	32	315	238	1,835	1,000	30	29	98	57.07	6/6/6
Tuscola	301	29	159	151	640	330	16	14	7	12.09	6/6/6
VanBuren-Cass	503	12	162	31	708	415	4	4	5	3.84	6/6/6
Washtenaw	2,203	90	546	682	3,521	2,310	91	74	190	55.23	6/6/6
Wayne	6,432	202	528	3,057	10,219	6,774	138	152	341	30.98	6/6/12
Western UP	711	10	203	90	1,014	706	12	22	29	41.44	6/6/12
Totals	59,538	3,894	11,402	19,548	94,382	62,784	1,547	1,389	4,382	43.40	XXX
Average	1,294	85	248	425	2,052	1,365	34	30	95	43.40	XXX
Median	740	47	161	159	1,010	816	18	17	33	36	XXX
Minimum	240	1	44	5	341	83	1	0	2	3	0
Maximum	8,939	761	1,352	6,293	17,345	9,700	221	236	804	107	0

Appendix II – Output Data- Licensing by LHD

Michigan Local Health Department Quarterly Reports Summary 2009														
	ENFORCEMENT CONDUCTED		LICENSED FACILITIES											
	12. Administrative Action: office conference, informal conference, formal hearing, civil fines, orders	13. Court Action: civil, criminal	Licensed Fixed Food Establishments	Fixed Licenses- % of Total Fixed Licenses	Licensed Mobile Establishments	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 used to equal # of Licenses)	Temporary Licenses- % of Total Temporary Licenses	Total Licensed Establishments (excluding temporary)	Fixed Food Establishments per 100,000 people
Allegan	1	0	325	1	1	0	35	5	29	1	135	1	390	306
BEDHD	7	0	491	2	3	1	11	2	66	2	164	1	571	294
Bay	1	0	396	1	4	1	2	0	15	0	125	1	417	365
Benzie-Leelanau	2	0	185	1	2	0	2	0	2	0	130	1	191	465
Berrien	4	0	626	2	12	3	6	1	67	2	281	2	711	387
BHSJ	1	0	492	2	2	0	30	4	106	3	246	2	630	316
Calhoun	1	0	466	1	6	1	7	1	74	2	153	1	553	338
CMDHD	7	0	660	2	1	0	34	5	35	1	271	2	730	346
Chippewa	2	0	180	1	0	0	2	0	5	0	46	0	187	465
Delta-Menominee	5	0	254	1	0	0	13	2	18	0	148	1	285	404
Detroit City	23	1	1738	5	96	21	6	1	297	7	834	7	2137	200
Dickinson-Iron	6	0	208	1	0	0	2	0	16	0	44	0	226	522
DHD # 2	12	0	328	1	0	0	8	1	6	0	175	2	342	473
DHD # 4	0	0	411	1	0	0	7	1	1	0	80	1	419	501
DHD # 10	37	0	930	3	7	2	36	5	87	2	603	5	1060	350
Genesee	28	0	1292	4	11	2	32	4	132	3	255	2	1467	292
Grand Traverse	5	0	329	1	8	2	17	2	43	1	62	1	397	387
Holland City	2	0	130	0	0	0	10	1	46	1	71	1	186	380
Huron	2	0	171	1	1	0	16	2	20	0	150	1	208	501
Ingham	93	0	970	3	0	0	80	11	75	2	145	1	1125	350
Ionia	0	0	166	1	0	0	12	2	24	1	152	1	202	256
Jackson	0	0	460	1	0	0	19	3	65	2	115	1	544	281
Kalamazoo	23	0	813	3	4	1	33	5	90	2	414	4	940	338
Kent	42	0	1796	6	36	8	33	5	424	11	312	3	2289	300
Lapeer	0	0	237	1	2	0	13	2	19	0	86	1	271	253
Lenawee	7	0	323	1	1	0	0	0	58	1	464	4	382	316
Livingston	10	0	399	1	7	2	9	1	38	1	126	1	453	216
LMAS	5	0	274	1	1	0	3	0	8	0	240	2	286	758
Macomb	122	1	2364	7	26	6	13	2	329	8	259	2	2732	284
Marquette	2	0	262	1	0	0	7	1	13	0	102	1	282	405
Midland	13	0	275	1	25	5	17	2	14	0	124	1	331	328
Mid-Michigan	22	0	509	2	1	0	30	4	67	2	235	2	607	289
Monroe	10	0	484	2	6	1	52	7	38	1	135	1	580	312
Muskegon	38	0	577	2	3	1	32	4	133	3	224	2	745	329
Northwest	1	0	642	2	3	1	4	1	29	1	146	1	678	588
Oakland	76	0	3996	13	133	29	13	2	507	13	1,352	12	4649	329
Ottawa	64	1	550	2	0	0	6	1	135	3	242	2	691	238
Saginaw	33	0	644	2	0	0	4	1	55	1	533	5	703	312
Sanilac	0	0	169	1	1	0	6	1	20	0	50	0	196	380
Shiawassee	0	0	205	1	1	0	11	2	13	0	60	1	230	281
St. Clair	26	0	498	2	2	0	8	1	85	2	315	3	593	290
Tuscola	5	0	152	0	0	0	7	1	16	0	159	1	175	263
VanBuren-Cass	0	0	362	1	2	0	5	1	37	1	162	1	406	278
Washtenaw	39	0	1158	4	19	4	12	2	219	5	546	5	1408	337
Wayne	351	0	3412	11	27	6	14	2	439	11	528	5	3892	310
Western UP	14	0	393	1	1	10	1	0	5	0	203	2	400	562
Totals	1,142	3	31,702	XXX	455	XXX	720	XXX	4,020	XXX	11,402	XXX	36,897	16,474
Average	25	0	689	XXX	10	XXX	16	XXX	87	XXX	248	XXX	802	314
Median	7	0	436	XXX	2	XXX	11	XXX	41	XXX	161	XXX	499	329
Minimum	0	0	130	0	0	0	0	0	1	0	44	0	175	200
Maximum	351	1	3,996	13	133	29	80	11	507	13	1,352	12	4,649	758

