Food and agriculture infrastructure is a $1 trillion industry, almost entirely under private ownership and comprises an estimated 2.1 million farms, 935,000 restaurants, and more than 200,000 registered food manufacturing, processing, and storage facilities. Intentional contamination of the food supply could have significant public health and economic consequences depending on the commodity, the agent used, and where in the supply chain the contaminant was added. This product provides first responders and private-sector stakeholders an awareness of the complex operating environment that may result from intentional contamination of the food supply and identifies key collaborative partners and indicators to minimize the risk of an intentional attack on the food supply.

Although some of the examples summarized below are not directly related to terrorism, they highlight relevant mechanisms and characteristics of food-related attacks.

In 2014, a disgruntled employee at a Japanese seafood-processing company intentionally contaminated several frozen foods with the pesticide Malathion. Japanese authorities believe the worker brought Malathion to the plant and injected it into frozen foods during the manufacturing process. The employee exploited his access to the food prior to packaging to introduce the agent. The contamination resulted in at least 2,843 mild foodborne illnesses and a recall of 6.4 million packages of frozen foods.

In 2009, a disgruntled Michigan grocery store worker contaminated 200 pounds of ground beef with an insecticide containing high concentrations of nicotine. Dozens of people were sickened after eating meat purchased from a store in Grand Rapids. The employee allegedly poured Black Leaf 40 on the beef before wrapping it into one to three pound packages. After pleading guilty, the store worker was sentenced to prison and was ordered to pay restitution of $12,000.

In 2000, an employee and a former employee at a Kansas restaurant twice put a Methomyl-based pesticide into salsa, causing almost 50 people to become ill, including several requiring hospitalization. The employees were sentenced to prison and one was ordered to pay restitution of almost $500,000.

In 1999, a violent extremist group in Oregon deliberately contaminated local salmon bars with salmoneella to affect local election outcomes. The group purchased salmonella from a medical supply company and cultured it in advance of the intentional contamination. More than 750 people became ill. Two members of the group were charged and imprisoned.

**TARGETED INFRASTRUCTURE:** Food infrastructure is considered a “soft target” for deliberate attack because of the decentralized nature of the infrastructure nodes. Nodes often provide multiple entry points into the food and food supply chain and have little to no security. Examples of nodes with limited security include processing, transportation, and distribution mechanisms and facilities, while nodes with little or no security might include restaurants, cafeterias, grocery stores, and food service and storage.

Intentional contamination within the food and agricultural environment may not be immediately recognized as such until collaboration between law enforcement and lab testing is complete. State, local, tribal, and territorial, as well as public health authorities and hospitals, are likely to be among the first to recognize an initial indication of intentional or naturally occurring contamination of food. Recognition may come from a significantly greater number of people reporting unusual symptoms in the food agencies and hospitals; familiarize themselves with the policies, procedures, and resources within their area of responsibility; and make the appropriate notifications in the event of an intentional food contamination event. In addition, first responders should consider notification procedures that address the elderly, physically disabled, and foreign-language-speaking communities within their jurisdiction. The following are additional first responder and public health planning considerations:

- Build relationships with government and industry partners before an incident occurs to foster familiarity, trust, and to share reporting/information, such as facility blue prints;
- Conduct awareness training and exercises;
- Reach out to food contamination information, identification of the human or animal population and/ or plants at risk.
- A food and agriculture incident often will be distributed across multiple jurisdictions, potentially requiring the coordination of multiple incident response state, local, local, tribal, regional, national and international levels, as well as the private sector. An act of intentional food contamination, food tampering or agro-terrorism, may potentially overwhelm the capabilities of state, local, tribal, and territorial governments and may seriously challenge existing federal response capabilities. For example, many law enforcement agencies lack the sufficient resources and procedures to conduct their normal duties and investigate an incident while simultaneously enforcing widely dispersed checkpoints around the clock for the duration of the emergency.

**FOOD AND AGRICULTURE INCIDENT ANNEX**

The Federal Emergency Management Agency’s Food and Agriculture Incident Annex identifies the roles and responsibilities of police officers, inspectors, food safety officials, and other public health officials, in coordination with local, state, and federal authorities, in the event of a potential food or agriculture incident. The Incident Annex provides a framework for the coordination of food and agriculture-related activities to protect the food supply and ensure public safety, while minimizing the economic impact and public health risk. The Annex includes a list of key contacts and resources for first responders involved in the investigation and response to food and agriculture incidents.

**FIRST RESPONDER AND PUBLIC HEALTH RESPONSE PLANNING CONSIDERATIONS:** It is highly recommended that first responders establish rapport with the appropriate local public health, law enforcement, and private-sector entity possesses the authority, expertise, and resources to act unilaterally on the many complex issues that may arise in response to a food or agriculture incident, especially given the increasingly global nature of the food and agriculture system.

First responder agencies, including 911 emergency call and dispatch centers, should build relationships with public health agencies and hospitals; familiarize themselves with the policies, procedures, and resources within their area of responsibility; and make the appropriate notifications in the event of an intentional food contamination event. In addition, first responders should consider notification procedures that address the elderly, physically disabled, and foreign-language-speaking communities within their jurisdiction. The following are additional first responder and public health planning considerations:

- Identify medical centers in and around the region and assess capabilities for food contamination response;
- Report unusual illnesses or deaths with quick onset of symptoms;
- Enhance lab testing (some routine testing does not test for all potential contaminants, so enhancing testing would need to be balanced with benefit); and
- Train for evidence handling (it is important to obtain samples of suspected contaminated foods in a timely manner before they deteriorate or are discarded, as well as to gain access to any applicable surveillance videos).

