United States Department of Agriculture

One Team, One Purpose

Food Safety and Inspection Service
Protecting Public Health and Preventing Foodborne Illness
FERN:
Food Emergency Response Network
Mission in Action-FSIS

We are the public health agency in the USDA responsible for ensuring that meat, poultry, and processed egg products are safe, wholesome, and accurately labeled.

Our Authority
Through a series of Acts, Congress empowers FSIS to inspect all meat, poultry, and processed egg products in interstate commerce.

• Federal Meat Inspection Act (FMIA), 1906
• Agricultural Marketing Act (AMA), 1946
• Poultry Products Inspection Act (PPIA), 1957
• Humane Methods of Slaughter Act (HMSA), 1958
• Egg Products Inspection Act (EPIA), 1970
Research, Validation, Proficiency & National Surveillance: A Behind the Scenes Look at the Impact of Food Defense Projects with FERN

- FERN 101
- FERN Research Activities
- FERN Validation Efforts
- Proficiency Test focus for FY 17
- National Surveillance (State activities, National Special Security Events, Civil Support Team coordination)
- Conclusions (Q&A)
Mission/Objectives of FERN

• **Mission:** Integrate the nation’s multilevel food-testing laboratories to detect, identify, respond to and recover from a bioterrorism or public health emergency/outbreak involving the food supply

• **Objectives:** 
  - **Detection:** identification of biological, chemical, and radiological threat agents
  - **Prevention:** operate targeted federal/state surveillance sampling programs
  - **Preparedness:** strengthen laboratory capacities and capabilities
  - **Response:** provide large-scale laboratory testing capacity
  - **Recovery:** provide public assurance of food safety following an emergency
Network Lab Makeup

• 168 Laboratories representing 50 US States and Puerto Rico have satisfactorily completed FERN Laboratory Qualification Checklists

• Affiliations: (as of 1 Jul 17)
  • 34 Federal (FDA, USDA/FSIS, USDA/AMS, DHS, CBP)
  • 118 State
  • 16 Local

  – Disciplines:
    • 133 Microbiological
    • 114 Chemistry
    • 33 Radiochemistry
FERN Organizational Chart

National Program Office
USDA/ FDA
MD & GA

FERN Support Programs

Northeast Regional Coordination Center
GA & NY

Southeast Regional Coordination Center
GA

Central Regional Coordination Center
MN & WI

Southwest Regional Coordination Center
CO & GA

Pacific Regional Coordination Center
GA, CA

Dr. Randy Layton (FSIS)
Dr. Tim McGrath (FDA)
Food Emergency Response Network Regions

- **Northeast Region**
  - Connecticut
  - Maine
  - Massachusetts
  - New Hampshire
  - New York
  - Rhode Island
  - Vermont

- **Central Region**
  - Delaware
  - Illinois
  - Indiana
  - Kentucky
  - Maryland
  - Michigan
  - Minnesota
  - New Jersey
  - North Dakota
  - Ohio
  - Pennsylvania
  - South Dakota
  - Virginia
  - West Virginia
  - Wisconsin

- **Southwest Region**
  - Arkansas
  - Colorado
  - Iowa
  - Kansas
  - Missouri
  - Nebraska
  - New Mexico
  - Oklahoma
  - Texas
  - Utah
  - Wyoming

- **Southeast Region**
  - Alabama
  - Florida
  - Georgia
  - Louisiana
  - Mississippi
  - North Carolina
  - South Carolina
  - Tennessee

- **Pacific Region**
  - Alaska
  - Arizona
  - California
  - Hawaii
  - Idaho
  - Montana
  - Nevada
  - Oregon
  - Washington
FERN Support Programs

• Method Development & Validation
  – FERN Methods have been developed, validated, and shared with CDC/LRN, and harmonized with other lab networks (e.g. ERLN, DLN, NAHLN, NPDN)