Appendix III – Program Staffing – Program Revenue by LHD

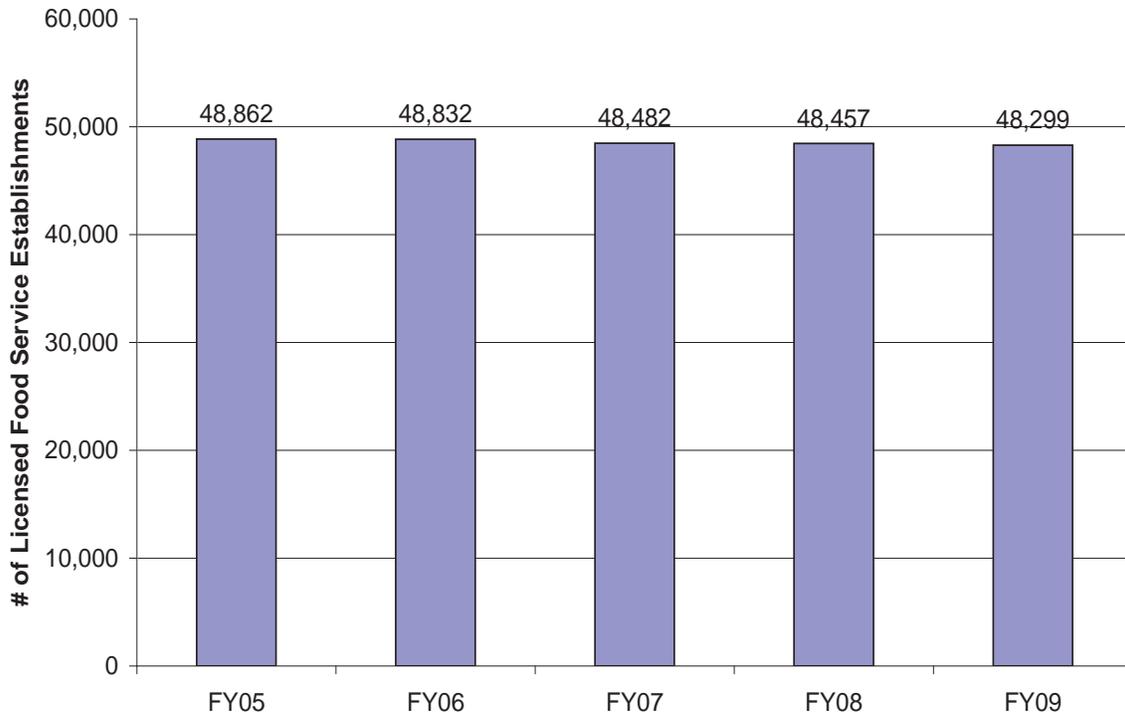
Michigan Local Health Department Quarterly Reports Summary 2009