**RESOURCES:** For additional guidance and training resources see the following information:

- **FOOD SAFETY AND INSPECTION SERVICE, US Department of Agriculture (USDA):** www.fsis.usda.gov
- **FOOD AND DRUG ADMINISTRATION (FDA):** www.fda.gov/food/
- **NATIONAL AGRICULTURAL LIBRARY (NAL):** foodsafety.nal.usda.gov
- **EMERGENCY SUPPORT FUNCTION PUBLIC HEALTH AND MEDICAL SERVICES:** www.fda.gov/ /fooddefense
- **EMERGENCY SUPPORT FUNCTION AGRICULTURE AND NATURAL RESOURCES:** www.fda.gov/ fooddefense
Complex Operating Environment - Food and Agriculture (continued)

**“FARM-TO-TABLE” CONTINUUM**

The majority of US food is produced through a series of processes commonly referred to as the “farm-to-table” continuum. The process comprises multiple phases, including production, processing, distribution, transportation, wholesaling, exporting/importing, retail sales, and consumption. Each component of the farm-to-table continuum is achieved in a variety of ways that is specific to the particular end product being produced, and each component requires special attention to address security concerns that reduce the chances of individuals intentionally contaminating the food supply. Ensuring safe food along all points of the farm-to-table continuum is a vital function in protecting public health. It is recommended that businesses that make up the farm-to-table continuum create a food defense plan appropriate to their operation. This plan, coupled with suspicious activity awareness, will help owners and operators to identify and implement measures to minimize the vulnerability of food products that may be intentionally contaminated or tampered with during each phase of the supply chain.

**PRIVATE-SECTOR PREVENTION AND PREPAREDNESS CONSIDERATIONS:**

Be aware of and report suspicious activity—such as unscheduled maintenance, deliveries, or unknown visitors—to appropriate authorities.

- Develop procedures for notifying appropriate authorities if a food-related emergency or suspicious incident occurs;
- Check state requirements for the recommended notification sequence. Also, keep an up-to-date list of local, state, and federal emergency, Homeland Security, and public health contacts;
- Establish such contacts and relationships in advance;
- Report threats and suspicious activity promptly to appropriate authorities;
- Develop procedures for the safe handling and disposal of contaminated products. Identify where and how to separate suspected products before salvage to allow for investigation and discovery of evidence;
- Develop procedures for handling threats and actual cases of product tampering;
- Maintain records for returned goods;
- Processors, transportation managers, and wholesale and retail distributors should ensure the traceability and recall of products;
- Keep records for trace-back and trace-forward as they are essential to containing the impact of an incident;
- Discuss security and response plans with shippers to ensure they are aligned;
- Ensure emergency contact procedures are in place. Include facility personnel, as well as shipper and customer contacts;
- Maintain established procedures for proper evidence control when tampering is suspected. Discuss the appropriate procedures to be followed to maintain control and chain of custody of potential evidence with local law enforcement, the USDA Office of Inspector General, FDA Office of Criminal Investigations or local FBI Weapons of Mass Destruction Coordinator contacts.

**PRIVATE-SECTOR PREVENTION AND PREPAREDNESS CONSIDERATIONS:**

- Personnel including processors and truck operators should be aware of:
  - Testing security or breach of secure or restricted areas of facility;
  - Payment or interest in acquiring equipment or supplies, such as chemicals not normally used in the facility or other items which could be used to adulterate food product.

- Personnel including warehouse workers and truck operators should be aware of:
  - Surveillance at facilities, which may include sketching or note taking of site or logistical components, such as delivery trucks or employee shift changes;
  - Abnormal interest in truck and delivery schedules;
  - Cargo thefts and fictitious pickups;
  - Evidence of cargo tampering.

- Personnel including stackers, cashiers, managers, and customers should be aware of:
  - Factory-sealed products which appear to have been tampered with or opened;
  - Individuals loitering or acting in a suspicious manner near food bar areas.

- Personnel including servers, food preparers, and patrons should be aware of:
  - Unusual interest in food delivery schedules, preparation, and storage;
  - Individuals wearing unusually bulky clothing that might conceal contaminants;
  - Unusual or unnecessary items in the food preparation areas;
  - Individuals loitering or acting in a suspicious manner near food bar areas.

**INDICATORS:** Some of these indicators may be constitutionally protected, and any determination of possible illicit intent should be supported by additional facts that justify reasonable suspicion. More questions or online research may be insignificant on its own, but when observed in combination with other suspicious behaviors—particularly advocacy of violence—may constitute a basis for reporting.

Individuals working in this industry include farmers, growers, ranchers, local veterinarians, county extension agents, feed and seed suppliers, truck operators, and employees of sale barns or auction houses. They should be aware of and report to appropriate authorities the following:

- Unexplained and/or unusual purchase, rental, or theft of chemical sprayers, crop-dusting aircraft, spraying vehicles, or other agricultural equipment;
- Identification of disease, particularly a new strain, in an unusual area where it is not expected;
- Unusual interest in acquisition of vaccines or medications for a crop or livestock disease;
- Unusual interest in acquiring or possession of maps of agricultural asset concentrations;
- Sudden, unexplained, illness or death of livestock herds or animals in a local area.