2011 Sector Critical Infrastructure Protection Annual Report

for the Food and Agriculture Sector

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FDA Food and Drug Administration

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Food and Agriculture Sector

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Executive Summary

The Food and Agriculture Sector (hereafter referred to as the FA Sector[1]) is composed of complex production, processing, and delivery systems and has the capacity to feed people within and beyond the boundaries of the Nation. These food and agriculture systems, which are almost entirely under private ownership, operate in highly competitive global markets, strive to operate in harmony with the environment, and provide economic opportunities and improved quality of life for rural and urban citizens of the United States and others around the world.

The Sector-Specific Agencies (SSAs) for the FA Sector are the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services' (HHS's) U.S. Food and Drug Administration (FDA). The USDA is responsible for production agriculture and food that includes meat; poultry; and frozen, liquid, and dried egg products. FDA is responsible for all other food products. The SSAs have been assigned responsibility for overseeing and coordinating protection and resilience efforts for the FA Sector.

> **Vision Statement**
>
> *"The Food and Agriculture Sector acknowledges the Nation's critical reliance on food and agriculture. The sector will strive to ensure that the Nation's food and agriculture networks and systems are secure, resilient, and rapidly restored after all-hazards incidents. Public and private partners aim to reduce vulnerabilities and minimize consequences through risk-based decision-making and effective communication."*

No single government department or agency has sole responsibility for homeland security; rather, homeland security is a partnership effort. Significant progress in meeting homeland security goals can only be made by establishing and sustaining partnerships among all governmental levels and with those who own the critical infrastructure. The FA Sector Coordinating Council (FASCC) is a self-governing body that represents the food and agriculture industry and provides a forum for the private sector to discuss infrastructure protection issues or to communicate with the government through the FA Sector Government Coordinating Council (FASGCC). The FASGCC, with representation from Federal and State, local, tribal, and territorial (SLTT) governments, is the public sector segment of the food and agriculture public-private partnership framework. The objective of the FASGCC is to provide effective coordination of food and agriculture-related security strategies and activities, policy, and communication both across the government and between the government and the private sector in support of the Nation's homeland security mission. FASGCC and FASCC leadership jointly developed a vision statement in 2009 to highlight the importance of leveraging public-private partnerships that can help ensure the security and resilience of the FA Sector.

In preparation for the *2011 Food and Agriculture Sector Annual Report*, FASGCC and FASCC leadership considered existing reporting requirements, including Homeland Security Presidential Directives (HSPDs) 7 and 9; guidance from the U.S. Department of Homeland Security (DHS) Office of Infrastructure Protection (IP) (including guidance regarding partnership and critical infrastructure); and new requirements from the 2011 FDA Food Safety Modernization Act (FSMA), including preparedness, detection, emergency response, and recovery. This analysis resulted in the identification of six primary themes: partnership, critical infrastructure,

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[1] A list of the acronyms used in this report follows section 9.

preparedness, detection, emergency response, and recovery. By implementing activities and programs under these themes, the FA Sector is able to support the following overarching outcome statements:

- Sectors and SLTT entities develop and sustain coordinating bodies and foster public-private partnerships that: (1) are representative of critical infrastructure assets, systems, functions and networks, and other significant infrastructure stakeholders; and (2) enable critical infrastructure protection, resilience coordination, and information sharing among and between critical infrastructure stakeholders.

- Sectors and SLTT entities manage risk to Level 1 and Level 2 assets, systems, functions, and networks, as well as those identified as critical by sectors and SLTT entities, by: (1) developing methods to identify and analyze relevant risks; (2) conducting ongoing risk analysis of relevant risks; (3) setting risk management goals and objectives informed by risk analysis; (4) prioritizing and implementing policies, programs, and resources based on risk reduction goals, objectives, and identified gaps; and (5) measuring the effectiveness of policies and programs in achieving stated risk reduction goals and objectives.

- Sectors and SLTT entities prepare for and respond to incidents in order to minimize disruption of critical infrastructure and associated consequences.

The development process for the *2011 Food and Agriculture Sector Annual Report* included a request for input and review by all partners (Federal, SLTT, and private industry) in an effort to reflect the status and progress of the entire FA Sector.

While significant progress has been made, challenges remain. As discussed in section 9, improvements can be made that will facilitate better coordination and collaboration on and execution of FA Sector goals and objectives. Examples of the primary areas in need of improvement include the following:

- Increasing awareness and engagement;
- Identifying and addressing interdependencies;
- Leveraging resources effectively;
- Enhancing information–sharing activities; and
- Tracking and measuring progress.

To improve protection of the FA Sector, SSAs and sector partners are moving forward on many key actions. The FA Sector has an active FASGCC and FASCC that coordinate protection and resilience activities. In 2010, both FA Sector Coordinating Councils developed value proposition statements to improve awareness and engagement on FA Sector issues. These efforts will continue and will form the foundation for broader strategic planning initiatives.

Selected 2010–2011 FA Sector Accomplishments

- *The FASGCC and FASCC developed a value proposition and initiated strategic planning efforts (section 3.2).*

- *The Symposium on Food and Agriculture Security, hosted by the Multi-State Partnership for Security in Agriculture, brought together 230 attendees to discuss issues, challenges, and proposed solutions for improving critical infrastructure protection and resilience (section 3.6).*

- *A total of 30 States successfully added FA Sector assets, systems, and clusters as part of the 2011 National Critical Infrastructure Prioritization Program (NCIPP) data call. This marked the first time that FA Sector assets were included in this prioritization, an accomplishment that is the direct result of the collaborative partnership among DHS, SSAs, and SLTT partners (section 4).*

- *The USDA's Food Safety and Inspection Service (FSIS) completed the Fifth Annual Food Defense Plan Survey, which found that 74 percent of all FSIS-regulated establishments have a functional food defense plan, well exceeding the FY 2010 goal of 67 percent (section 5.14).*

- *Both the FDA (section 5.18.1) and USDA (section 5.18.2) launched tools to assist owners and operators with the identification of mitigation strategies and preventive measures.*

- *The Extension Disaster Education Network (EDEN) increased the number of Strengthening Community Agrosecurity Planning (S-CAP) workshops to 19, now covering 16 States. This effort includes 12 States that have implemented train-the-trainer programs to enable community partners to build the capacity to handle agricultural issues during an emergency or disaster, improve networking, and develop community agrosecurity planning teams (section 6.7).*

- *The Food Emergency Response Network (FERN) continued to expand its capability and capacity through proficiency testing for chemical and microbiological contaminants (section 7.1.3) and was able to demonstrate all-hazards response capability through activation in response to Deepwater Horizon (section 7.1.4).*

- *The DHS Office of Health Affairs launched a beta version of the Food and Agriculture Readiness Measurement (FARM) Toolkit for Federal partners in January 2011 and for SLTT partners in April 2011. The toolkit features a questionnaire that helps to assess a State's level of readiness to respond to a food incident (section 8.10).*

FA Sector partners will continue to identify and address both current and future challenges, adapting efforts as appropriate based on achieved progress and evolving threats. At the national level, an understanding of these risks should be used to focus Federal and sector partners' attention on areas of critical infrastructure that warrant additional resources or other changes. Although the National Infrastructure Protection Plan partnership model is useful, DHS and the SSAs still need to better coordinate their efforts to identify and address interdependencies, identify common challenges, and accomplish critical infrastructure protection and resilience goals.

Implementing the sector's vision, goals, objectives, and milestones requires coordination with all partners when evaluating existing or developing new protective programs and measures of success. These collaborative efforts will help owners and operators to be better prepared to prevent, detect, mitigate, respond to, and recover from terrorist attacks, other intentional acts, natural disasters, and other hazards, thereby better protecting the Nation's FA Sector.

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Section 1: Introduction

The Food and Agriculture Sector (hereafter referred to as the FA Sector) is composed of complex production, processing, and delivery systems and has the capacity to feed people within and beyond the boundaries of the Nation. These food and agriculture systems, which are almost entirely under private ownership, operate in highly competitive global markets, strive to operate in harmony with the environment, and provide economic opportunities and improved quality of life for rural and urban citizens of the United States and others around the world.

The Sector-Specific Agencies (SSAs) are the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services' (HHS's) U.S. Food and Drug Administration (FDA). The USDA is responsible for production agriculture and food that includes meat; poultry; and frozen, liquid, and dried egg products. FDA is responsible for all other food products. The SSAs have been assigned responsibility for overseeing and coordinating protection and resilience efforts for the FA Sector.

1.1 Background on Government and Sector Coordinating Councils

The National Strategy for Homeland Security and the Homeland Security Act of 2002 served to mobilize and organize the Nation to secure our country from terrorist attacks. U.S. Department of Homeland Security (DHS) goals to help prepare for and respond to such events are set forth in Homeland Security Presidential Directives (HSPDs) 5, 7, 8, and 9. HSPD-5 ensures that all levels of government that are responding to an incident of national significance have the capability to work efficiently and effectively together by using a common national domestic incident management approach. HSPD-7 focuses on issues concerning protection of all national critical infrastructure, the majority of which are owned and operated by the private sector. HSPD-8 provides guidance on how to prepare for such a response, including prevention activities. HSPD-9 represents a major step toward establishing a comprehensive national policy to defend the critical infrastructure sectors against terrorist attacks, major disasters, and other emergencies.

No single government department or agency has sole responsibility for homeland security; rather, homeland security is a partnership effort. Significant progress in meeting homeland security goals can only be made by establishing and sustaining partnerships among all governmental levels and with those who own the critical infrastructure. The FA Sector Coordinating Council (FASCC) is a self-governing body that represents the food and agriculture industry and provides a forum for the private sector to discuss infrastructure protection issues or to communicate with the government through the FA Sector Government Coordinating Council (FASGCC).

The FASGCC, with representation from Federal, State, local, tribal, and territorial (SLTT) governments, is the public sector segment of the food and agriculture public-private partnership framework. The objective of the FASGCC is to provide effective coordination of food and agriculture security strategies and activities, policy, and communication both across the

government and between the government and the private sector in support of the Nation's homeland security mission.

1.2 Overarching Food and Agriculture Sector Goals and Objectives

In preparation for the 2011 FA Sector Annual Report, FASGCC and FASCC leadership considered existing reporting requirements, including HSPD-7, HSPD-9, and guidance from the DHS/Office of Infrastructure Protection (IP) (including guidance regarding partnership and critical infrastructure), as well as new requirements from the 2011 FDA Food Safety Modernization Act (FSMA), including preparedness, detection, emergency response, and recovery. This analysis resulted in the identification of five major themes to support the organization of goals and desired outcomes. The themes and associated goals/outcomes are as follows.

1.2.1 Theme: Partnership

Goals/Outcomes:
Enhance public-private partnerships by:

- Facilitating partnerships between public and private entities to help coordinate and enhance the protection of the agriculture and food system of the United States;

- Providing for the regular and timely interactions and exchange of information between public and private sectors relating to the security of the agriculture and food system (including intelligence information); and

- Identifying best practices and methods for improving the coordination among Federal, SLTT, and private sector preparedness and response plans for agriculture and food defense.

1.2.2 Theme: Critical Infrastructure

Goals/Outcomes:
Manage risk to Level 1 and Level 2 assets, systems, functions, and networks, as well as to those identified as critical by sectors and SLTT partners, by:

- Identifying and analyzing relevant risks;

- Setting risk management goals and objectives based on risk analysis;

- Implementing prioritized policies and programs based on the risk reduction goals, objectives, and gaps; and

- Measuring the effectiveness of policies and programs in achieving the risk reduction goals and objectives.

1.2.3 Theme: Preparedness

Goals/Outcomes:
Enhance the preparedness of the agriculture and food system by:

- Conducting vulnerability assessments (VAs);

- Mitigating vulnerabilities;

- Improving communication and training;

- Developing and conducting exercises to test decontamination and disposal plans;

- Developing modeling tools to improve event consequence assessment and decision support; and

- Preparing risk communication tools and enhancing public awareness through outreach.

1.2.4 Theme: Detection

Goals/Outcomes:
Improve food and agriculture system detection capabilities by:

- Identifying contamination in food products at the earliest possible time; and
- Conducting surveillance to prevent the spread of diseases.

1.2.5 Theme: Emergency Response

Goals/Outcomes:
Ensure an efficient response to agriculture and food emergencies by:

- Immediately investigating animal disease outbreaks and suspected food contamination;

- Preventing additional human illnesses;

- Organizing, training, and equipping the animal, plant, and food emergency response teams of the Federal and SLTT governments;

- Designing, developing, and evaluating training and exercises carried out under agriculture and food defense plans; and

- Ensuring consistent and organized risk communication to the public by the Federal and SLTT governments and the private sector.

