



Division of the Food Laboratory Annual Report 2018

Staffing

In 2018, the Food Laboratory had 33 permanent staff. Senior staff at the Food Laboratory have degrees in the Natural Sciences with majors in biology, chemistry, environmental, microbiology, or other related fields. Additionally, temporary staff scientists work under the supervision and direction of Food Laboratory personnel.

Licenses and Accreditations:

The Food Laboratory holds the ISO/IEC 17025:2005 accreditation and additional criteria established by the AOAC-I ALACC. In 2018, the Food Laboratory performed testing on 57 chemistry proficiency samples (520 analyses with 98% acceptable results), 27 microbiological proficiency samples (31 analyses with 97% acceptable results), and three PDP proficiency rounds (37 compounds reported with 100% acceptable results). Participation in proficiency testing programs is necessary to maintain the laboratory's ISO accreditation status through the American Association for Laboratory Accreditation.

Analytical Tests & Outcomes

In 2018, the Food Laboratory received 19,858 samples and performed approximately 442,026 analytical tests on various food, feed, industrial hemp and fertilizers to determine compliance with regulatory standards, adulteration with inferior or substitute ingredients, undeclared or non-permitted preservatives, heavy metals, color additives, contamination with filth, spoilage, tetrahydrocannabinol (THC) or foodborne pathogenic bacteria. Approximately 94 percent were found to be properly labeled and/or free of contamination or adulteration. A total of 205 recalls were triggered by laboratory test results.

In accordance with the laboratory's USDA cooperative agreement under the Pesticide Data Program (PDP), the laboratory received 1,847 samples, which resulted in the analysis of 387,870 analytes to detect for pesticide residues. From those, 195 violations for pesticide residue were detected by the Food Laboratory. This nationwide program is in its 28th year and has 10 participating States, including New York. In 2018, four New York samples were tested for pesticides as consumer complaints and none were found violative.

The Food Laboratory also performed analytical testing on samples received from various external sources. These included samples involved in foodborne illness investigations requested by NY Department of Health (DOH) or Food and Drug Administration (FDA), and samples from neighboring states such as Vermont and Massachusetts who were unable to perform specific analyses. The laboratory analyzed 25 samples for Massachusetts Department of Health, including food samples (pate, mayonnaise, fresh vegetables, pickled fish, and bread) related to *Campylobacter* spp, outbreak investigations.

In accordance with the National Conference of Interstate Milk Shipments (NCIMS) Split Sample Program, the Food Laboratory prepared 105 proficiency samples for all the dairy laboratories



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certified by the Department’s Milk Control and Dairy Services Division (MCDS). In addition, seven states contracted with the Food Laboratory to have 48 proficiency samples prepared and shipped to certified dairy laboratories within their respective States. Additionally, the laboratory also provided 139 sets of antibiotic residue samples to the same laboratories.

Source of sample	Number of Samples Received	Number of Samples Reported	Number of Tests
Total	19,858	19,428	442,026
Collected through PDP program	1,918	1,847	387,870
Collected by Food Safety Inspection (FSI) staff	2,561	2,301	54,156 ^{ab}
Collected by MCDS staff	14,849	14,676	
Collected by Plant Industry (PI) staff	330	378 ^a	
Collected by Others ^c	200	226 ^a	

^a Includes results from samples collected at end of 2017.

^b Number represents number of testing for division of FSI, MCDS, PI and Others.

^c Others: other New York State departments, State/Federal agencies or proficiency testing providers

	Number of Samples Received (excluding PDP and Liquor authority)	Number of Tests Performed (excluding PDP and Liquor authority) ^a	Number of Violations
Total	17,847	54,092	1,198
Microbiology ^b	13,412	27,171	494
Chemistry ^c	4,567	26,921	569

^a Includes results from samples collected at end of 2017.

^b Microbiology testing includes: total aerobic plate counts, total coliforms, Escherichia coli, E. coli O157:H7 and other enterohemorrhagic E. coli, Salmonella enterica, Listeria monocytogenes, Campylobacter coli, C. jejuni and C. lari, Shigella spp. Staphylococcus aureus, enterotoxin, yeasts, molds, presence of antimicrobials in dairy products and verification of pasteurization.