	IMPORTANT FACTOR IV STAFFING						FINANCIAL						Population	
	14. Total number of FTE's assigned to the food program in the following areas: plan review, supervision, coordination, clerical and other food	15. Total number of FTE's assigned to conduct food establishment inspections (all types)	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	LPFO Dollars	Total Program Revenue	Program Dollars per Licensed Establishment	Program Dollars per FTE		Program Dollars per Citizen
Allegan	0.50	2.00	2.5	2.2	3.1	495	142,400	173,555	85,555	401,510	1,030	160,604	3.78	106,310
BEDHD	1.70	3.00	4.7	3.1	4.4	438	273,503	116,232	129,927	519,662	910	110,566	3.11	167,136
Bay	0.60	2.00	2.6	2.3	3.2	446	123,500	90,194	86,054	299,748	719	115,288	2.77	108,390
Benzie-Leelanau	0.85	0.75	1.6	1.3	1.7	688	63,237	33,244	40,387	136,868	717	85,543	3.44	39,764
Berrien	1.00	4.50	5.5	4.1	5.7	350	145,000	10,886	151,434	307,320	432	55,876	1.90	161,705
BHSJ	1.20	3.80	5	3.6	5.0	486	215,000	96,184	127,166	438,350	696	87,670	2.81	155,858
Calhoun	1.20	2.65	3.85	3.0	4.2	366	175,237	9,314	177,696	362,247	655	94,090	2.63	137,991
CMDHD	5.80	1.75	7.55	4.1	5.8	1,051	247,075	97,601	212,074	556,750	763	73,742	2.92	190,805
Chippewa	1.29	0.41	1.7	1.0	1.4	1,071	66,850	81,963	43,230	192,043	1,027	112,966	4.97	38,674
Delta-Menominee	0.56	1.68	2.235	1.8	2.4	479	100,000	18,791	50,843	169,634	595	75,899	2.70	62,852
Detroit City	5.80	12.30	18.1	12.3	17.0	354	1,063,000	58,494	522,380	1,643,874	769	90,822	1.89	871,121
Dickinson-Iron	0.50	1.50	2	1.2	1.7	429	85,000	13,797	54,732	153,529	679	76,765	3.86	39,824
DHD # 2	2.86	1.12	3.98	2.1	2.9	548	110,893	38,817	73,367	223,077	652	56,049	3.21	69,395
DHD # 4	2.62	2.19	4.81	2.1	3.1	382	140,000	34,299	77,954	252,253	602	52,443	3.08	81,971
DHD # 10	7.00	6.00	13	6.7	9.1	435	287,685	103,029	219,452	610,166	576	46,936	2.29	266,085
Genesee	5.00	9.00	14	7.4	10.6	305	748,000	629,226	446,387	1,823,613	1,243	130,258	4.13	441,966
Grand Traverse	0.70	2.00	2.7	2.0	2.9	398	143,500	53,124	82,998	279,622	704	103,564	3.29	04,952
Holland City	1.00	0.80	1.8	1.1	1.5	739	0	0	0	0	0	0	0.00	34,245
Huron	0.14	1.22	1.362	1.4	1.9	515	95,381	9,721	34,218	139,320	670	102,291	4.08	34,143
Ingham	10.20	7.20	17.4	5.5	8.0	454	547,838	566,043	208,876	1,322,757	1,176	76,021	4.78	276,898
Ionia	0.14	0.96	1.1	1.4	1.9	633	58,750	456	53,000	112,206	555	102,005	1.73	64,821
Jackson	4.00	2.00	6	2.8	4.0	496	248,126	26,742	118,727	393,595	724	65,599	2.40	163,851
Kalamazoo	8.00	6.00	14	5.6	7.6	419	319,000	166,386	290,356	775,742	825	55,410	3.22	240,720
Kent	3.55	10.00	13.55	11.2	16.3	511	817,954	14,796	333,773	1,166,523	510	86,090	1.95	599,524
Lapeer	1.30	1.20	2.5	1.5	2.1	484	99,700	37,364	76,257	213,321	787	85,328	2.28	93,761
Lenawee	1.00	1.50	2.5	3.2	4.1	810	154,000	95,534	102,801	352,335	922	140,934	3.45	102,191
Livingston	1.25	2.50	3.75	2.4	3.4	402	353,375	30,446	118,532	502,353	1,109	133,961	2.72	184,511
LMAS	1.82	1.83	3.65	2.1	2.7	420	124,500	26,855	120,947	272,302	952	74,603	7.53	36,143
Macomb	6.00	16.00	22	13.0	19.1	362	724,746	599,671	545,641	1,870,058	685	85,003	2.25	832,861
Marquette	0.48	1.53	2.01	1.6	2.2	514	148,000	10,451	58,397	216,848	769	107,885	3.35	64,675
Midland	1.80	1.40	3.2	1.9	2.6	579	104,167	9,751	66,645	180,563	546	56,426	2.15	83,792
Mid-Michigan	5.90	3.90	9.8	3.5	4.8	415	224,401	58,527	228,483	511,411	843	52,185	2.91	175,993
Monroe	0.40	1.30	1.7	3.0	4.3	919	215,000	69,627	76,817	361,444	623	212,614	2.33	155,035
Muskegon	2.86	2.26	5.12	4.1	5.7	859	315,270	115,871	99,305	530,446	712	103,603	3.03	175,231
Northwest	3.08	2.32	5.4	3.5	5.0	586	265,250	91,281	88,440	444,971	656	82,402	4.07	109,203
Oakland	15.60	26.00	41.6	25.2	35.5	667	724,080	1,815,159	821,317	3,360,556	723	80,783	2.77	1,214,255
Ottawa	2.50	4.10	6.6	3.9	5.4	447	357,225	248,970	137,140	743,335	1,076	112,627	3.22	230,617
Saginaw	1.01	3.23	4.24	4.9	6.5	622	279,909	57,517	255,998	593,424	844	139,958	2.88	206,300
Sanilac	0.58	0.94	1.511	1.0	1.5	364	66,342	0	46,556	112,898	576	74,717	2.54	44,448
Shiawassee	0.60	0.80	1.4	1.2	1.7	433	86,063	47,958	76,992	211,013	917	150,724	2.89	72,912
St. Clair	1.50	4.00	5.5	3.7	5.0	459	142,250	367,935	160,674	670,859	1,131	121,974	3.91	171,725
Tuscola	0.28	0.81	1.09	1.3	1.7	790	64,994	5,975	40,984	111,953	640	102,709	1.93	57,878
VanBuren-Cass	1.00	1.50	2.5	2.3	3.2	472	86,600	166,858	96,459	349,917	862	139,967	2.68	130,347
Washtenaw	3.80	9.00	12.8	8.1	11.2	391	719,967	329,782	267,156	1,316,905	935	102,883	3.83	344,047
Wayne	5.90	21.00	26.9	19.1	27.7	487	2,022,000	1,992,062	1,060,251	5,074,313	1,304	188,636	4.61	1,100,732
Western UP	2.50	1.90	4.4	2.5	3.3	534	151,765	7,213	101,867	260,845	652	59,283	3.73	69,985
Totals	127.37	193.84	321	202	284	24,504	13,646,533	8,627,701	8,268,245	30,542,479	35,492	4,425,702	142	10,095,643
Average	2.77	4.21	7	4	6	487	296,664	187,559	179,744	663,967	828	95,086	3.03	219,471
Median	1.40	2.00	4	3	4	482	152,883	58,006	102,334	361,846	721	89,246	2.91	134,169
Minimum	0.14	0.41	1	1	1	305	0	0	0	0	0	0.00	0.00	34,143
Maximum	15.60	26.00	42	25	36	1,071	2,022,000	1,992,062	1,060,251	5,074,313	1,304	212,614	7.53	1,214,255