1.2.6 Theme: Recovery

Goals/Outcomes:
Secure agriculture and food production after an agriculture or food emergency by:

- Working with the private sector to develop business continuity plans that will enable agriculture, food production, and international trade to resume rapidly;

- Conducting exercises of emergency response plans with the goal of long-term recovery results;

- Rapidly removing and effectively disposing of contaminated agriculture and food products and infected plants and animals; and

- Decontaminating and restoring areas affected by an agriculture or food emergency.

This document also considers and addresses many of the outcome statements identified in the *2011 Sector Critical Infrastructure Protection Annual Report Guidance, Appendix A: Critical Infrastructure Risk Management Enhancement Initiative Outcomes and Metrics*. Sector and SLTT Outcome Statements are addressed as follows:

1. Section 3: Sectors and SLTT entities develop and sustain coordinating bodies and foster public-private partnerships that: (1) are representative of critical infrastructure assets, systems, functions and networks, and other significant infrastructure stakeholders; and (2) enable critical infrastructure protection, resilience coordination, and information sharing among and between critical infrastructure stakeholders.

2. Sections 2–4: Sectors and SLTT entities manage risk to Level 1 and Level 2 assets, systems, functions, and networks, as well as those identified as critical by sectors and SLTT entities, by:
   a. Developing methods to identify and analyze relevant risks;
   b. Conducting ongoing risk analysis of relevant risks;
   c. Setting risk management goals and objectives informed by risk analysis;
   d. Prioritizing and implementing policies, programs, and resources based on risk reduction goals, objectives, and identified gaps; and
   e. Measuring the effectiveness of policies and programs in achieving stated risk reduction goals and objectives.

3. Sections 5–8: Sectors and SLTT entities prepare for and respond to incidents in order to minimize disruption of critical infrastructure and associated consequences.

As adoption of protective measures and implementation of protective programs for food and agriculture defense are largely voluntary, many of the metrics identified by the DHS guidance cannot be captured. The FA Sector is committed to working with DHS to continue to refine this process, fully implement the National Infrastructure Protection Plan (NIPP) Risk Management Framework, and measure the effectiveness of food and agriculture defense programs. Throughout the document and in attachment A, metrics are provided where available. Future reports will build on this information to effectively demonstrate progress toward goals and outcomes.

Through implementation of risk mitigation activities to address these themes, goals, and outcomes, the FA Sector will fulfill its mission. In 2009, the FASGCC and FASCC established the following vision/mission statement:

> "The Food and Agriculture Sector acknowledges the Nation's critical reliance on food and agriculture. The sector will strive to ensure that the Nation's food and agriculture networks and systems are secure, resilient, and rapidly restored after all-hazards incidents. Public and private partners aim to reduce vulnerabilities and minimize consequences through risk-based decision-making and effective communication."

1.3 Status of 2010 Food and Agriculture Sector Goals

In 2010, the FASGCC and FASCC identified 11 activity-focused goals to implement during the course of the year. While progress has been made on many of these activities, additional efforts are continuing in 2011. These goals are summarized as follows:

- **2010 Goal 1: Finalize/Communicate the FASCC Value Proposition.** The FASCC developed a strategic roadmap with a value proposition during the 2010 reporting period. Finalizing and communicating the value proposition is an ongoing activity for 2011. Additional details are available in section 3.2.

- **2010 Goal 2: Begin developing a FASGCC Value Proposition.** FASGCC members held their first meeting to discuss the value proposition on July 28, 2010. Following that meeting, a draft strategic plan and a value proposition document were developed. Discussions continued on October 27, 2010, and a final document was approved by consensus during the March 3, 2011, quarterly meeting. Additional details are available in section 3.2.

- **2010 Goal 3: Work with the U.S. Department of Homeland Security to enhance the visibility of the Food and Agriculture Sector.** This activity is ongoing, although significant efforts were made during 2010, including development of a logo for the FA Sector and increased coordination on a range of issues impacting the sector. Specific examples are highlighted in section 3.

- **2010 Goal 4: Continue to work toward the development of a three-year exercise and training calendar.** Work on this activity continues to be an area of focus in 2011.

- **2010 Goal 5: Integrate and collaborate with the U.S. Department of Homeland Security Office of Health Affairs on the Sector Benchmarking project.** A portal on FoodSHIELD has been developed for food/agriculture readiness tools. A grants tutorial is currently available. In November, the food portion of the farm tool should be available. A pilot with up to six States was initiated in January 2011. A contract has been signed between DHS and the National Association of State Departments of Agriculture (NASDA) to update the model State response plan. The revised model plan will be completed by October 2012.

- **2010 Goal 6: Continue to refine and develop information sharing, collaboration, and communications processes, including exercising the Information Sharing Working Group processes, providing an after-action report and improvement plan findings from exercises to sector partners, and further developing the infrastructure communications grid (i.e., Web-based platforms).** The Information Sharing Working Group (ISWG) processes were exercised during tabletop exercises (TTXs) in March 2010 and July 2010. All 6 processes have been validated. The Suspicious Activity Reporting process will need to be reviewed and revised as guidance is provided on how sector Suspicious Activity Reporting processes will be incorporated into fusion centers and the National Suspicious Activity Reporting initiative. After-Action Reports for the March 2010 and July 2010 exercises have been completed and posted to the Homeland Security Information Network–Food and Agriculture (HSIN-FA) portal.[2] The improvement plan for the March 2010 exercise has been initiated. The ISWG developed an Outreach & Communications Guide to provide guidelines for improving the HSIN-FA portal, integration with FoodSHIELD,[3] and training on the information-sharing processes and on making them more operational.

- **2010 Goal 7: Produce a consolidated guide of available food and agriculture defense guidance, initiatives, tools, and resources.** This goal has been put on hold pending a review of existing materials and resources that could be used to compile this information. The *2010 Food and Agriculture Sector-Specific Plan* (SSP) will serve as a resource until a more comprehensive evaluation is complete.

- **2010 Goal 8: Develop a model private sector Food Defense Prevention Template utilizing existing and forthcoming FDA and USDA materials.** This goal will be initiated through the FASCC strategic roadmap initiative.

- **2010 Goal 9: Develop a livestock and poultry business continuity plan to be exercised in 2011.** The FASCC is exploring the potential use of the Secure Egg Supply (SES) Plan—a science-based preparedness plan developed to address a potential outbreak of highly pathogenic avian influenza (HPAI)—as a model for a TTX. The SES plan was developed by an Egg Sector Working Group, which includes representatives of the egg industry, USDA/Animal and Plant Health Inspection Service (APHIS)/Veterinary Services (VS), the University of Minnesota, and Iowa State University (ISU). The

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2   Available at: https://cs.hsin.gov/C4/FA/default.aspx.

3   Available at: http://www foodshield.org.

National Pork Board also will be contacted to determine the potential utilization of a business continuity plan that is in the early stages of development.

▪ **2010 Goal 10: Explore educational avenues that can assist with increasing the private sector's use and understanding of FoodSHIELD.** FoodSHIELD and HSIN-FA were promoted at multiple conferences and venues throughout the year. In addition, efforts were initiated to expand access to include industry contacts linked through the Food and Agriculture Sector Criticality Assessment Tool (FASCAT) assessment process. Additional details are available in section 3.5.

▪ **2010 Goal 11: Continue sector utilization and expansion of Food and Agriculture Sector Criticality Assessment Tool for 2010.** FA Sector assets were accepted for inclusion on the Level 2 list for the first time during the 2010/2011 National Critical Infrastructure Prioritization Program (NCIPP) data call. Meetings among State representatives, FASGCC leadership, and DHS were held in January 2010 and October 2010 to discuss the data call process. Approximately 17 onsite State workshops and 30 Webinars were conducted throughout the year to provide training on and to assist with FASCAT utilizaton. Additional details are available in section 4.

1.4 Document Overview

The 2011 FA Sector Annual Report includes updates on protective and resilience programs and initiatives being conducted or planned by the SSAs and other sector partners (e.g., Federal, SLTT, and private industry) and highlights many protection and resilience efforts for the reporting period from May 1, 2010, to April 30, 2011. Activities described in this document represent significant accomplishments during the reporting cycle. As in previous years, this year's reporting process included an SSA request for input and review by all sector partners in an effort to reflect the progress of the entire sector.

This document contains the following sections:

▪ **Section 1: Introduction.** This section provides an introduction that includes background information, goals and objectives, and an overview of the document.

▪ **Section 2: Sector Risk Considerations.** This section introduces risk terminology as defined by DHS and the FA Sector and provides a high-level overview of the risks confronting the sector as informed by the National Risk Profile.

▪ **Section 3: Partnership.** This section focuses on implementation of the partnership, highlighting activities of the FA Sector's coordinating councils (i.e., the FASCC and FASGCC), cross-sector initiatives, SLTT collaborations, information sharing, and related collaborative efforts.

▪ **Section 4: Critical Infrastructure Prioritization.** This section focuses on efforts associated with the NCIPP data call process, as well as efforts associated with the

identification of facilities and assets for the Level 1 and Level 2 list and the implementation of countermeasures to reduce risk. The section integrates Federal coordination efforts with SLTT efforts and highlights challenges that are unique to the FA Sector.

▪ **Section 5: Food Defense.** This section focuses on food defense initiatives and highlights activities and efforts associated with partnerships, critical infrastructure, preparedness, detection, emergency response, and recovery.

▪ **Section 6: Agriculture Defense.** This section focuses on agriculture defense initiatives and highlights activities and efforts associated with partnerships, critical infrastructure, preparedness, detection, emergency response, and recovery.

▪ **Section 7: Laboratory Efforts.** This section focuses on laboratory efforts, including the Food Emergency Response Network (FERN); the National Animal Health Laboratory Network (NAHLN); the National Plant Diagnostic Network (NPDN); interagency collaboration; method development and research; training and exercises; and supporting infrastructure for preparedness, detection, emergency response, and recovery.

▪ **Section 8: Other Sector Activities.** This section focuses on other FA Sector activities that are not addressed in sections 3 through 7. Many specific food safety accomplishments are included in this section.

▪ **Section 9: Summary of Sector Challenges and Path Forward.** This section serves as a summary of areas for improvement and preliminary findings identified in sections 3 through 8. This section also highlights areas of focus for the next reporting period and addresses long-term goals and objectives, including strategic planning efforts within the FA Sector Coordinating Councils.

▪ **Attachment A: FA Sector Coordinating Councils Project Summary and Select 2010/2011 Accomplishments.** This section lists food and agriculture defense projects active during the reporting period and provides metrics of progress, where available.

▪ **Attachment B: FA Sector Government and Sector Coordinating Councils Membership.** This section provides a current membership listing of both the FASGCC and FASCC, along with a brief description of each member organization and a link to its Web site.

▪ **Attachment C: National Center for Biomedical Research and Training.** This section provides a listing of direct delivery and train-the-trainer classes targeting the FA Sector that were provided by the National Center for Biomedical Research and Training (NCBRT) between May 1, 2010, and April 30, 2011.

Section 2: Sector Risk Considerations

The FA Sector is composed of complex production, processing, and delivery systems and encompasses upwards of four million assets, including some two million farms;[4] 900,000+ restaurants; 100,000+ food retail establishments; more than 166,000 registered domestic food manufacturing, processing, and holding facilities (including storage tanks and grain elevators)[5]; and approximately 252,400 registered foreign facilities. This sector is dominated by small businesses that employ the majority of the food industry workforce. The $2.1 trillion food, beverage, and consumer packaged goods industry employs 14 million workers and contributes more than $1 trillion in added value to the Nation's economy, accounting for roughly one-fifth of the Nation's economic activity.[6] The FA Sector supply chain operates at the international level with more than 20 percent of all U.S. imports being food products.

The FA Sector acknowledges the Nation's critical reliance on food and agriculture and continues to strive to ensure that the Nation's food and agriculture networks and systems are secure and resilient and will be rapidly restored after all-hazards incidents by working collaboratively in partnerships with all applicable stakeholders. Public and private partners aim to reduce vulnerabilities and minimize consequences through risk-based decisionmaking and effective communication.

Many sector assets defy traditional physical security practices because they are not "brick and mortar" entities, like buildings, bridges, or dams. Instead, they are open areas (i.e., farms, ranches, or livestock transport areas) and complex systems that span the globe. Sector assets, including processing and distribution facilities and farms, are vulnerable to livestock and crop diseases, food-borne pathogens, pests, or poisonous agents that occur naturally, are unintentionally introduced, or are intentionally delivered by acts of terrorism. Sector partners have acknowledged the importance of early awareness of any threat agent within the sector's systems.

DHS defines risk[7] as the potential for an unwanted outcome resulting from an incident, event, or occurrence, as determined by its likelihood and the associated consequences. DHS risk assessments are defined as the product or process that collects information and assigns values to risks. SSAs use food safety risk assessments to determine the quantitative or qualitative value of risk attributed to exposure to an identified commodity contaminated with a biological or chemical hazard.

