

Laboratory Contributions to Food Safety and Defense



JESSICA DYER
MICROBIOLOGY BRANCH CHIEF
FOOD AND DRUG PROTECTION DIVISION
JANUARY 11, 2012

Laboratory Overview



- 14 Microbiologists and Technicians dedicated to food safety and defense testing
- The microbiology lab analyzes over 3,000 food samples annually, performing over 8,000 analyses for foodborne pathogens



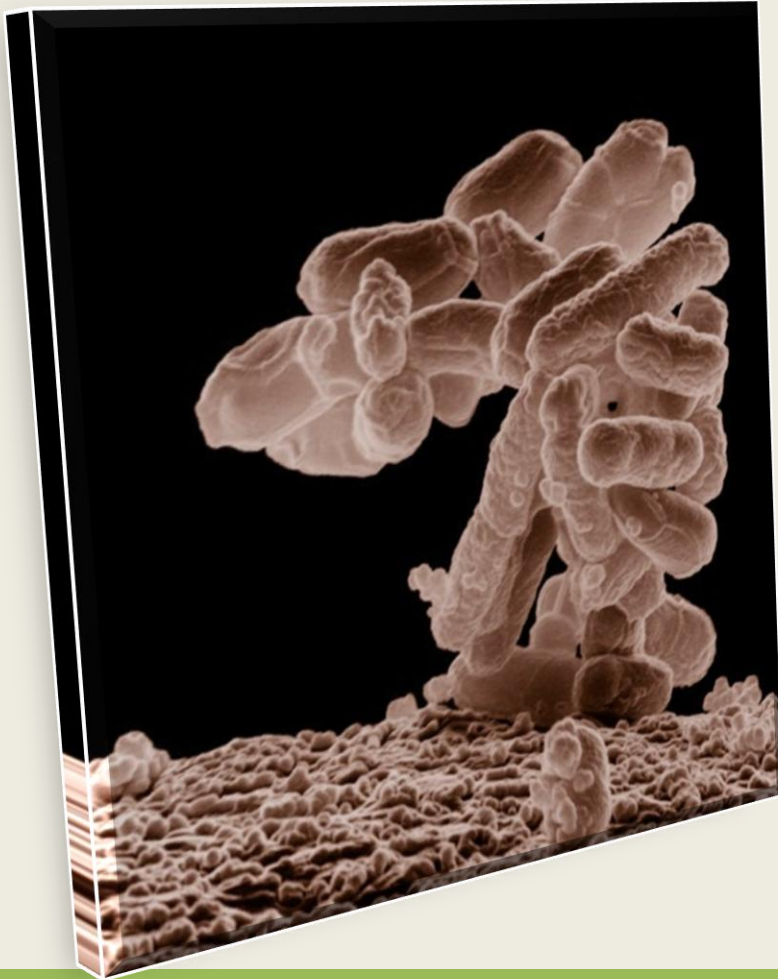
Common Sample Types



- The Microbiology Branch is able to test **all animal and human food** for a variety of analytes
 - Meat and poultry products
 - Fresh produce
 - Deli sandwiches/salads
 - Bottled water
 - Cheese
 - Juice
 - Raw milk
 - Nuts and nut butters



Testing Capabilities



- Current capabilities

- *Salmonella*
- *L. monocytogenes*
- *E. coli* O157:H7
- *S. aureus*
- Staphylococcal enterotoxins
- Aerobic Plate Count
- Coliforms/*E. coli*
- Yeast and Mold

Testing Capabilities

- Future Capabilities

- non-O157 STEC
- *B. anthracis*
- *C. botulinum* toxin
- *Vibrio* species
- *Campylobacter*



Food Safety and Defense Testing



- Conduct analyses on state collected inspection and surveillance samples
- Assist with FDA Surveillance Sampling Assignments
 - Surge Capacity During National Outbreaks
 - Fresh Produce Surveillance for *Salmonella*
 - Pet Feed Surveillance for human foodborne pathogens



Food Safety and Defense Testing



- Provide testing capability for food samples during outbreak investigations
 - At the direction of Public Health or other partners
 - To provide the data necessary to remove product from the shelf



Role of Federal Support



- Lab currently operates under 5 federal awards that fund 8 FTE, provide supplies, equipment, and training
 - FDA FERN
 - FDA Rapid Response Team
 - USDA FSIS FERN
 - US EPA
 - FDA CFSAN
 - CDC/NCDPH
Cooperative Agreement



Grant Projects



- Validation of testing platforms for Staphylococcal enterotoxins
- Real-time PCR detection methods for *E. coli* O157:H7 and *L. monocytogenes*
- Food Safety Surveillance of RTE/RTH foods
- DNA fingerprinting of *Salmonella* isolates using rep-PCR
- High-resolution mass spectrometry for enteric disease detection
- Biothreat agent assay development for *B. anthracis*, *C. botulinum* toxin, and non-O157 STEC

The Food Emergency Response Network



- As a FERN member, we are dedicated to providing surge response for foodborne outbreaks and emergencies
 - Maintain inventories of assays, cultures, and toxins
 - Training in common and novel foodborne pathogen analysis
 - Provide surge capacity to State and Federal testing laboratories



Laboratory Training



- FERN offers training through its training sites
 - Phoenix, AZ
 - Richmond, VA
 - St. Paul, MN
 - Jamaica, NY
 - FDA Regional Labs
- FERN sponsored training
 - RT-PCR
 - EHEC/STEC methods
 - B. anthracis and Y. pestis in food
 - Rapid Methods for Food Microbiology
 - Salmonella and Listeria Isolation methods
 - Food virology

Food Safety Modernization Act



- NCDA has representation on many of the Partnership for Food Protection Lab Subcommittees
 - Quality Manager is the state lead for developing strategies to assist other labs with accreditation
 - Laboratory Technical Director is active in determining regulatory requirements for sample collection, chain-of-custody, and sample security
 - Chief Microbiologist is active in standardization of data reporting and method selection



Leading the Way



- NCDA FDPD is one of eleven accredited state agricultural labs
- Our laboratory has the most extensive accreditation scope of any state agricultural laboratory
 - Food Microbiology
 - Pesticide Residues
 - Food Chemistry
 - Feed and Fertilizer Testing

ISO 17025

ACCREDITED LABORATORY

ISO 17025 Accreditation



- Laboratory became ISO 17025 Accredited in March 2010
- Process to become accredited has required a shift in practice and culture by putting a greater emphasis on
 - Better documentation
 - Traceability of data
 - Customer service
 - Continuous improvement
 - Commitment to the standard



Striving for Excellence



- Being an accredited laboratory means that our data is trusted by our federal, state, and industry partners
- Accreditation opens new avenues for federal funding to continue food safety and defense surveillance and research
- Accreditation builds skills of analysts and opens new training opportunities



Questions