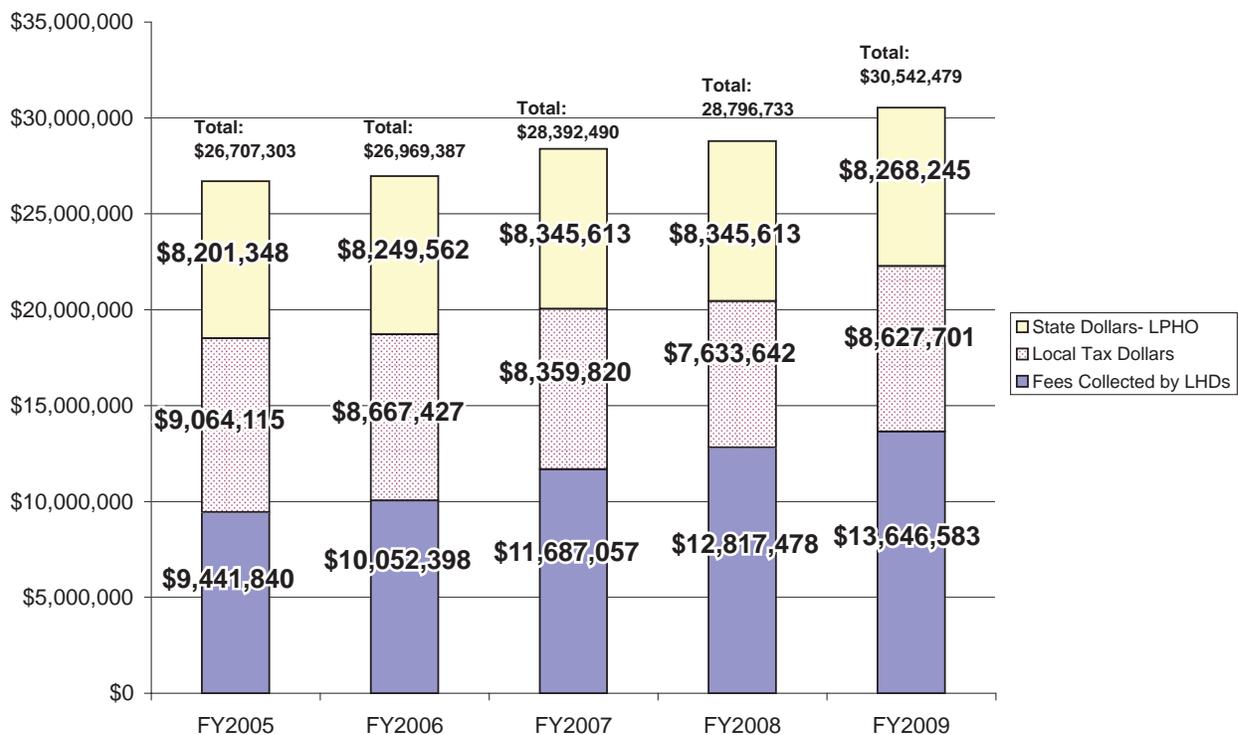
Appendix V – Five-Year Trend Analysis Charts

