



# **Countermeasures to Address Identified Vulnerabilities**

**Protecting the Middle East Food Supply  
from Intentional Contamination**

**MEPI**

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## Session Objective

- **Provide background on countermeasures:**
  - What is meant by “countermeasure”
  - Examples of countermeasures as employed by:
    - Industry
    - Government
- **Discuss possible countermeasures for vulnerabilities identified in yesterday’s vulnerability assessment exercise**



# Food Defense Countermeasures

- Measures or actions taken to reduce the impact of intentional food contamination
- Countermeasures are also referred to as mitigation strategies
- Could be applied/employed by:
  - Facility
  - Industry groups (e.g., trade associations)
  - Government (federal, government, local)



# Industry/Facility Countermeasures

- **Physical Security**
  - e.g., Locking storage facilities, cameras to monitor premises, maintain work area logs
- **Personnel Security**
  - e.g., Screening employees, name badges, buddy system, food defense awareness training
- **Operational Security**
  - e.g., Anti-tampering technologies, electronic tracking devices
  - e.g., Establish procedures for reporting suspicious activities



## **Industry/Facility Countermeasures cont.**

- **Equipment re-design**
  - e.g., development of closed (inaccessible) system
- **Change process to destroy threat agents (intentional contaminants)**
  - e.g., impact of cooking, freezing, acidification on stability/survivability of threat agent, temperature control
- **Decontamination technologies**
  - e.g., effect of sanitizers commonly used in food processing against threat agents



## **Industry/Facility Countermeasures cont.**

- **Prevention Strategies**
  - **Assess facility-specific or industry-wide vulnerabilities: CARVER + Shock Vulnerability Assessment**
  - **Develop food defense plan based on results of assessment**
  - **Implement and test plan; revise if necessary**



# Government Countermeasures

## Surveillance

- Coordinate with intelligence and law enforcement agencies
- Inspect critical “nodes” in facilities
- Test for threat agents: expand government laboratory capabilities for non-traditional microbial, chemical, radiological contaminants
- Develop surveillance information technology systems
  - e.g., Consumer Complaint Monitoring System (CCMS)



# Government Countermeasures

## Preparation and Prevention

- **Conduct Vulnerability Assessments: food products, systems, or threat agents**
  - Work with industry on “Best Practices”
- **Outreach and Training:**
  - Develop food defense guidance for industry: e.g., Industry Self-Assessment Checklists, Model Food Defense Plans
  - Increase awareness (e.g., US FDA ALERT Initiative)
  - Develop and provide food defense awareness training to government employees and industry
  - International activities (e.g., MEPI Conference)
  - Food Defense Exercises
- **Research: e.g., develop laboratory methods to detect threat agents; determine effect of food processing on survivability of threat agents**





# Government Countermeasures

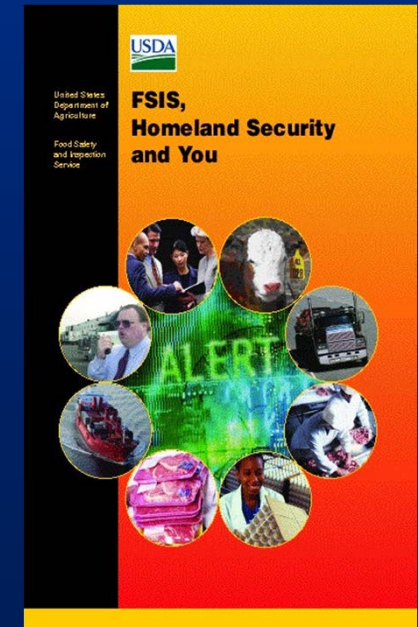
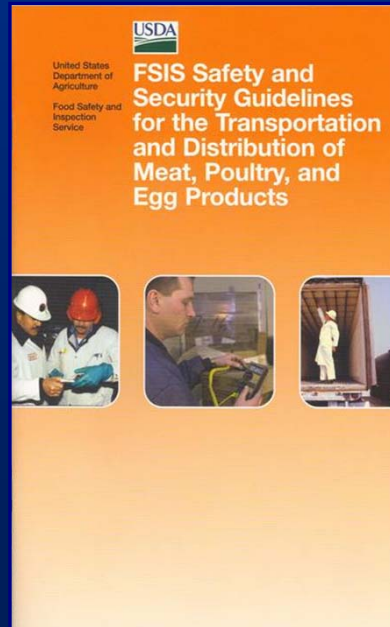
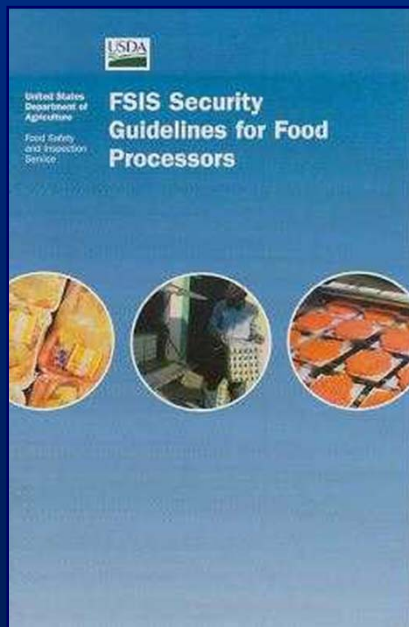
## Recovery