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4   *Louisiana Farm Reporter*, Volume 11, Number 6, March 17, 2011. Available at: http://www.nass.usda.gov/ Statistics_by_State/Louisiana/Publications/Farm_Reporter/Ff031711.pdf. Accessed April 13, 2011.

5   Food Facilities Registration Statistics — December 1, 2010. Available at: http://www.fda.gov/Food/Guidance ComplianceRegulatoryInformation/RegistrationofFoodFacilities/ucm236512.htm. Accessed April 14, 2011.

6   USDA Recognizes Work of Farmers and Ranchers on National Ag Day — March 15, 2011. http://www fsa.usda.gov/FSA/mobileNewsReleases?area=newsroom&subject=landing&topic=ner&newstype=n ewsrel&type=detail&item=nr_20110315_rel_0120.html. Accessed April 13, 2011.

7   Available at: http://www.dhs.gov/xlibrary/assets/dhs_risk_lexicon.pdf. Accessed April 15, 2011.

DHS defines vulnerability[8] as a physical feature or operational attribute that renders an entity open to exploitation or susceptible to a given hazard and a VA as the process for identifying physical features or operational attributes that render an entity, asset, system, network, or geographic area susceptible or exposed to hazards. SSAs use VAs to identify, quantify, and prioritize vulnerabilities in an asset, system, or network. These assessments are an especially useful approach to prioritizing actions that can, in turn, mitigate identified vulnerabilities.

DHS conducts a variety of risk assessments for the purpose of informing priorities, developing or comparing courses of action, and informing decisionmaking. As specified in the NIPP, the core criteria for risk assessments identify the characteristics and information needed to produce results that can contribute to cross-sector risk comparisons. These criteria include both the analytic principles that are broadly applicable to all parts of a risk methodology and specific guidance regarding information needed to understand and address each of the three components of the risk equation: consequence, vulnerability, and threat. Risk assessments are conducted using a broad range of methodologies by many critical infrastructure partners to meet their own decisionmaking needs. Whenever possible, DHS seeks to use information from partners' risk assessments to contribute to an understanding of risks across sectors and throughout the Nation. Thus, adherence to the NIPP core criteria will facilitate the broadest applicability of existing assessments. Recognizing that many risk assessment methodologies are under development and others evolve in a dynamic environment, the core criteria for risk assessment methodologies also serve as a guide to future adaptations.

As defined in the NIPP, basic analytic principles ensure that risk assessments are:

- **Documented.** The methodology and the assessment must clearly document what information is used and how it is synthesized to generate a risk estimate. Any assumptions, weighting factors, and subjective judgments need to be transparent to the user of the methodology, its audience, and others who are expected to use the results. The types of decisions that the risk assessment is designed to support and the time frame of the assessment (e.g., current conditions versus future operations) should be given.

- **Reproducible.** The methodology must produce comparable, repeatable results, even though assessments of different critical infrastructure may be performed by different analysts or teams of analysts. It must minimize the number and impact of subjective judgments, leaving policy and value judgments to be applied by decisionmakers.

- **Defensible.** The risk methodology must logically integrate its components, making appropriate use of the professional disciplines relevant to the analysis, as well as be free from significant errors or omissions. Uncertainty associated with consequence estimates and confidence in the vulnerability and threat estimates should be communicated.

- **Complete.** The methodology should assess consequence, vulnerability, and threat for every defined risk scenario and follow the more specific guidance for each.

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[8] Available at: http://www.dhs.gov/xlibrary/assets/dhs_risk_lexicon.pdf. Accessed April 15, 2011.

During the reporting period, SSAs and subject matter experts in the FA Sector participated in multiple DHS-led risk assessment efforts. Because of the sensitivity of the analyses, the majority of the DHS-developed risk assessments are classified. As appropriate, DHS encourages those partners in the infrastructure protection community who have the appropriate security clearance and a need-to-know to use the assessments to inform their infrastructure protection activities.

Under HSPDs 10, 18, and 22, DHS has conducted biennial terrorism risk assessments since 2006: the Biological Terrorism Risk Assessment (BTRA); the Chemical Terrorism Risk Assessment (CTRA); the Radiological and Nuclear Terrorism Risk Assessment (RNTRA); and the Integrated Chemical, Biological, Radiological, and Nuclear (CBRN) Terrorism Risk Assessment (ITRA). Federal agency stakeholders provide input on the scope and content of each terrorism risk assessment by participating in working groups. Each assessment incorporates a broad set of scenarios that consider multiple routes of exposure; multiple targets; different dissemination approaches and scales of attack; and modeling data from sources across government, academic, and private sectors. Agricultural terrorism modeling, first considered in the BTRA, includes scenarios using both foreign animal diseases (FADs) and plant pathogens. Each updated assessment has included refinements to the methodology and technical approach that are guided by input obtained from HHS, FDA, USDA, the U.S. Environmental Protection Agency (EPA), the intelligence community, other Federal agencies and stakeholders, and the National Academy of Sciences.

Attack scenarios that aim to exploit the U.S. food supply constitute one set of terrorism attack scenarios considered across the BTRA, CTRA, RNTRA, and ITRA. DHS works closely with the FDA and USDA to design scenarios and assess the morbidity, mortality, and economic risk of terrorism attacks involving food production and distribution networks. In doing so, the DHS terrorism risk assessments inform (1) the relative risk and identity of credible, high-impact threats disseminated in food; (2) food attack vulnerabilities and knowledge gaps; and (3) the impact of potential risk management strategies and investments to prevent, prepare for, and mitigate attacks exploiting the FA Sector.

During the reporting period, DHS supported the following Terrorism Risk Assessment projects for the FA Sector:

- **National Center for Food Protection and Defense (NCFPD) Chemical, Biological, and Radiological (CBR) Food Consequence Modeling Study.** The report describes the methodology used to group foods based on the similarity of their production, supply chains, and consumption characteristics. The report categorized 138 food products into 10 clusters. The study developed a multicriteria decision analytic tool for clustering and down-selection of exemplar foods represented in the Terrorism Risk Assessments.

- **2011 Integrated CBRN Terrorism Risk Assessment Food Consequence Modeling Report.** The 2011 ITRA report provides food risk associated with CBR terrorism. It evaluates the impact of food recall and recovery timelines on fatalities and illnesses associated with contamination of the food supply chain. The study refined CBR food terrorism modeling and assisted stakeholders in understanding the potential risk and consequences associated with food supply chain contamination.

In addition, during the reporting period, USDA and FDA worked with DHS in the development of a National Risk Estimate for Global Supply Chain Security that addressed potential risks to the Food and Agriculture Sector and other critical infrastructure sectors.

Section 4.1 discusses the application of FASCAT to help identify and prioritize critical infrastructure and to State efforts to assess risk as part of this process.

Section 3: Partnership

As stated previously, no single government department or agency has sole responsibility for homeland security; rather, homeland security is a partnership effort. One mechanism through which significant progress can be made in meeting homeland security goals is through establishing and sustaining partnerships among all governmental levels and with those who own the critical infrastructure. Within the FA Sector, the majority of critical infrastructure is owned and operated by private industry. This operating condition requires that collaborative partnerships with Federal, SLTT, the private sector, and academia be established to set goals and objectives; identify assets, systems, and networks; assess risks; prioritize; implement programs; and measure effectiveness as outlined in the NIPP Risk Management Framework.

Partnership is a pervasive theme throughout all FA Sector activities, including critical infrastructure (section 4), food defense (section 5), agriculture defense (section 6), laboratory efforts (section 7), and other sector activities (section 8). At the sector level, the FASGCC and FASCC:

- Facilitate partnerships between public and private entities to help coordinate and enhance the protection of the agriculture and food system of the United States;

- Provide for the regular and timely interaction and exchange of information between public and private sectors relating to the security of the agriculture and food system (including intelligence information); and

- Identify best practices and methods for improving the coordination among Federal, SLTT, and private sector preparedness and response plans for agriculture and food defense.

This section highlights overarching partnership efforts coordinated by the FASGCC and/or FASCC and related overarching efforts across the FA Sector.

3.1 Government and Sector Coordinating Councils Membership and Participation

The FASGCC and the FASCC contain 59 and 77 members, respectively. Members have generally been mapped to stakeholder categories (see figure 3-1 and figure 3-2) for the purposes of summarizing information. However, neither group operates on the basis of these categories.

The FASGCC conducts monthly conference calls and joint quarterly meetings with the FASCC. The 59 members of the FASGCC
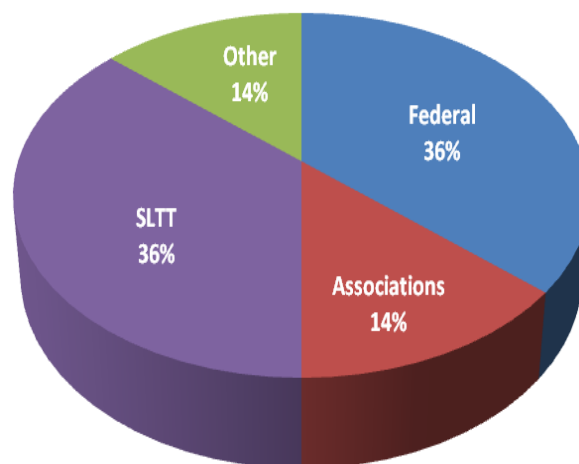
Figure 3-1: Summary of FASGCC Membership

represent 22 agencies/organizations, including Federal, SLTT, associations, and other entities. On average, 24 members representing 67 percent of FASGCC agencies/organizations participated in six monthly FASGCC calls, and 32 members representing 60 percent of FASGCC agencies/organizations participated in three joint FASGCC/FASCC quarterly meetings. The highest level of FASGCC member participation took place at the March 2011 FASGCC/FASCC meeting, at which 36 members representing 73 percent of FASGCC agencies/organizations were present.
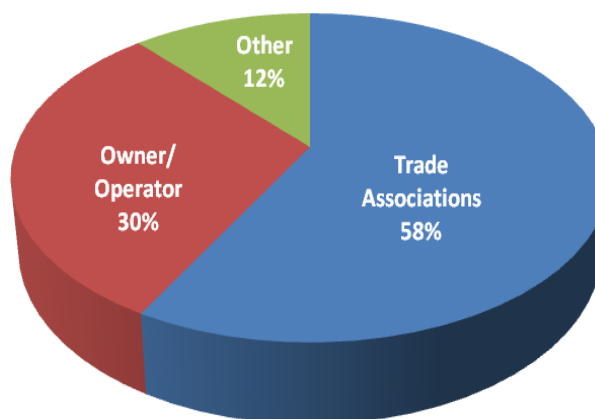
Figure 3-2: Summary of FASCC Membership

The 77 members of the FASCC represent 51 agencies/organizations, including trade associations, owners and operators, and others. Information is provided to FASCC members through e-mail distribution. On average, 12 members representing 44 percent of FASCC agencies/organizations participated in three joint FASGCC/FASCC quarterly meetings. The highest level of FASCC member participation was at the March 2011 FASGCC/FASCC meeting, at which 16 members representing 27 percent of FASCC agencies/organizations were present.

As summarized above, stakeholders are well represented in FASGCC and FASCC meetings and activities. States with successful nominations for Level 2 assets/facilities, as well as a limited number of Level 2 owners and operators, are represented. As we continue to implement efforts described in section 4, we expect participation by these entities to increase. Attachment B provides a list of organizations engaged in FASGCC and FASCC efforts.