• Training Program
  – Over 600 lab personnel trained from all 50 states in FY 16
  – 2 Training Centers throughout the country (e.g., Minn, VA)

• Proficiency Testing/Readiness Program
  – Joint PT exercises with LRN et al, ICLN conducted when possible
  – Aim for quarterly PT offerings for FERN partners (3 FSIS commodities/yr)

• Surveillance Programs
  – Assessing and demonstrating the effectiveness and capabilities of FERN
  – Testing operating mechanism and protocols of FERN
  – Demonstrating coordinated communication and data reporting
• Electronic communications and collaboration
  – Data capture & exchange mechanism for FERN is the Electronic Laboratory Exchange Network (eLEXNET) housed in FDA
  – FERN Website contains public information, member directory, results reporting module, as well as laboratory capability & assessment information (i.e., LabDIR) housed at U of Minnesota’s DHS center of excellence.
FERN Tools for Emergency Response Testing Efforts

- FERN Website LabDIR
  - Stores laboratory capability and capacity data for common analytes of concern
  - All FERN labs required to complete this data and verify on a yearly basis
  - Used by FERN NPO & RCCs to assess FERN capacity and capability to respond to an emergency

- eLEXNET
  - Data reporting
  - Document management & storage related to emergency testing
FERN Cooperative Agreements

• A transfer of money, property, services or anything of value to non federal recipients to accomplish a public purpose of support or stimulation.
• Requests For Applications – through Federal Register
• FERN currently has cooperative agreements in all three disciplines:
  • State laboratories, geographically dispersed.
  • Hosted and managed by both FSIS and FDA
Current FERN Research Activities

- Abrin-SLV using Bruker MALDI-TOF
- Ricin-SLV using Bruker MALDI-TOF
- Staph Enterotoxin
  - RIDACREEN MLV replacement for TECRA
- C Bot
  - FDA/CDC collaboration
  - MLV with MALDI-TOF
- Radiochemistry
  - Strontium in meat-Minn
Current FERN Validation Efforts

• Ricin MLV using LFD to replace ELISA screen
• FDA TO21 (FSIS validated CLG method: TOX 2)
  – New platform with FDA generated data
• FERN Chem Triage Guidance Document
  – FDA/FSIS/State Work group of chemist SME
FERN PT Focus for FY 17

• Ricin
• Rodenticide-super Warfarin
  CVM method
• FSIS commodities

• FSIS Capability/Capacity Challenge Program for CAP Labs (600 Samples)
National Surveillance

• State Activities-FY 17
  – 6000 Food Defense samples from 19 states
  – 3200 (micro), 2500 (Chem), 300 (Rad)
  – Catfish (pond water, fish feed for pesticides, vet drugs, metals)

• National Special Security Events (NSSE)-FY 16
  – Joint Task Force (State SS, FBI, FDA, FSIS)
  – Testing at Venues (200 samples, 800 analyses performed)
  – Public Health Information System data integration-
    Presidential Inauguration

• Civil Support Team leverage-FY 17
  – Training coordination
E. coli O157:H7 in spinach, 2006
  – First activation

• Salmonella in peppers, Summer 2008
  – 12 Labs analyzed 290 samples

• Salmonella in peanut butter, 2009

• Melamine Outbreak response activities
  – 2007 – In pet food
    • Developed new GC-MS Screening Method
    • 9 Labs analyzed over 200 samples
  – 2008-09 – In Milk products
    • Developed new HPLC-MS/MS and LC-MS Methods
    • 17 Labs analyzed 340 samples
Deepwater Horizon Oil Spill, 2010
- Developed new LC-Fluorescence Screening Method
- Developed and validated new, more rapid method
- 11 Labs analyzed over 460 samples
FERN Laboratory Response
Large-scale Food Events

• Japanese nuclear reactor event, 2011
  – Rad labs activated
  – Method development
  – Involved in testing (state and Federal)
For Further FERN Information

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