Licensed Health Departments

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

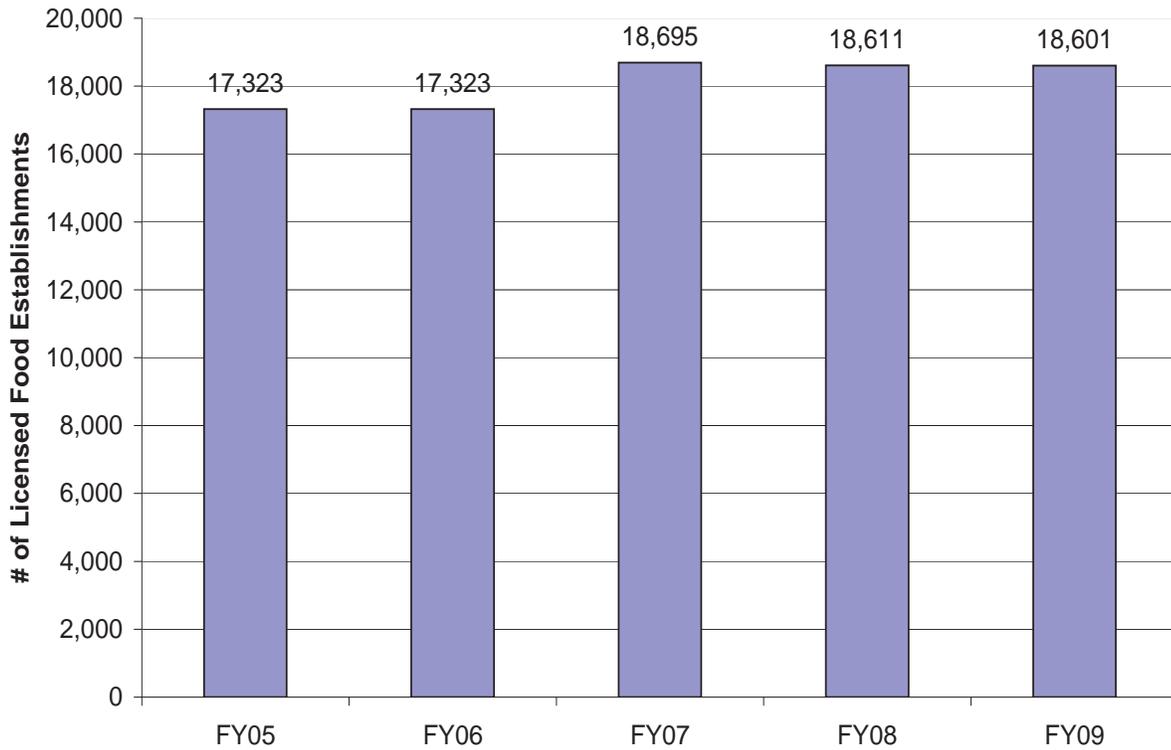


LHD Funding Sources, Five-Year Comparison

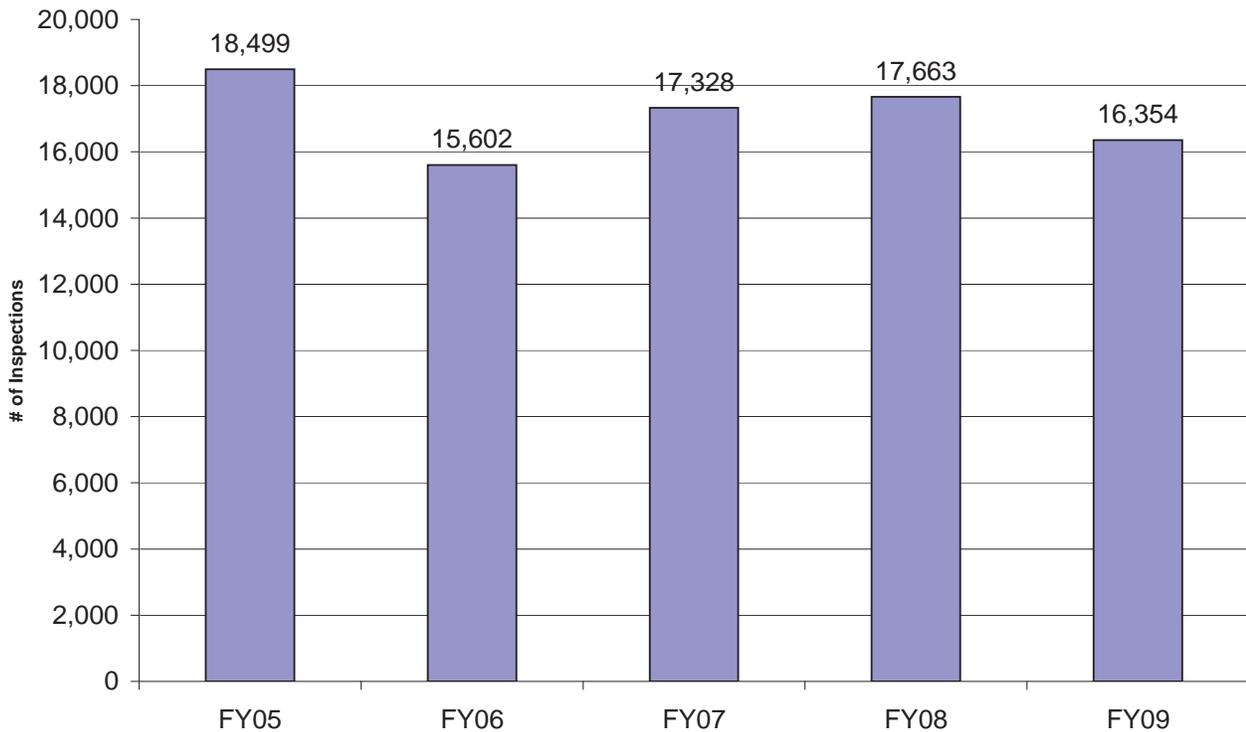


MDA Food Section