The FA Sector relies on representatives from these organizations to disseminate information to the broader sector and also to raise issues from the broader sector for discussion, as appropriate. Figure 3-3 illustrates the geographic diversity of FASGCC and FASCC members. It is important to note that for some private sector entities, the location of their headquarters or representative's reporting office is what is mapped. As many corporations have diverse operations throughout the United States, the geographic coverage of the FASGCC and FASCC representatives is much broader than what is reflected in figure 3-3.
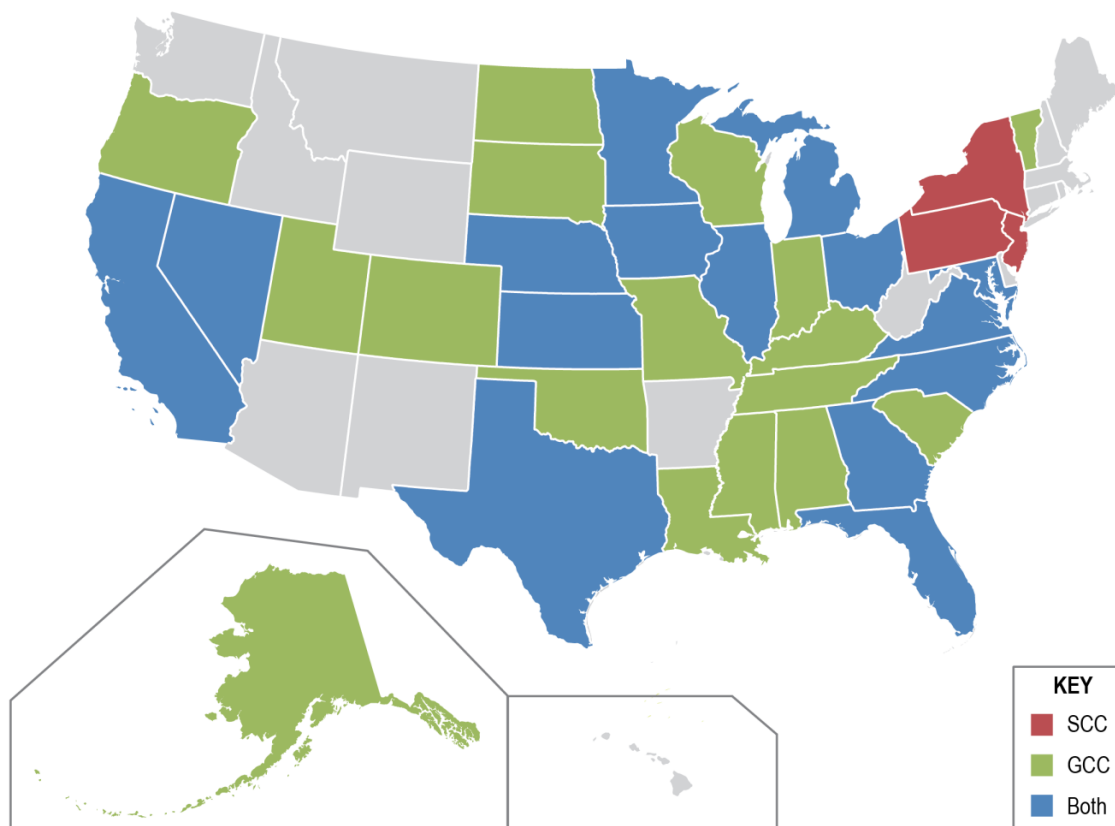
Figure 3 3: Distribution of FASGCC and FASCC Members by State

Decisions of the FASGCC and FASCC are viewed as legitimate by the sector. As described in section 3.2, both councils have initiated efforts to describe the value proposition for engaging in sector activities with the intent of improving awareness and expanding participation.

3.2 Value Proposition and Strategic Planning Efforts

During the reporting period, the FASGCC initiated and finalized development of a value proposition and engagement plan. The FASGCC value proposition is designed to communicate the benefits of FASGCC participation to potential new members, while reinvigorating commitment from existing members to deliver that value through their FASGCC initiatives. The value proposition is a fluid document that can be revisited and updated regularly to reflect changing FASGCC needs and priorities. The engagement plan identifies key obstacles that the FASGCC currently faces in meeting its value proposition and proposes preliminary solutions. FASGCC members can use the engagement plan as a jumping-off point for near-term future planning efforts and activities.

As a member-driven organization, the FASGCC helps participating organizations fulfill their responsibilities and priorities while contributing to the overall sector mission. Figure 3-4

illustrates the following five core benefits that motivate the participation of member organizations that are seeking to:

- Network with peers and partners;

- Access vital information and delivery mechanisms;

- Provide a unified voice to influence policy and planning;

- Leverage funding opportunities and shape programs; and

- Provide leadership and make an impact.
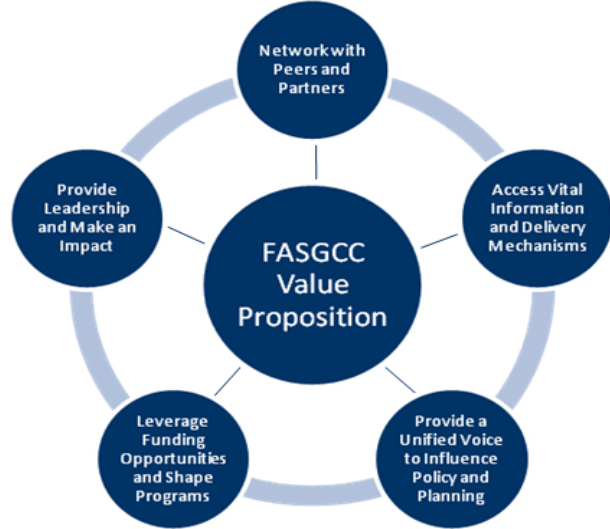
Figure 3-4: FASGCC Value Proposition

Looking forward, members will focus on four priority areas to strengthen the partnership and achieve a highly engaged council. These priorities include (1) optimizing FASGCC operations and processes, (2) bolstering recruitment and outreach, (3) expanding State involvement, and (4) improving communication and information sharing.

To accomplish these priorities, FASGCC members will initiate the following efforts, scheduled for completion in Summer/Fall 2011 and including development of:

- A three- to five-year strategic plan;

- Package of outreach documents to include a new member education package, an external briefing presentation, and a one-page external outreach document; and

- Map of information-sharing mechanisms.

In addition, FASGCC members will contribute information to a monthly e-mail update/newsletter that will be distributed to the membership. Options for archiving this information on HSIN-FA and/or FoodSHIELD are also under consideration.

The FASCC also completed its strategic roadmap during the reporting period. This strategic roadmap presents a framework for action for the FASCC to help meet the needs of private sector owners and operators and maintain the security and safety of the Nation's food supply. The roadmap identifies three strategic objectives that address the major challenges and will drive the goals and activities of the FASCC over the coming year. The objectives include a single primary objective—to secure the sector—and two secondary objectives that support fulfilling on the primary objective, as well:

- **A Secure FA Sector (primary objective).** This objective relates to the FASCC's primary mission to improve FA Sector security. It translates to activities and goals directly aimed at improving sector security through collaborative efforts between the public and private sectors.

- **Effective Private-Public Partnership (secondary objective).** This objective involves the FASCC's external activities related to its partnership with the FASGCC and its response to policy.

- **Efficient Internal Operations (secondary objective).** This objective relates to the FASCC's internal workings, including its operational efficiency and membership participation. It translates to activities aimed at optimizing the FASCC's internal operations.

To achieve the strategic objectives, the FASCC has established six high-priority goals for 2011. For each of the six goals, this roadmap presents an associated pathway map that outlines the key tasks, milestones, outcomes, and potential barriers and risks to implementation. The goals and action plans describe the scope and focus of the FASCC's efforts over the coming year in concrete terms. FASCC goals are to:

- Finalize and communicate the FASCC value proposition;

- Develop a mechanism to increase private sector use and understanding of FoodSHIELD and the HSIN;

- Work to establish the identity of the FA Sector with the public and industry;

- Develop an FASCC Food Emergency Response Model Plan;

- Develop a livestock and poultry business continuity plan to be exercised in 2011; and

- Produce a consolidated guide of food defense regulations.

Figure 3-5 illustrates the structure of the FASCC strategic roadmap.
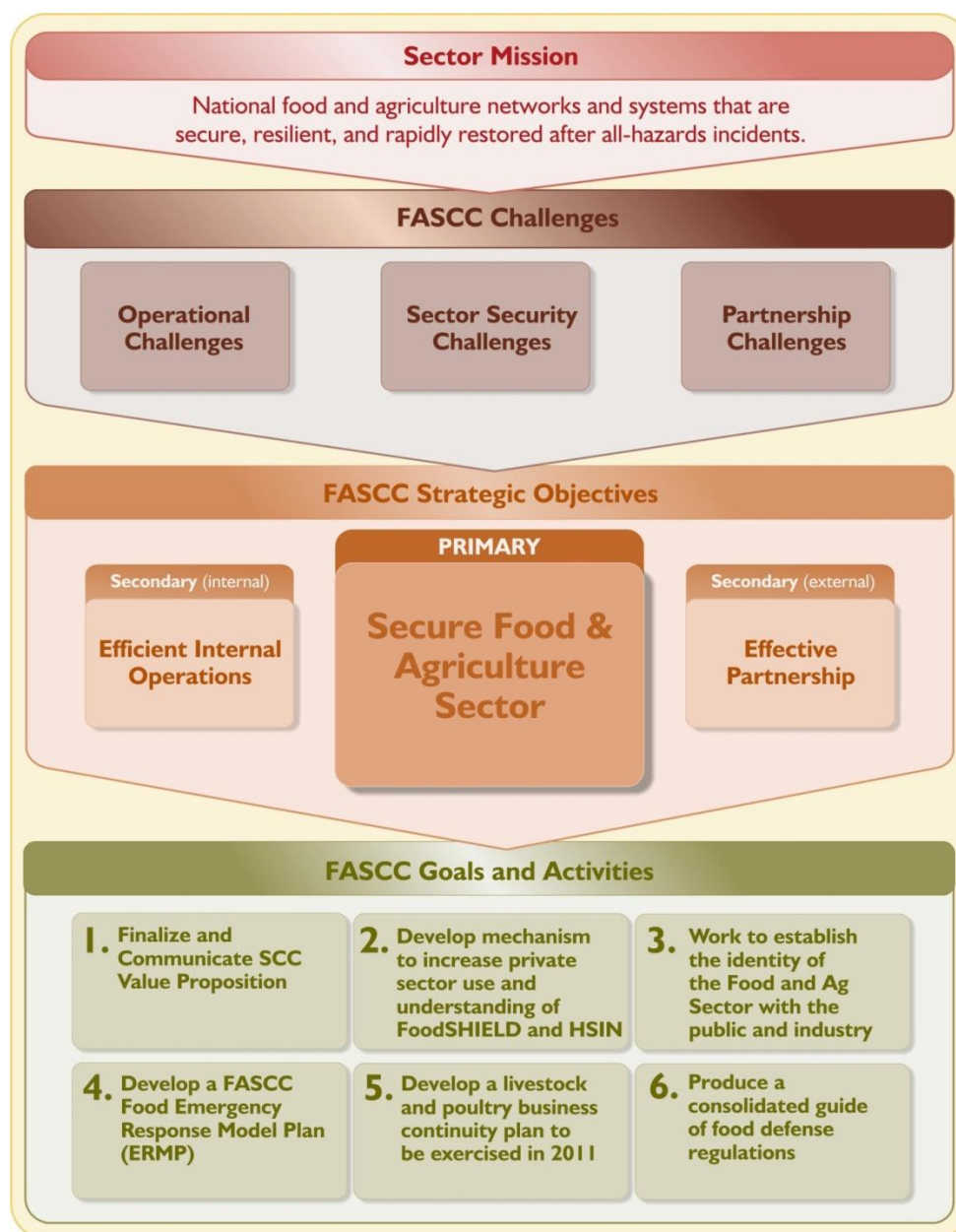
Figure 3-5: FASCC Strategic Roadmap Structure

3.3 Food Service and Food Defense Exercise and Workshop

On July 27, 2010, DHS/IP conducted a Food Service Food Defense Information Sharing Tabletop Exercise in conjunction with the FA Sector. The discussion-based, scenario-driven TTX was designed to allow exercise participants to focus on key information-sharing and response capabilities through a facilitated discussion. The TTX focused on a notional intentional food contamination event and information-sharing procedures, relevant plans, roles, responsibilities, and requirements. There were 105 participants in the workshop, with representatives from Federal and SLTT government entities, the private sector, and academia.

Exercise design objectives were focused on improving understanding of information-sharing and incident management activities, identifying opportunities or problems, and developing recommended actions and procedural adjustments to address potential problem areas. In advance of a potential threat to the FA Sector (specifically, the Food Service Industry), and in accordance with relevant plans and procedures, the exercise was designed to:

- Prepare Food Service Industry and government entities to effectively share and respond to threat and incident information.

    - Review threat-based information-sharing procedures from Federal, State, and local governments to the Food Service Industry partners.

    - Discuss Food Service Industry internal communications.

    - Discuss anticipated actions to a self-service (i.e., buffet/salad bar) food threat and incident and characterize the impacts of said actions on industry operations, markets, and the public.

    - Articulate government limitations and considerations that affect the ability to share information.

    - Delineate the roles and responsibilities of government entities in communicating information to the Food Service Industry.

    - Discuss risk communications and associated processes.

- Identify gaps, redundancies, developmental activities, and best practices.

The exercise identified several major strengths, including that:

- Food Service Industry owners and operators have well-established working relationships with their government partners;

- Private sector internal communications capability is relatively robust and effective; and

- Generally, local health officials and organizations have a thorough awareness and oversight of the food service establishments in their areas of responsibility.

As with any exercise, areas for improvement were also identified. For example:

- There are significant obstacles impeding the Federal Government's ability to disseminate classified information to the private sector. Within the FA Sector, very few individuals in the Food Service Industry possess security clearances to be able to view classified information.

- Private sector owners and operators felt that threat information from the Federal Government that lacks specificity (classified or otherwise) is of limited use. Without specifics, it is difficult to identify and implement countermeasures or otherwise modify procedures/protocols. Further, the Federal Government faces the challenge of the need to balance protecting sources and methods while ensuring that important, actionable information is disseminated to private sector entities.