- Food Disposal and Facility Decontamination Guidelines for Industry:
  - U.S. FSIS, EPA, and FDA
  - Disposal guidelines for food contaminated with threat agents
  - Decontamination guidelines for food processing facilities contaminated with threat agents



# USDA Guidance Documents

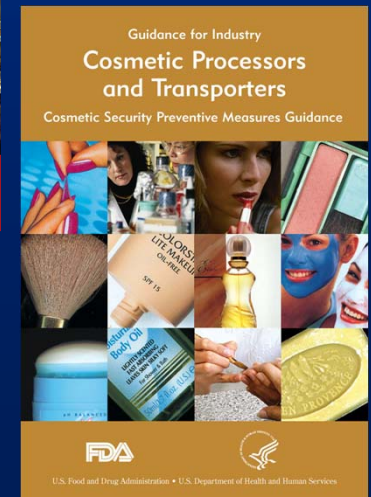
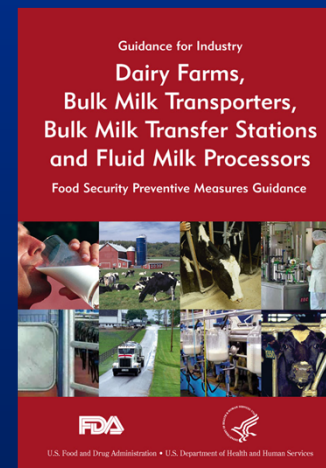
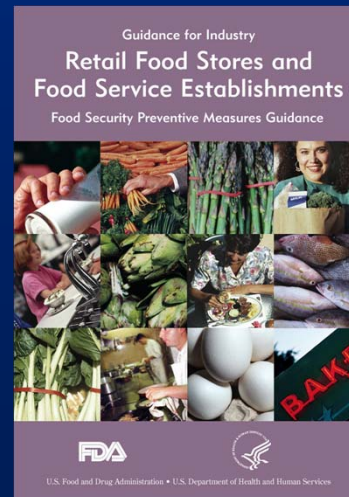
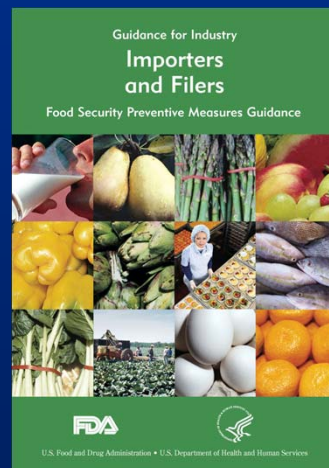
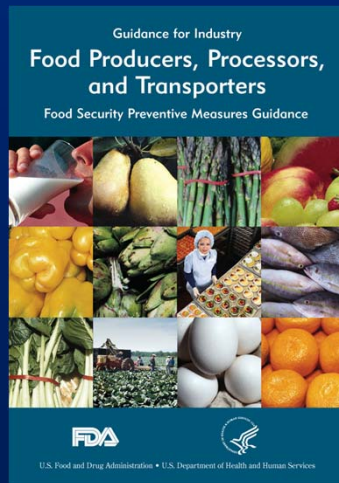
- USDA FSIS has provided food defense guidance to food processors, importers, transporters, and distributors.





## FDA Guidance Documents

- FDA CFSAN has provided food defense guidance to: food producers, processors and transporters; importers and filers; retail food stores and food service establishments; dairy industry; and cosmetic processors and transporters.





# Vulnerability Assessment Results

- **Produce – Leaf Lettuce “nodes”**
  - Cutting/Shredding
  - Spin Dryer
  - Finished Product Transport
- **Ground Beef and Beef Product “nodes”**
  - Combo Bin
  - Box of Packaged Product
  - Kibbeh (kibbe) كبة Mixing



## Discussion of Possible Countermeasures for:

- **Produce – Leaf Lettuce “nodes”**
  - **Cutting/Shredding**
    - Countermeasures?
  - **Spin Dryer**
    - Countermeasures?
  - **Finished Product Transport**
    - Countermeasures?
- **Ground Beef and Beef Product “nodes”**
  - **Combo Bin**
    - Countermeasures?
  - **Box of Packaged Product**
    - Countermeasures?
  - **Kibbeh (kibbe) كبة Mixing**
    - Countermeasures?