Licensed Food Establishments (MDA), Five-Year Comparison

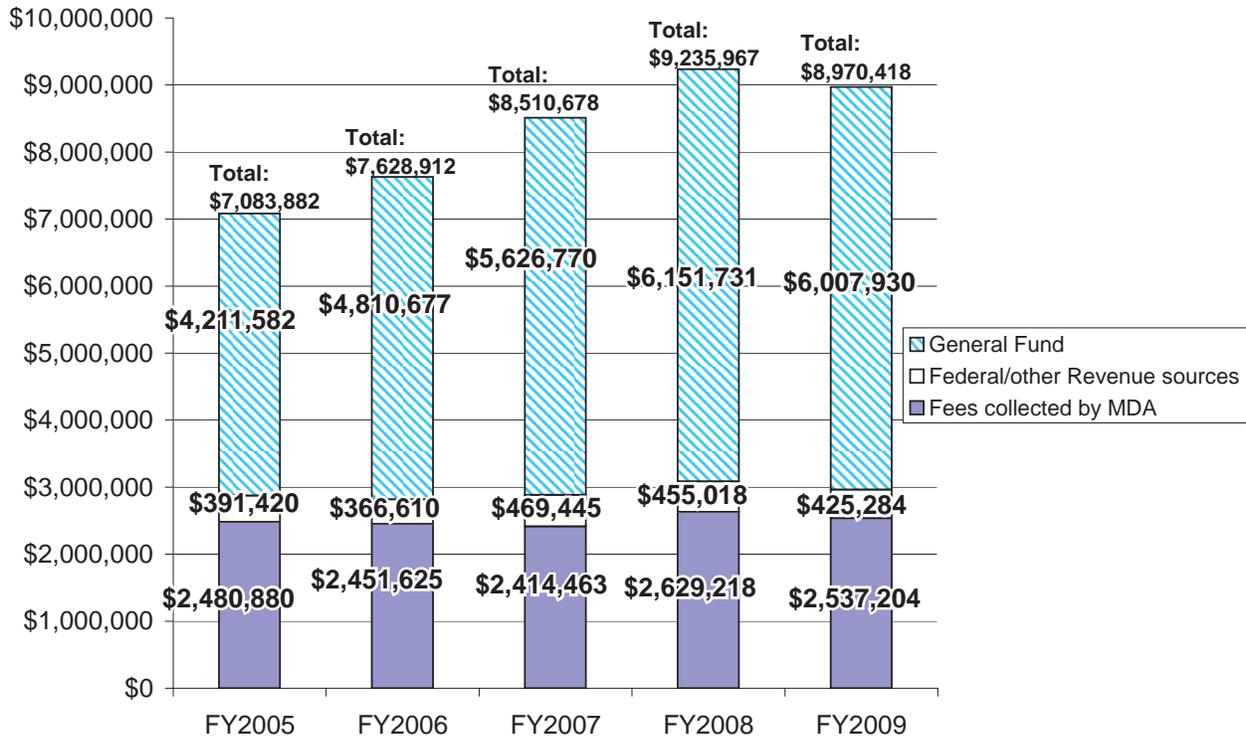


Number of Food Inspections, Five-Year Comparison



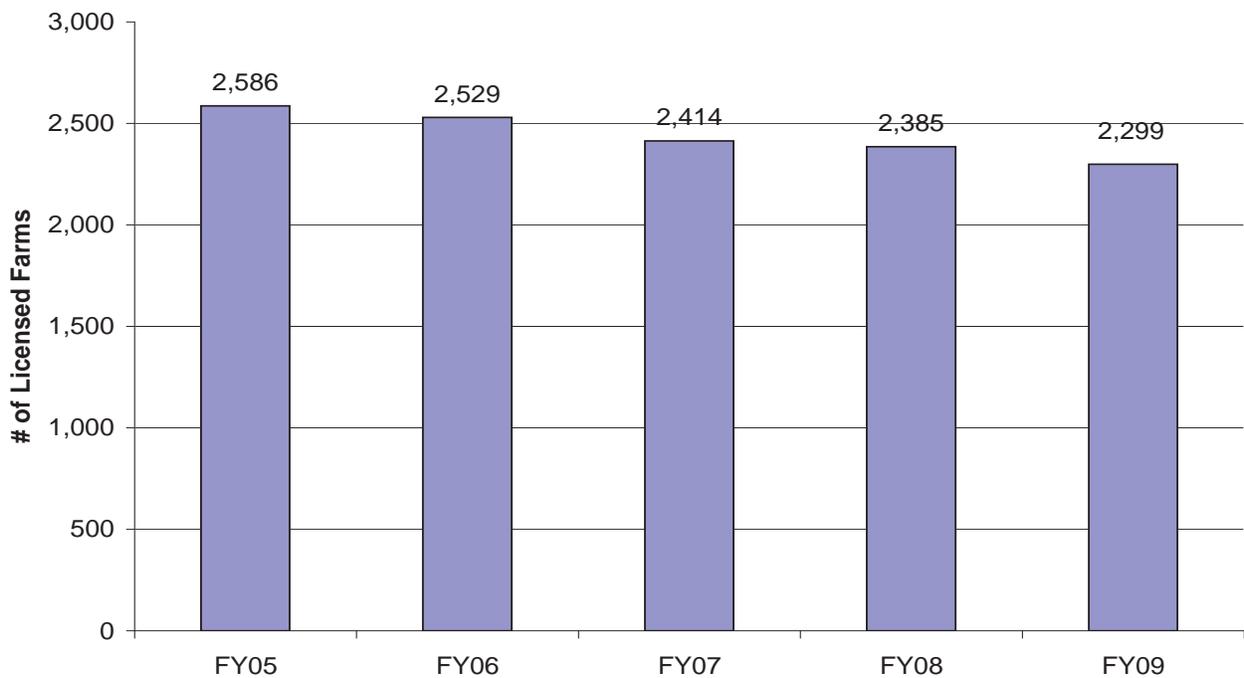
Note: Fair inspections are not included in the food inspection counts for this graph.