^c Chemistry testing includes: standards of identity and nutritional labeling, adulteration, the presence of undeclared and potentially harmful allergens, preservatives and artificial colors, specific chemical hazards such as heavy metals, aflatoxins, antibiotic residues, and the identification of impurities and foreign material.

	Number of Samples Tested for Division of Plant Industry	Number of Violations
Total	378	82



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Fertilizer	154	75
Lime	13	6
Industrial hemp	211*	1

*THC testing only

Aid-to-Localities/Outreach:

In 2018, the Food Laboratory through the Rapid Response Team (RRT) and Food Emergency Response Network (FERN) played an integral role in investigating several local and multi-state outbreaks of foodborne disease, including *L. monocytogenes*, in coordination with local and state Department of Health offices.

The Food Laboratory hosted two Laboratory Evaluation Officers (LEOs) from Massachusetts. They are rebuilding Massachusetts' Dairy Testing program and reached out for assistance.

Brazilian analysts visited the laboratory to learn about techniques and methodology used in milk testing. They also gathered feedback from staff about commercial testing kits used in the laboratory.

Additionally, a high school student spent two hours a week in the laboratory via their STEAM (Science, Technology, Engineering, Arts and Math) program. The Food Laboratory continues supporting students in pursuit of their educational goals.

Federal/Interstate Activity

The Food Laboratory managed cooperative agreements with the USDA Agricultural Marketing Service (AMS) to support the PDP and with the FDA to maintain the laboratory's ISO accreditation and whole genome sequencing program.

The Food Laboratory staff participated in three National Partnership for Food Protection workgroups and lead efforts to implement significant components of the Food Safety Modernization Act (FSMA).

On December 10-11, the Food Laboratory hosted the GOOD Test Portions Laboratory Sampling Workshop based on publication "GOOD Test Portions: Guidance On Obtaining Defensible Test Portions". Besides the Food Laboratory staff, other attendees were from DOH Wadsworth Center, Canadian Grain Commission, Massachusetts State Public Health Laboratory, Vermont State Public Health Laboratory, and Tennessee Department of Agriculture.

In an effort to improve collaboration and integration of sample collection and the analysis of data between state and federal governments, the Food Laboratory was selected to spearhead the Mutual Reliance Pilot. The goal of the pilot is to establish a process for data acceptance by the FDA. In 2018, two products with excessive level of sulfites (white raisins and bamboo shoots) from China were included in Import Alert after FDA accepted the sample and laboratory information for a regulatory action. The violative products had more than 10 mg of sulfites per serving.



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Continued Research

In 2018, the Food Laboratory uploaded whole genome sequencing data from 299 Salmonella and L. monocytogenes isolates to FDA's GenomeTrakr network. From those, 115 provided information of L. monocytogenes found in food and at least four were involved in contaminated food investigations.

As a leader in food laboratory analytical testing and method development, the Food Laboratory participated in working groups and committees in the following associations: the Association of Official Analytical Communities International, the International Association of Food Protection, Association of Public Health Laboratories, Association of Food and Drug Officials, the American Association of Feed Control Officials, and the American Association of Plant Control Officials.

The Food Laboratory was the only state participating in a multi-laboratory validation method for antibiotics in distillers' grains. Antibiotics are used in ethanol production to discourage the growth of bacteria that would lower the quality and yield of the product. Low levels of antibiotic residues in animal feeds can lead to antimicrobial resistance. The goal of the validation is to provide a regulatory method that will be capable of detecting the four antibiotics of interest at levels that cause antibiotic resistance in bacterial pathogens and will ensure whether or not the distiller grains are safe as animal feed.

The Food Laboratory was active member of Center of Excellence on Food Research to establish dietary reference intake levels for emerging food additives and to determine safe limits of contaminants such as environmental chemicals, heavy metals, and suspected carcinogens. During the project, the laboratory provided results of 104 violative samples contaminated with lead, arsenic or chromium) and analyzed 169 spices for presence of lead, arsenic, cadmium, mercury, and chromium. All information provided will be used by Department of Health and Department of Agriculture and Markets on determining State action level to better protect New Yorker consumers.

Manuscript entitled "Determination of 27 elements in Animal Feed by ICP-MS" by Thomas King and Robert Sheridan was accepted for publication. This method serves as the AAFCO reference method for regulatory labs to use when measuring elements in feed.