- The role of fusion centers was also discussed during the exercise. A large proportion of exercise participants were either unfamiliar with the purpose or the existence of their State or major urban area fusion centers. While there was a general understanding of the role of fusion centers to disseminate information, private sector owners and operators were unsure about whom to contact to pass pertinent information "up the chain."

As a follow-up to this TTX, DHS/IP worked with FA Sector leadership to conduct a Food Service Food Defense (FSFD) Workshop on January 19, 2011. Whereas the primary focus of the FSFD TTX was on information sharing between the Federal and SLTT governments and the private sector, the FSFD workshop focused primarily on information sharing within the Federal Government using a similar scenario. Workshop objectives included the following:

- Identify critical decisions and priorities for the U.S. Government for a national response to an intentional food contamination attack within the first 72 hours following identification of a viable threat;

- Identify and articulate the roles and responsibilities of Federal departments and agencies as specifically related to information sharing, risk communications, and incident response decisions;

- Document key decisions, actions and resources of Federal departments and agencies to support response activities and identify interdependencies and potential gaps in existing response capabilities;

- Understand how existing information streams and resources impact response activities and information-sharing capabilities and focus on the impact ambiguous and imperfect information has on critical decisionmaking activities; and

- Focus on an improved understanding of general State and local actions and authorities to an intentional food contamination attack in relation to the Federal response.

Eighty-two representatives from Federal, SLTT, and private sector organizations participated in the workshop. Findings from the workshop focused on the need to compare/contrast capabilities at the SLTT and Federal levels for information-sharing and coordination mechanisms and to assess gaps and emphasize the importance of the consumer in the scenario. The workshop also identified the need for a U.S. Government risk communications plan to address intentional contamination. From a public safety perspective, industry partners, as well as State and local officials, noted the importance of conveying an effective public safety message and the need to consider the economic implications and the resulting need to provide reassurance to the public.

There was a recommendation that a future workshop/exercise should consider involvement by additional stakeholders, including Tribal, media, and private sector (including smaller restaurants) representatives who may contribute to the overall discussion. Finally, workshop participants agreed that attention should be placed on prevention strategies once a threat is considered credible.

3.4   Food and Agriculture Sector Participation in the "If You See Something, Say Something™" Campaign

On November 30, 2010, President Obama proclaimed December to be Critical Infrastructure Protection Month, during which the vast network of systems and structures that sustain the vigor and vitality of our Nation were highlighted.

To improve suspicious activity awareness and reporting within the FA Sector, sector leadership worked with our partners in DHS and other Federal partners to develop a one-page document highlighting indicators of suspicious activities and recommended protective measures. These efforts are part of the "If You See Something, Say Something™" campaign. This document is the first in a series of related outreach documents and is targeted for the Food Service Industry and Retail Food Establishments.

Two "For Official Use Only" (FOUO) conference calls were held on Friday, December 17, 2010, to discuss recent efforts to increase public-private sector awareness of potential food supply threats and indicators of suspicious activity. One call included select private sector representatives from the Food and Agriculture and Commercial Facilities Sectors and drew 102 participants. The second call included the FASGCC and select representatives from the Health Care and Public Health Sector and attracted 59 participants. Agenda topics included the following:

- ▪ Evolving Threat Briefing (FOUO);

- ▪ Potential Indicators and Protective Measures (FOUO);

- ▪ DHS "If You See Something, Say Something™" Campaign; and

- ▪ Sector Outreach Efforts, Food and Agriculture and Health Care and Public Health Sector Leadership.

The FA Sector suspicious activity document is intended to be posted in work areas within food service and retail food establishments to make employees aware of what they should be looking for each day and what actions they should take if they observe something suspicious. Managers are also encouraged to include the information within the one-page document during staff meetings and other training opportunities. Materials for the "If You See Something, Say Something™" campaign have been posted on the FDA's Web site at: http://www.fda.gov/Food/FoodDefense/FoodDefensePrograms/default.htm. The postings include a letter to industry, a letter to SLTT governments, and a campaign flyer available in English, Spanish, and Chinese.

As an example of the collaboration between the private sector and the FASGCC, Archer Daniels Midland leveraged the information in the "If You See Something, Say Something™" materials and made some changes to the text to make it more specific to their processing plant situation to improve situational awareness within their organization.
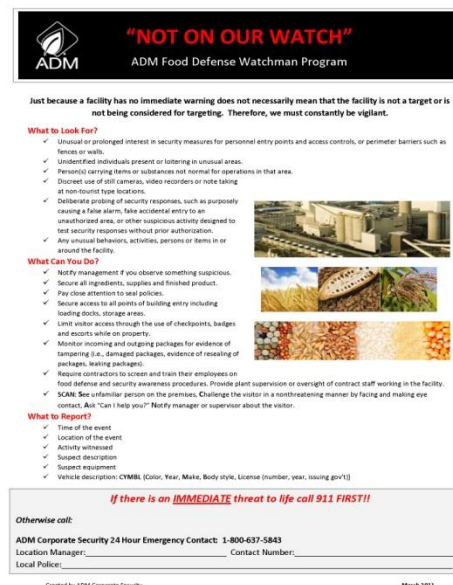
3.5 Information Sharing

The FA Sector has designated HSIN-FA and FoodSHIELD as its two chief information-sharing platforms to support its public and private sector partners. FoodSHIELD is the first of many portals built on a Web-based platform that leverages the capabilities of a common organizational registry environment, called CoreSHIELD, for the FA Sector. This framework extends access to the same contact information, coordination resources, and communication tools for a number of portals and Web tools serving the sector. This same framework is being integrated with HSIN-FA as part of the sector's strategy for enhancing the information-sharing environment (ISE) for the FA Sector's coordinating councils. The integration of HSIN-FA and FoodSHIELD provides an opportunity to maximize the scope of information and collaboration available to FA Sector stakeholders. DHS will continue to identify and coordinate the enhancement of the HSIN-FA and FoodSHIELD platforms as the primary mechanisms by which DHS sends information to and voluntarily receives information from the FA Sector.

FoodSHIELD is based on the CoreSHIELD platform, which helps create community, increases collaboration, and facilitates communication among thousands of public and private entities involved in protecting and defending the food supply of the United States. The intent is to clarify, improve, and communicate the overall process to assure dissemination of the right information to the right people in private sector institutions in a timely manner.

As part of the ISE, HSIN-FA provides a secure, unclassified, and common Web-based communications platform to serve as the primary information-sharing and collaboration system

for sharing Sensitive But Unclassified information within the FA Sector. DHS provides the procedures, content, and tools needed to enable security partners to share the vital information needed to manage security and risk to their critical infrastructure, respond to events, and enhance resilience. Industry members are piloting access to FoodSHIELD through an initiative with the FASCC. In addition, more than 6,000 Federal, State, and local regulators, laboratory staff, military personnel, and academics are active members of FoodSHIELD and its associated portals. So far during 2011, more than 900 accounts have been created to expand access to HSIN-FA based on FoodSHIELD membership.

3.6 Multi-State Partnership for Security in Agriculture

The Multi-State Partnership for Security in Agriculture (MSP), a consortium of 14 States (Illinois, Iowa, Indiana, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, and Wisconsin), recognizes that a disaster in agriculture (both natural and manmade) could have regional, national, and global effects. Since its inception in 2004, MSP has achieved many accomplishments, including development of various risk-communication materials; agricultural emergency planning templates to ensure consistency in planning for crop, livestock, and food emergencies; exercises; business continuity strategies to ensure the future viability of agriculture during and after emergencies; and State-to-State networking efforts to ensure efficient and effective responses to any agricultural emergency. The Partnership hosted a Symposium on Food and Agriculture Security in Madison, Wisconsin, during October 2010. More than 230 attendees participated in the symposium, and feedback indicates that the MSP should consider hosting similar events in the future. Additional information is available at: http://www.multistatepartnership.org/.

3.7 Southern Agriculture and Animal Disaster Response Alliance

The Southern Agriculture and Animal Disaster Response Alliance (SAADRA)'s mission is to strengthen all-hazards capabilities through partnerships with the public, animal and agriculture industries, and every level of government. States' preparedness at both regional and individual levels will be enhanced through collaborative planning, mitigation, response, and recovery efforts that help to ensure the safety and health of citizens, food systems, agriculture infrastructure, animals, and the economy. Current members include Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Texas.

3.8 The Great Lakes Border Health Initiative
The Great Lakes Border Health Initiative (GLBHI) is funded by HHS and is managed through the Centers for Disease Control and Prevention's (CDC's) Early Warning Infectious Disease Surveillance project. Representatives from seven States (Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin) and the Canadian province of Ontario work together to strengthen relationships among State, local, and provincial public health and

emergency preparedness agencies in the United States and Canada. Significant events during the reporting period include the following:

- The 6th annual GLBHI conference, with more than 150 attendees, was held on May 18, 2010, in Plymouth, Michigan.

- GLBHI's Food Protection and Defense subcommittee, with more than 40 members representing local, State/provincial, and Federal agencies on both sides of the border, held monthly conference calls during the reporting period. These calls provide a mechanism for members from across the region to share updates, learn about each other's roles and responsibilities, and explore strategies to improve surveillance and investigation of food-borne illnesses and deliberate attacks on the food supply.

3.9 FBI Collaboration

The FA Sector continues to maintain a collaborative partnership with the Federal Bureau of Investigation (FBI). The FBI's Weapons of Mass Destruction Directorate (WMDD) is an active participant in FA Sector GCC and SCC activities, including in joint quarterly meetings and the Food Service Food Defense Exercise and FSFD Workshop.

Bureau participation in the FSFD exercise and workshop led to a collaborative, ongoing effort to develop standardized protocols for notification, information sharing, and joint investigation with the intent of formalization as part of a Memorandum of Understanding. Development and formalization of protocols will improve collaboration among the FDA, USDA, and FBI in cases of suspicious activity and/or possible threat or when there is evidence of a terrorist attack on—or acts in preparation for a terrorist attack against or otherwise involving—the FA Sector. Once finalized, the protocols can also be used to support future exercises and engagement with SLTT and private sector partners.

The FBI also actively participates in the FA Sector Criticality Workgroup. As discussed in section 4.4, this workgroup was formed to support the annual NCIPP data call and associated activities, including identification and implementation of countermeasures to reduce risk. The FBI's participation in this workgroup provides for an improved understanding of critical infrastructure within the FA Sector, the opportunity to identify and assist with implementation of countermeasures, and more informed engagement of FBI/WMD coordinators in assessments to strengthen collaboration and partnership at the SLTT level.

During the reporting period, the FBI conducted two Food and Agroterrorism Workshops, including one in Napa Valley, California (June 2010) with 82 attendees and another in Des Moines, Iowa (August 2010) with 77 attendees. The workshops included representatives from local law enforcement; public health and agriculture representatives from SLTT government entities; private sector partners; and Federal partners from the USDA, FDA, FBI, and DHS. The workshops develop the investigative, intelligence, and coordination efforts conducted by the FBI Joint Terrorism Task Forces in local field offices by providing Federal,

State, and local law enforcement with the opportunity to interact and cross-train on topics of basic food and agriculture security awareness.

In addition, the Heart of America Joint Terrorism Task Force, in conjunction with the Kansas City Division of the FBI, FBI/WMDD, USDA, FDA, and DHS, sponsored the fourth International Symposium on Agroterrorism (ISA) on April 26–28, 2011, in Kansas City, Missouri. The primary goals of the ISA are to (1) prevent acts of agroterrorism through well-coordinated intelligence collection, analysis, and dissemination processes; (2) develop technical and tactical response strategies to neutralize and eliminate a potential attack; (3) provide an opportunity for education across a variety of disciplines regarding threats directed at the world's food supply; and (4) provide an avenue to share ideas and information among attendees through meaningful dialogue and networking opportunities. There were more than 700 attendees at the ISA, including 35 international attendees representing more than 30 countries.

Last, the USDA/Office of Homeland Security and Emergency Coordination (OHSEC) and USDA/Food Safety and Inspection Service (FSIS) have a detail assignment to the FBI/WMDD to serve as FA Sector subject matter experts and support FBI and USDA missions. Activities under the detail assignments include development of written proposals for FBI-specific countermeasures and implementation mechanisms; developing Tripwires for the FA Sector; and coordinating cross-training and cross-sector opportunities.

3.10 FDA Office of Criminal Investigations

The Office of Criminal Investigations (OCI) has the primary responsibility for all criminal investigations conducted by the FDA. Similarly, OCI is the primary point of contact for all law enforcement and intelligence issues pertaining to threats or perceived threats against FDA-regulated products. A representative of OCI is located at the National Counterterrorism Center.