MDA Food Funding Sources, Five-Year Comparison

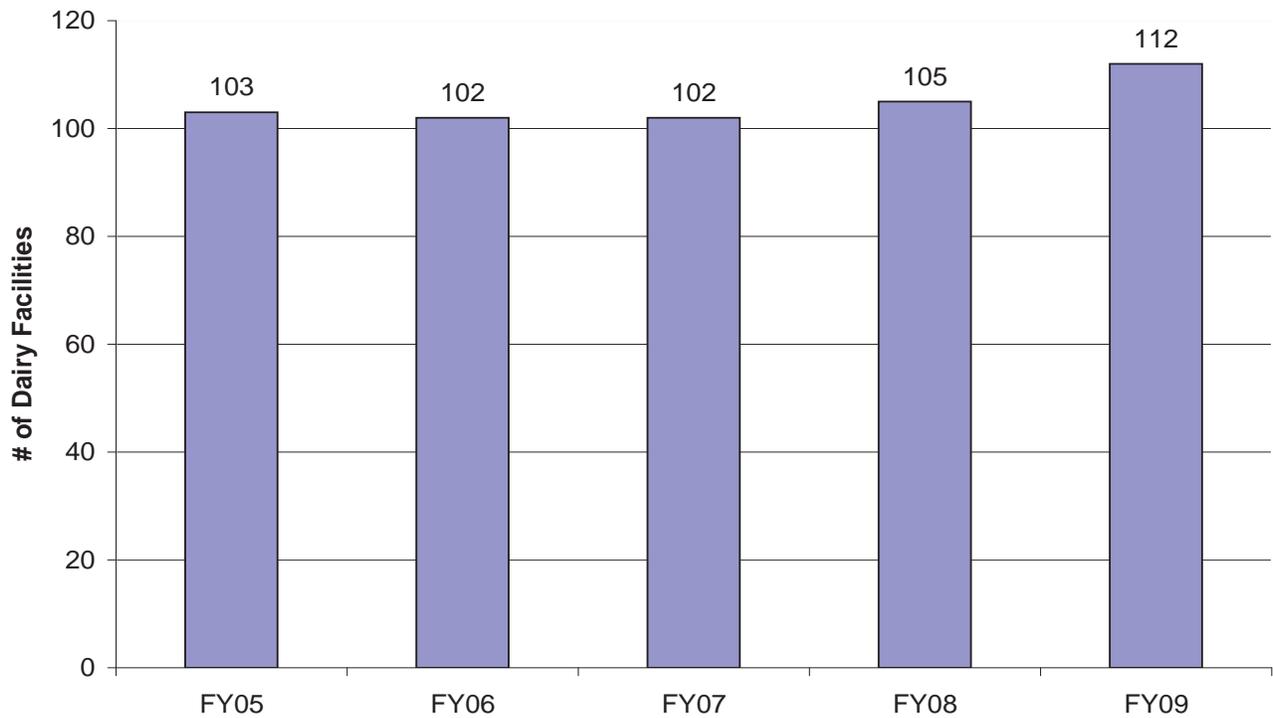


MDA Dairy Section

Licensed Dairy Farms, Five-Year Comparison

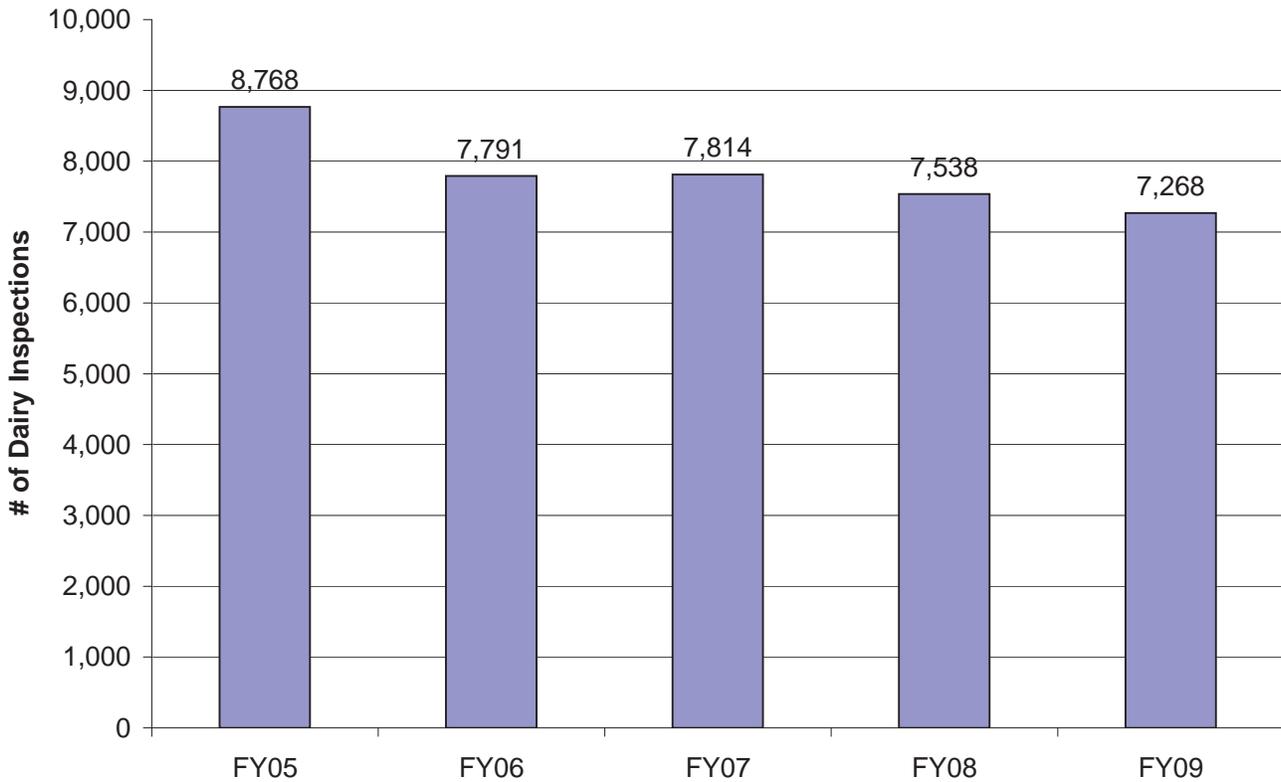


Licensed Dairy Facilities, Five-Year Comparison



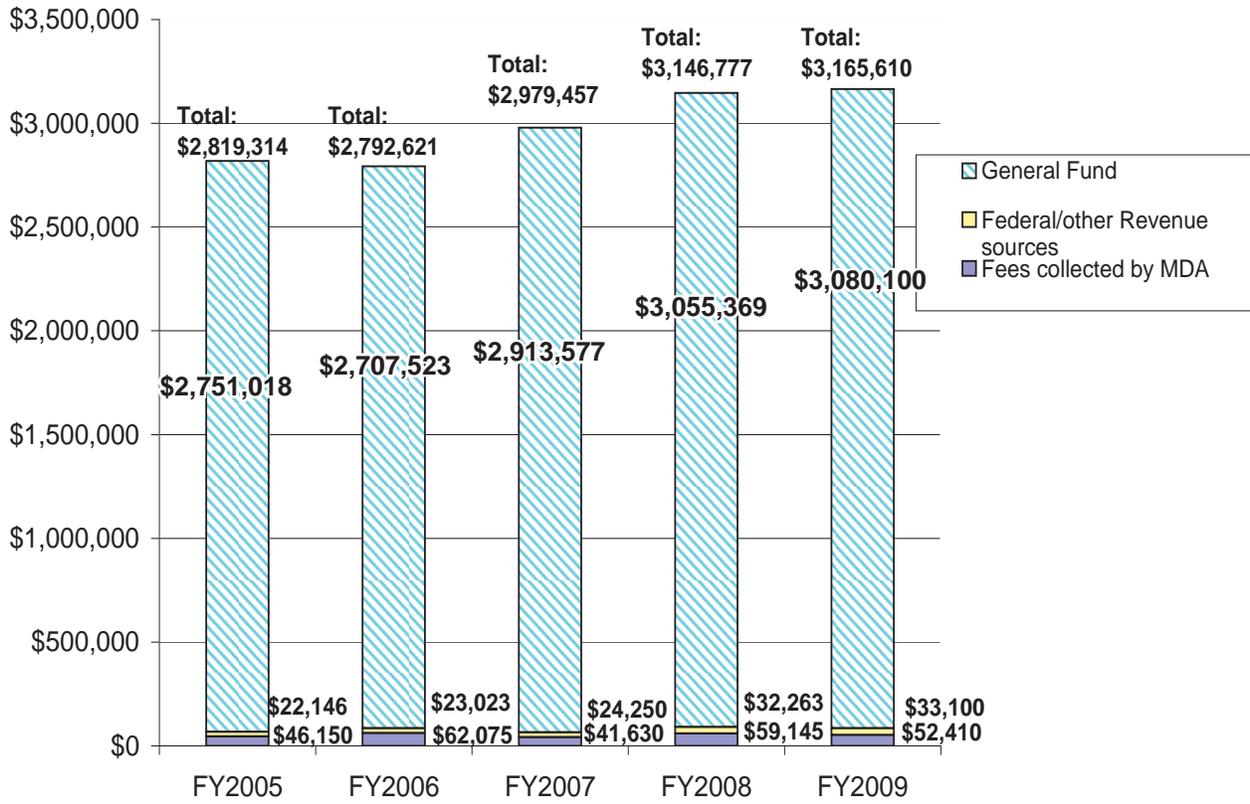
Licensed Facilities Includes: Grade A Plants, Manufacturing Plants, Grade A Milk Distributors, Grade A Transfer Stations/Receiving Stations/Tank Truck Cleaning and Grade A Single Service.

Dairy Inspections, Five-Year Comparison



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

MDA Dairy Funding Sources, Five-Year Comparison





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