3.10.1 Agriculture/Food Intelligence Working Group

Since 1999, OCI has hosted a monthly meeting referred to as the "AgInt meeting." This monthly meeting is attended by representatives of various government agencies with an interest in the protection of food and agriculture. FDA is represented by the Center for Food Safety and Applied Nutrition, the Prior Notice Center, and the Center for Veterinary Medicine (CVM). USDA is represented by APHIS, FSIS, OHSEC, and the Office of the Inspector General (OIG). DHS is represented by the Office of Health Affairs (OHA), IP, and Customs and Border Protection (CBP). Other representatives that attend these meetings include components of the U.S. Department of Defense (DOD); law enforcement such as the FBI; members of the intelligence community, such as the Central Intelligence Agency; and numerous other partners in the food and agricultural community. During this reporting period, OCI hosted a total of 12 AgInt meetings at OCI headquarters. Continuing to build partnerships with our Federal public health, law enforcement, military, and intelligence partners is the objective.

3.10.2 Information-Sharing and Partnership Activities

During this reporting period, OCI participated at the American Society of Industrial Security (ASIS) International 56th Annual Seminar and Exhibits in Dallas, Texas, held from October 12–15, 2010. The ASIS invites security directors and managers; homeland security professionals; chief executive officers, presidents, and vice presidents of critical infrastructure businesses; government/military personnel with security responsibilities; security consultants; law enforcement professionals; human resource professionals; and other professionals with an interest in security. Approximately 15,000 people attend this seminar each year. OCI was sponsored by ASIS Agriculture and Food Security Council and delivered a presentation entitled, "Food Contamination: A Cross Agency Investigation." OCI discussed how the food stream can be contaminated in a variety of ways. Sorting out threats to naturally occurring or intentional actions is the initial step in responding to and investigating such an incident. OCI reviewed how those agencies responsible for regulation and enforcement work together with the private sector to determine the cause, intent, and criminality of food contamination.

In March 2011, OCI was invited to participate at the second annual Food Defense Strategy Exchange 2011. This meeting was sponsored by ADT Security Services, one of our private sector partners. The meeting focused on food defense and the implementation of food defense plans. OCI provided guidance on criminal investigations, intelligence related to deliberate contaminations, product tampering, and potential terrorist events that could have an effect on products or the private sector. Most of the attendees were high-level corporate security officials representing companies within the private food sector. OCI is a founding member of the Food Defense Security Exchange.

On April 13–14, 2011, OCI participated at BevTech 11's Food Safety Symposium sponsored by the International Society of Beverage Technologists. This symposium included presentations on critical components of food safety; regulatory requirements of the recently enacted FSMA; efforts to ensure the safety and integrity of municipal water supplies used in bottling and canning; as well as threats and VAs in bottling plants. OCI delivered a presentation discussing its mission and activities, with a special focus on beverages. Soft drink beverages have traditionally appeared at the top of FDA-regulated products involved in tampering incidents.

Section 4: Critical Infrastructure Prioritization

This section highlights achievements on activities to identify and prioritize critical infrastructure within the FA Sector and identifies progress on new initiatives to identify and implement countermeasures to reduce risk within the sector.

Since 2006, the DHS/IP/Homeland Infrastructure Threat and Risk Analysis Center (HITRAC) has conducted a yearly data call to the States requesting information on critical infrastructure assets and systems. The purpose of the data call is to identify and prioritize the country's critical infrastructure in accordance with the DHS 9/11 Commission Act responsibilities. Facilities, assets, and nodes are characterized as Level 1 or Level 2 on the basis of a defined set of criteria.

For the 2011 NCIPP data call, FA Sector assets, systems, and clusters from 30 States were identified for inclusion on the NCIPP lists of critical infrastructure. This marks the first year in which FA Sector assets were included in this prioritization. This success story is the result of a close partnership with DHS/IP/HITRAC, FA Sector leadership, FASGCC representatives, and SLTT members. In response to requests from the FA Sector, HITRAC organized a workshop in January 2010 with more than 100 representatives from the FA Sector to formulate a path for the inclusion of State assets in the DHS database. Based on the success of this workshop and the inclusion of FA Sector assets on the NCIPP lists, a follow-up workshop was held in Madison, Wisconsin, in October 2010 with more than 70 representatives from the FA Sector who met to continue to expand on the partnership, solidify criteria for the 2012 data call, and identify critical areas for improvement and action items for related critical infrastructure prioritization and protection efforts.

> **NCIPP Data Call**
> **Food and Agriculture Sector**
> **Results**
>
> - *32 States and territories submitted data in 2009.*
>
> - *26 of those States added 2010 FASCAT assessments.*
>
> - *28 States made the full effort to submit to the Linked Encryption Network System (known as the LENS portal) for consideration as Level 2 critical infrastructure.*
>
> - *For the 2011 data call, 30 States successfully added FA.*

While we consider the results of the 2011 data call to reflect a considerable accomplishment for the FA Sector, much work remains. There is a need to standardize FASCAT and act to have the tool adopted by all States for the identification of critical assets (section 4.1). There is also a need to standardize terminology by way of the taxonomy used to describe assets within the FA Sector (section 4.2). This objective is a critical component of the ISE and efforts to establish a baseline for critical infrastructure within the FA Sector—not only for identifying the number of critical facilities but also in defining the number of facilities and assets of a given type. Assessments of FA Sector critical infrastructure have been conducted through DHS programs (section 4.3); however, many of these assessments are asset based rather than systems based, posing some challenges for the identification of vulnerabilities and also the identification and implementation of countermeasures.

To address some of these challenges, a "Criticality Workgroup" was formed as a working group to the FASGCC. The activities of the workgroup, highlighted success stories, and challenges and

next steps for the identification and prioritization of critical infrastructure in the FA Sector are discussed in sections 4.4 and 4.5.

4.1 FASCAT

SLTT government partners and associations are on the frontline of implementing the NIPP to mitigate, prevent, and protect the food and agriculture critical assets from all hazards. The FASector stakeholders and partners are poised to leverage FASCAT and other DHS tools for understanding and assessing critical food and agriculture infrastructure and clusters or regional critical subsectors of commodity product chains.

In order to develop a unified method for identifying and reporting critical agriculture infrastructure, DHS funded the creation of FASCAT by NCFPD, a DHS Center of Excellence. FASCAT is the only tool currently available to address the critical components of food and agriculture as a system. The systems-based FASCAT tool integrated with the Infrastructure Data Collection Application (IDCA) and the Automated Critical Asset Management System, along with CoreSHIELD/FoodSHIELD and the HSIN-FA integration, can serve as a model for other systems-based sectors that face similar challenges. The socialization and networking components of FASCAT strengthen the government and industry stakeholder community, as well as participation around assessments. These capabilities are integrated with FoodSHIELD/ CoreSHIELD and are major drivers for the current successful participation in NCIPP. FASCAT upgrades and system additions are essential to fulfilling HITRAC's needs in terms of input from the States in response to the FA Sector's data call. The upgrades and system additions also ensure that information sharing around critical infrastructure in the FA Sector is capable of protecting and mitigating risks.

FASCAT provides a common terminology and common approach to identifying the critical systems and assets that make up the FA Sector. This foundation, in turn, provides a means for assessing common vulnerabilities, and ultimately it can be coupled with threat and consequence information to inform risk. Though not a risk assessment tool, FASCAT does satisfy the NIPP core criteria for risk assessments in that FASCAT results are documented, reproducible, defensible, and complete.

> **Case Study: Georgia Food and Agriculture Risk Assessment Project**
>
> *The Georgia Food and Agriculture Risk Assessment Project is an ongoing State-sponsored effort to identify critical infrastructure in Georgia's food and agriculture sector and provide resources to enhance protection of these assets.*
>
> *The project team is composed of food defense specialists from the University of Georgia and the Georgia Tech Research Institute working under the guidance of the Georgia Emergency Management Agency/Homeland Security. The project team utilizes FASCAT and conducts the research on which the State of Georgia bases its annual nominations of food and agriculture assets for Level 1 and Level 2 designations.*
>
> *The project team also provides organizations with Georgia-based critical assets in the FA Sector with training, exercises, and other technical assistance.*

Milestones and metrics for FASCAT include the following:

- Web version 2.0 was released in March 2010 on FoodSHIELD for the 2011 data call;

- Web version 3.0 was released in March 2011 on FoodSHIELD for the 2012 data call;

- The 2008–2010 FASCAT assessments from 31 States and Puerto Rico have now been entered into version 2.0 of FASCAT;

- More than 30 Web-based training sessions were conducted during calendar year 2010;

- Thirteen (13) onsite training sessions and workshops were conducted during calendar year 2010;

- A total of 499 subsystems were captured online;

- Thirty (30) States completed the full IDCA submission for Level 2 consideration in the NCIPP data call;

- A total of 121 subsystems and components from 30 States representing more than 1,300 nodes gained approval for being on the Level 2 list; and

- Twenty-six (26) States have performed 148 new subsystems assessments during 2010.

4.2 Taxonomy Development

Prior versions of FASCAT used a vocabulary/taxonomy to describe subsystems or components being assessed to ensure a common language among all States using the FASCAT tool. These descriptive terms were developed by NCFPD because there was no other common language provided by DHS, FDA, or USDA to adequately describe components of the "Farm to Table" commodity chains that are critical to Food and Agriculture.

In 2010, the submissions to DHS of FASCAT assessment data to qualify Sub-Systems for Level 2 Critical Infrastructure required the conversion of all assessments into a less descriptive DHS Taxonomy 3.0 language. Although this process was laborious, it was essential to complying with DHS systems and data requirements.

Upon completion of the NCIPP data call, NCFPD approached DHS/Infrastructure Information Collection Division (IICD) about strategic approaches for resolving this conflict while improving a taxonomy that could be used by all Federal agencies and other stakeholders engaged with the FA Sector. It was fortuitous that DHS was, at this same time, itself entering into the process of upgrading its Taxonomy 3.0 to a new more robust Taxonomy 4.0.

NCFPD engaged in discussions with FDA taxonomy officials and USDA personnel who worked with taxonomy as well as census reporting for production data associated with Food and

Agriculture. It became apparent that we could continue using the North American Industry Classification System codes that were a foundation of DHS taxonomy for all sectors, but the codes needed much more granularity to embrace all descriptive terms essential for mapping to all USDA and FDA terminology. IICD agreed to this need and allowed NCFPD to engage in a rewrite and organization of DHS Taxonomy 3.0 with two additional appendix fields. This rewrite was designed to align terminology from all Federal agencies and industry that is relevant to describing the industries, subsystems, and components that make up the FA Sector.

These changes were added to the DHS Taxonomy 4.0 that has been completed and is being deployed to DHS systems during Fiscal Year (FY) 2011. These changes were also built into FASCAT in the new version 3.0 as an index taxonomy that can easily be cross-referenced to other data from FDA, DHS, USDA, CDC, EPA, States, and industry for a more complete understanding and mitigation of risk to the sector.

4.3 Assessments of Critical Infrastructure

As stated previously, the 2011 NCIPP data call represented the first time that FA Sector assets, systems, and clusters were identified as Level 2 critical infrastructure. Thus, it is anticipated that there will be more meaningful data on assessments of critical infrastructure in future years.

The DHS/IP/Protective Security Coordination Division (PSCD) works with SLTT and industry partners to conduct voluntary assessments of critical infrastructure, including the following:

- **Enhanced Critical Infrastructure Protection (ECIP) Assessments.** These visits are conducted in conjunction with the Infrastructure Survey Tool with the purpose of identifying and recommending protective measures at facilities; providing comparison across like assets; tracking implementation of new protective measures; informing facility owners and operators of the importance of their facilities as identified high-priority infrastructure (underscoring the need to be vigilant); discussing DHS/IP programs; and establishing/enhancing relationships between DHS Protective Security Advisors (PSAs) and facility owners and operators.

- **Site Assessment Visits (SAVs).** SAVs are facility VAs focused on identifying security gaps and recommending protective measures. SAVs use a hybrid methodology that includes both asset-based approaches (i.e., identifying and discussing critical site assets and current security posture) and scenario-based approaches (i.e., assault planning and likely attack scenarios to ensure current threats are included) to identifying vulnerabilities. Through the SAVs, DHS provides critical infrastructure owners and operators with options for consideration to increase the ability to detect and prevent terrorist attacks and recommendations for reducing infrastructure vulnerabilities.

- **Regional Resiliency Assessment Program (RRAP).** The RRAP is a DHS/IP-led assessment of selected critical infrastructure and regional analysis of the surrounding infrastructure that examines all-hazards vulnerabilities, threats, and potential consequences using an enhanced assessment methodology; identifies critical

infrastructure security, resilience, dependencies, interdependencies, cascading effects, and first-responder capability gaps; provides a baseline examination of risk and metrics to measure mitigation; and prepares participants for submission of grant and funding requests.

- **Buffer Zone Protection Program (BZPP).** The BZPP is designed to increase the general protective capacity and preparedness of communities surrounding critical infrastructure facilities by establishing buffer zones around individual assets; developing Vulnerability Reduction Purchasing Plans (VRPPs) that identify equipment needed by local law enforcement to effectively protect these assets; providing local law enforcement with the financial resources necessary to execute approved VRPPs; and verifying and validating that equipment purchases are adequately mitigating vulnerabilities identified in the individual Buffer Zone Plans (BZPs).

Data available from PSCD assessments conducted during the reporting period are summarized in table 4-1.

Table 4-1: Summary of PSCD Assessments for the FA Sector

Assessment Program	Total Number of Facilities	Total Number of Level 1 and Level 2 Facilities
ECIP Assessments	37	3
SAVs	4	0
BZPPs	4	0
Total	45	3

4.4 Food and Agriculture Sector Criticality Workgroup

In January 2010, the FASGCC established a "Criticality Workgroup." This workgroup was reengaged to address issues associated with the 2012 data call and also address some outstanding issues pertaining to the process of critical infrastructure identification/prioritization and identification/implementation of countermeasures, as well as other efforts to reduce risk within the sector. The workgroup consists of representatives from USDA, FDA, FBI, DHS (IP, HITRAC, and OHA), and State-level FASGCC representatives from California, Florida, Georgia, Iowa, and South Carolina.

The workgroup identified several objectives pertaining to the 2012 data call, including to:

- Provide expert final review of the FY 2012 data call guidance package (Food and Agriculture section); and

- Prepare a summary one-page guidance document for the data call that could be distributed independent of the larger guidance package.

In addition, several long-term objectives were identified, including to:

- Determine ways to review and assure the quality/appropriateness of nodes and strengthen the identification of nodes within systems/subsystems that meet FA Sector criteria. States need to ensure that the nodes associated with a nominated system are:

    - Correctly aligned with that system.

    - Nationally or regionally *critical* nodes within that system—in other words, that States are not nominating every facet of the system whether critical or not.

- Identify protective measures for the sector across the different types of systems—from fixed, hard assets to soft targets such as beef or poultry systems—and identify potential ways to reduce risk.

- Provide suggestions on how States receiving DHS grants can attempt to direct grant funds toward Food and Agriculture assets and systems.

    - Develop draft boilerplate language for State Grant Applications; incorporate concepts such as why Food and Agriculture assets and systems are so important and what being named to the Level 1 and Level 2 lists means to the State.

    - Develop suggestions on where to spend money to support Food and Agriculture security (instead of investing in additional fire trucks, emergency radios, etc.).

- Review and provide feedback on taxonomy and commodity flow charts.

- Identify metrics to measure progress on efforts to reduce risk for FA Sector Level 1 and Level 2 critical infrastructure.

The workgroup met on a biweekly basis from January 2011 through mid-April 2011 and plans to transition to monthly meetings following the conclusion of the 2012 data call. Significant efforts were made to ensure that States had information necessary to successfully nominate facilities for the 2012 data call. The measure of this success will be reported in next year's annual report once the outcomes of the 2012 data call are finalized.

4.5 Challenges and Next Steps

Looking ahead, it is important that efforts to prioritize critical infrastructure in the FA Sector build on the baseline established through the 2011 data call. This effort requires (1) stabilization of criteria for identification and prioritization of critical infrastructure, (2) continued use of FASCAT to standardize the process for nominations, and (3) continued use of the FA Sector taxonomy. These tools and resources should also be considered and leveraged appropriately when responding to new requirements, including those outlined in FSMA, to avoid redundancy and duplication of effort.

It is also important to note that while ongoing efforts to identify critical infrastructure through the data call need to continue, the approach poses some challenges with regard to measuring progress to do this within the sector. A parallel effort should be conducted to leverage the taxonomy and the underlying approach for FASCAT to gain a better understanding of the number of facilities/subsystems that could be considered critical infrastructure. As such, our current denominator of 1.1 million facilities makes it difficult to measure progress when we are only considering a fraction of a percent through the NCIPP data call prioritization process. In order to perform this evaluation effectively, efforts to support the ongoing development and, ultimately, the sustainability of FASCAT need to be implemented. A first step in this process may be the formation of an integrated project team for FASCAT to consider the project lifecycle and desired long-term outcomes. This effort would also help to inform funding and resource decisions for the departments, agencies, and organizations that support FASCAT.

Identification and prioritization of critical infrastructure is only one step in the process of implementing the NIPP Risk Management Framework. Efforts should be initiated to expand and leverage existing vulnerability and site assessment tools, and, in some cases, new assessment tools or modules may need to be developed to address the unique aspects of the FA Sector, focusing on systems-based assessments as opposed to asset-based assessments. Taking this approach will require additional partnership and collaboration with offices and entities within DHS that develop and conduct these assessments.

As discussed in section 2, another challenge that the FA Sector must address is defining risk and, to the extent possible, quantifying this risk. As we look to implement countermeasures and other efforts to reduce risk, establishing this quantification metric will be important in enabling the effective measurement of progress toward this goal. Identification and implementation of countermeasures will also require expanding and enhancing partnerships with other members of the community, including public health officials, law enforcement, emergency management agencies, and others.

To effectively build and solidify these partnerships and ultimately implement the necessary programs and protective measures to reduce risk, it will also be necessary to develop and/or continue training to accomplish the following objectives:

- Improve awareness of FA Sector systems and assets and improve understanding of how these comprise critical infrastructure;

- Increase adoption of FASCAT throughout the sector to improve participation in the data call and also to standardize identification of facilities, assets, and systems through the use of the taxonomy;

- Inform FA Sector stakeholders about existing assessment tools and processes; and

- Identify and implement countermeasures to effectively reduce risk throughout the sector.

Last, but certainly not least, there is a critical need to provide guidance to SLTT governments regarding how to leverage Federal grant programs and related resources to support the

FA Sector's critical infrastructure programs and initiatives. One aspect of the NCIPP data call is to inform multiple homeland security grant programs, including the State Homeland Security Program, Urban Area Security Initiative Grant Program, and BZPP. Through improved training and awareness and targeted guidance, some additional funding may be available to assist SLTT governments with protection of critical FA Sector infrastructure.

Section 5: Food Defense

Food defense is defined as the protection of food products from intentional contamination by biological, chemical, physical, or radiological agents. The FSMA will result in additional regulations and/or requirements for food defense; implementation of food defense measures by private industry is currently voluntary. Although some projects focus specifically on aspects of the public-private partnership, the importance of this partnership cannot be understated for implementation of food defense measures.

This section highlights a variety of food defense initiatives conducted by Federal, SLTT, and private sector partners (see table 5-1 for a listing of projects). Additional information for some projects is available in attachment A. As stated in section 1, the goal/outcome categories of preparedness, detection, emergency response, and recovery capture projects and activities that help FA Sector partners prepare for and respond to incidents in order to minimize disruption of critical infrastructure and associated consequences.

Table 5-1: Food Defense Project Highlights Compared to Goal/Outcome Categories

Section	Project	Partnership	Critical Infrastructure	Preparedness	Detection	Emergency Response	Recovery
5.1	ALERT Initiative			X			
5.2	Create and Demonstrate a Secure Egg Supply "Component" to the National Center for Foreign Animal and Zoonotic Disease Defense Decision Support System			X	X		X
5.3	Department of Education Readiness and Emergency Management for Schools Grantee Meeting	X		X			
5.4	Economically Motivated Adulteration						
5.4.1	Economically Motivated Adulteration Exploratory Survey Working Group – National Center for Food Protection and Defense	X		X	X		
5.4.2	Prediction of Economically Motivated Adulteration – President's Food Safety Working Group Task 42			X			
5.5	Electronic Commodity Ordering System: Complaint System and Rapid Alert System				X		
5.6	Employees FIRST Food Defense Awareness Training Kit	X		X			
5.7	USDA/Food Safety and Inspection Service Exercises						
5.7.1	Federal Radiological Advisory Team for Environment, Food, and Health			X		X	X
5.7.2	Exercise Program – Food Protection Exercises			X			
5.7.3	Continuity of Operations Level 4 Exercise			X		X	
5.8	Food Contamination Detection Requirements Analysis	X			X		
5.9	Food Defense Outreach Activities	X		X			
5.10	Food Defense Surveillance and Verification Procedures			X			
5.11	Food Protection Rapid Response Team and Program Infrastructure Improvement Prototype Project	X	X	X		X	

Table 5-1: (Cont.)

Section	Project	Partnership	Critical Infrastructure	Preparedness	Detection	Emergency Response	Recovery
5.12	Food Risk Models for the Bioterrorism Risk Assessment			X			
5.13	USDA/FSIS Incident Management System			X		X	
5.14	Industry Adoption of Food Defense Plans		X	X	X	X	X
5.15	Innovative Food Defense Program Grant	X		X	X	X	X
5.16	Integrated Food Safety System/Partnership for Food Protection	X		X	X	X	
5.17	Manufactured Food Regulatory Program Standards	X		X			
5.18	Mitigation						
5.18.1	FDA Food Defense Mitigation Strategies Database	X	X	X			
5.18.2	USDA/FSIS Food Defense Risk Mitigation Tool	X	X	X			
5.19	National School Lunch Program Threat Agent Testing Program	X	X	X	X	X	X
5.20	Natural Antimicrobials to Mitigate Biological Threat Agents	X			X		
5.21	Optical Detection of Microbial Contamination in Food Matrices	X			X		
5.22	QuEChERS Technologies for Detection of Threats to the Food Supply	X			X		
5.23	FDA's Reportable Food Registry	X			X	X	
5.24	Sampling and Analysis of Products at the Port of Entry	X		X	X	X	
5.25	Small/Very Small Plant Outreach	X		X			
5.26	USDA/Food and Nutrition Service Tabletop Exercises for the National School Lunch Program			X			
5.27	Updated Food Defense Guidelines for Transportation and Distribution	X	X	X	X	X	X
5.28	Vulnerability Assessments						
5.28.1	FDA Company-Specific Vulnerability Assessments	X		X	X		X
5.28.2	Vulnerability Assessment of Food Systems – Farm, Manufacturing, Retail, and Distribution			X	X	X	X
5.28.3	International and Domestic Food Transportation Vulnerability Assessments	X	X	X			
5.28.4	Update of Legal and Illegal Imported Meat, Poultry, and Egg Products Vulnerability Assessments			X			
5.28.5	USDA/FSIS Directive 5420.3 Vulnerability Assessment Data Analysis			X			

5.1 ALERT Initiative

The ALERT campaign was and still is a major awareness initiative for FDA. ALERT identifies five key points that industry and businesses can use to lower the risk of intentional food contamination at their facilities: assure, look, employees, reports, threat (ALERT). ALERT is generic enough to apply to all aspects of the farm-to-table supply chain and is designed to spark

thought and discussion with a variety of stakeholders. ALERT materials are available in a number of languages, and a Web-based tool is available on FDA's Web site at: http://www.fda.gov/food/fooddefense/training/alert/default.htm.

Outcomes:

- Web-based ALERT training prepared.

- ALERT material ready to download on the Web page: brochures, wallet cards, and posters in English, Spanish, French, Chinese, Korean, Vietnamese, and Portuguese.

Metrics:

- ALERT materials distributed from 2008 through April 5, 2011: 3,265,307

  - Wallet cards (English), 100 per pack: 1,916,900 (19,169 packs)
  - Wallet cards (Spanish), 100 per pack: 293,300 (2,933 packs)
  - Q&A (question and answer) pamphlets (English), 100 per pack: 802,400 (8,024 packs)
  - Q&A pamphlets (Spanish), 100 per pack: 210,300 (2,103 packs)
  - Posters (English): 64,359
  - Posters (Spanish): 19,071
  - Training flyers: 11,131
  - Training CDs: 1,846

5.2 Create and Demonstrate a Secure Egg Supply "Component" to the National Center for Foreign Animal and Zoonotic Disease Defense Decision Support System

This project will utilize the National Center for Foreign Animal and Zoonotic Disease Defense (FAZD) Information Dashboard framework to develop a decision support tool for business continuity planning. The Center for Food Safety and Public Health at Iowa State University and collaborators (public and private sector) have developed a SES plan to promote food security and animal health through business continuity planning prior to an outbreak of HPAI. The aim of this project is to show "proof of concept" of the SES Plan by making use of the dashboard to facilitate rapid decisionmaking for movement permits of products, determining infected and noninfected premises, and providing a real-time decision support tool for education and training.

5.3 Department of Education Readiness and Emergency Management for Schools Grantee Meeting

The USDA/Food and Nutrition Service (FNS) reached about 150 attendees at the July 2010 meeting for Readiness and Emergency Management for School (REMS) grantees. The U.S. Department of Education Office of Safe and Drug-Free Schools began administering the

REMS discretionary grant program in 2003 to help school districts develop comprehensive plans for any emergency or crisis. Developing a food defense management plan is one requirement for those receiving a REMS grant. FNS provided information on the importance of food defense for schools and on the resources and technical assistance, such as the National School Lunch Program (NSLP) Tabletop Exercise Toolkit and a template for developing a school food defense plan, that FNS can or soon will make available to schools.

5.4 Economically Motivated Adulteration

During the reporting period, progress was made on multiple projects related to economically motivated adulteration (EMA). As this is a cross-cutting issue, coordination is needed to develop a strategy to address risks.

5.4.1 Economically Motivated Adulteration Exploratory Survey Working Group, National Center for Food Protection and Defense

The Food Industry Center at the University of Minnesota conducted online executive qualitative interviews to provide a better understanding of potential vulnerabilities for EMA in the global food system through an examination of historical events, the changing practices of organizations to deal with and anticipate incidents, and the susceptibility of the food supply to intentional contamination. Five organizations completed the survey, including three manufacturers, one consultant, and one food service organization (restaurant). Findings included the following:

- Experience with EMA varies greatly by organization and is dependent on what type of business/product categories the organization is engaged in, as follows:

    - More extensive if in commodity-like product categories.
    - Less extensive if in value-added products.

- Certain commodities—spices, juices, dairy, seafood, and processed meats—are prone to EMA on an almost ever-present basis.

- Any food products that afford price premiums are prone to EMA.

- The vast majority of EMA incidents appear to be simply a matter of fraud and pose little or no security threat.

However, certain incidents suggest potential security vulnerabilities; examples include melamine in milk (in China) in the ability to fool analytic testing, product thefts, and the re-emergence of the product in the market/counterfeiting of the product on the market.

5.4.2 Prediction of Economically Motivated Adulteration—President's Food Safety Working Group Task 42

USDA/FSIS, together with FDA and DHS, worked with the NCFPD to develop a plan for research and analysis relating to EMA of food products. The first phase of the NCFPD work included collecting information on prior and potential EMA events, identifying potential indicators of EMA incidents, and identifying quality assurance methods that could be most readily exploited by EMA. Future phases will include development of quantitative indicators and models that could be used to identify shifts in supply chains that warrant additional investigation because of the potential for EMA.

FSIS/Office of Data Integration and Food Protection (ODIFP) is the principle FSIS program area addressing EMA. ODIFP coordinated, engaged, and worked with other program areas, such as FSIS/Office of Public Health Science Zoonotic Diseases and Residue Surveillance Division, to identify, develop, and implement measures needed to help predict, prevent, identify, investigate, mitigate, and recover from EMA incidents and to develop strategies for addressing EMA risks.

5.5 Electronic Commodity Ordering System: Complaint System and Rapid Alert System

The Web-based electronic commodity ordering system (ECOS) for foods procured by USDA and delivered to USDA nutrition assistance programs includes both a complaint and a Rapid Alert System (RAS) component. The FNS/Office of Food Safety monitors all complaints to identify potential intentional/unintentional contamination events. In the event of a problem with or recall of USDA-procured foods, FNS can use the RAS to notify recipients quickly.

In 2011/2012, the Web-based ordering system will transition to a new platform, the Web-Based Supply Chain Management (WBSCM) system. Testing has been conducted to assure that all complaint component and RAS capabilities are fully functional in WBSCM.

5.6 Employees FIRST Food Defense Awareness Training Kit

The Employees FIRST toolkit was rolled out in August 2008. This toolkit is part of ongoing employee training programs by management in the food industry. The toolkit focuses on the following: (1) identifying the five key points that industry and businesses can use to educate frontline workers about the risk of intentional food contamination, and (2) providing measures to consider and implement to reduce these risks. Each of the letters in the FIRST acronym describes an action that a frontline employee can take to mitigate the risks of intentional contamination:

  F – Follow company food defense plan and procedures.
  I – Inspect your work area and surrounding areas.
  R – Recognize anything out of the ordinary.
  S – Secure all ingredients, supplies, and finished product.
  T – Tell management if you notice anything unusual or suspicious.

Outcomes:

- The toolkit includes a 10- to15-minute DVD presentation that combines photos, context, and video clips, as well as a four-color poster.

- The materials were originally available in English and Spanish.

- In 2009, additional languages—Chinese, French, Korean, Portuguese, and Vietnamese— were made available and posted on FDA's Web site.

Metrics:

- Employees FIRST materials distributed from 2008 to April 5, 2011: 311,824:

  - DVDs (English): 57,214
  - DVDs (Spanish): 26,221
  - DVDs (Chinese): 64
  - DVDs (French): 16
  - DVDs (Japanese): 37
  - DVDs (Korean): 42
  - DVDs (Vietnamese): 44
  - Training flyers: 39,503
  - 11 × 14 posters, double-sided (English/Spanish): 11,901
  - Postcards, 100 per pack: 164,200 (1,642 packs)
  - Magnets (English): 8,405
  - Magnets (Spanish): 4,177

5.7 USDA/Food Safety and Inspection Service Exercises

To ensure that FSIS can better respond to an intentional attack or large-scale food safety emergency involving meat, poultry, or egg products, FSIS conducts food protection TTXs and functional exercises. These exercises ensure that FSIS tests and validates standard operating procedures and agency directives for responding to incidents. These exercises also provide the framework for Federal, State, and local government agencies; the food industry; and consumer groups to work together to detect, respond to, and recover from incidents.

In FY 2010, FSIS/ODIFP successfully conducted 13 separate headquarters, district, and regional exercises: four related to illegal imports, three concerning *Escherichia coli* O157:H7, one Emergency Support Function #11, one food service/food defense exercise, and four laboratory exercises. Through these TTXs, agency personnel gained familiarity with risk communications, FERN, the FSIS Incident Management System (FIMS), the Emergency Management Committee, the Incident Command System (ICS) structure, and food-borne illnesses such as *Escherichia coli* O157:H7. In addition to FSIS headquarters and field personnel, the exercises involved State and local public health, agriculture, law enforcement, and emergency management offices; other Federal agencies representing USDA (e.g., APHIS and OIG); EPA; FDA; DHS (IP and PSAs); consumer groups; industry trade associations; and commercial establishments.

5.7.1 Federal Radiological Advisory Team for Environment, Food, and Health

USDA/FSIS served as USDA's representative to the Federal Radiological Advisory Team for Environment, Food, and Health. Between May 1, 2010, and April 30, 2011, USDA/FSIS participated in several exercises, a review of documents, and operational meetings. Through these activities, agency personnel gained familiarity with the response to accidental release of radiation from a commercial nuclear power plant and the intentional release of radiation from a radiological dispersion device (RDD). In addition to FSIS headquarters and field personnel, the exercises involved the State and local public health, agriculture, law enforcement, and emergency management offices and several key advisory team agencies, such as the EPA, FDA, and CDC.

5.7.2 Exercise Program—Food Protection Exercises

FSIS/ODIFP successfully conducted eight food protection exercises between May 1, 2010, and April 30, 2011. Through these exercises, agency personnel gained familiarity with transportation vulnerabilities, FERN, and the FSIS laboratories. In addition to FSIS headquarters and field personnel, the exercises involved the State and local public health, agriculture, law enforcement, and emergency management offices; industry trade associations; commercial food companies; and other Federal agencies, such as the CDC, FBI, and FDA. In addition, USDA/OIG and APHIS were vital participants.

5.7.3 Continuity of Operations Level 4 Exercise

On May 17–18, 2010, USDA/FSIS/ODIFP conducted a Functional Level 4 Continuity of Operations (COOP) exercise/training session involving COOP personnel. This exercise/training session was conducted as part of the DHS Eagle Horizon National Level Exercise and in conjunction with other agencies of USDA. USDA/FSIS conducted the Functional Level 4 COOP exercise/training session, which fulfilled its yearly requirement for testing and training. In addition, it satisfied the requirement to hold both a joint department/agency and a national-level exercise of USDA/FSIS's COOP plans. USDA/FSIS's objectives for the exercise were to (1) ensure that COOP personnel understand their roles and responsibilities and are able to accomplish critical functions; (2) ensure that safeguards are in place and supporting activities are identified and coordinated; (3) verify that the COOP "call down" procedures are effective; (4) verify that equipment, supplies, and documentation are available and operational; (5) verify that relocation personnel can reach the Emergency Relocation Facility (ERF); and (6) verify that USDA/FSIS's primary mission essential functions are known and can be met by COOP personnel at the USDA/FSIS/ERF.

5.8 Food Contamination Detection Requirements Analysis

The Food Contamination Detection System Modeling project being developed by Gryphon Scientific is setting high-level requirements for a system that can screen food for intentional

biological and chemical contamination. These requirements prioritize the types of food items that should be screened and set requirement parameters, such as limit of detection, optimum point in the food production process to be sampled, detection latency, etc. Quantitative requirements will be set by parametric analysis. Qualitative requirements will be set via interviews with stakeholders in government and private industry.

This effort supports the capability gap 152(Ag4) titled "Biological and Chemical Agent Detector for Use with a Multitude of Food Matrices" submitted to DHS/Science and Technology Directorate (S&T) IPT by FDA.

5.9 Food Defense Outreach Activities

FSIS/ODIFP had its revised booklet, *Food Defense Guidelines for Slaughter and Processing Establishments,* translated into Spanish and posted on the FSIS Web site. This expands FSIS's outreach to industry in the agency's ongoing effort to encourage voluntary implementation of additional security measures to further protect the food supply from intentional contamination.

FSIS/ODIFP also developed a nationwide strategy to begin networking with fusion centers run by the State and major urban areas. FSIS field investigators now conduct liaison activities with the fusion centers to brief them on FSIS's roles and responsibilities and on food defense concerns. In addition, FSIS/ODIFP is also exploring approaches to sharing quarterly suspicious activity reports with the centers. This outreach activity will expand awareness and be a force multiplier in preventing and responding to food-related incidents.

5.10 Food Defense Surveillance and Verification Procedures

HSPD-3 established a threat advisory system—the Homeland Security Advisory System (HSAS)—to effectively communicate the level of risk of a terrorist attack on the American people. It prescribed that Federal agencies develop appropriate "protective measures" in response to each of the five threat levels established. To address this prescription, FSIS developed and implemented Directive series 5420 for each of its eight program areas to establish such protective measures.

On January 27, 2011, DHS announced that it would discontinue HSAS's color-coded Threat Condition alerts on April 27, 2011, in favor of a new system, the National Terrorism Advisory System (NTAS). Under the new system, DHS coordinates with other Federal entities to issue formal, detailed alerts when the Federal Government receives information about a specific or credible terrorist threat. These alerts include a clear statement that there is an "imminent threat" or "elevated threat." The alerts also provide a concise summary of the potential threat, information about actions being taken to ensure public safety, and recommended steps that individuals, communities, businesses, and governments can take. FSIS is revising the 5420 series directives to reflect the new NTAS.

The 5420 series directives provide instructions on what additional food defense-related actions personnel will take based on the alert threat level. The measures include active surveillance through a series of food defense inspection procedures performed daily in all FSIS-regulated facilities, including import inspection facilities and in-distribution facilities. The frequency of the activity increases as the threat increases.

Results of the procedures are reported through FSIS databases and are analyzed on a routine basis for trends. Results are used to direct ODIFP on outreach and guidance material, as well as countermeasure development. In FY 2010, in accordance with FSIS Directive 5420.1, FSIS conducted approximately 698,337 risk-based food defense verification procedures in approximately 6,081 FSIS-regulated slaughter and processing facilities and 1,619 State-inspected facilities. In addition, FSIS conducted approximately 10,450 food defense verification procedures in FY 2010 at in-commerce facilities in accordance with FSIS Directive 5420.3. The surveillance data from the food defense verification procedures were analyzed to identify potential vulnerabilities, and the information was used to direct outreach and guidance efforts accordingly. With the move to risk-based implementation shortly before the start of FY 2010, a greater frequency of procedures was performed in establishments that produce large volumes of potentially higher-risk products (with regard to food defense) than procedures performed in establishments with smaller volumes and lower-risk products and that have food defense plans in place.

5.11 Food Protection Rapid Response Team and Program Infrastructure Improvement Prototype Project

The Food Protection Rapid Response Team (RRT) and Program Infrastructure Improvement Prototype Project cooperative agreements will develop, implement, exercise, and integrate an all-hazards food and food-borne illness response capability to enable teams to react more rapidly to potential threats to our food supply. The RRT is designed to enhance response capabilities, drawing together partners in the food safety system, including other food and feed agencies within State programs, FDA district offices, other State RRTs, and State emergency operations centers.

Each State receives up to $500,000 each year of the project period. Total FY 2010 funding was approximately $4,500,000. States receiving the grant funds are the following: California, Florida, Massachusetts, Michigan, Minnesota, North Carolina, Texas, Virginia, and Washington. Each of the nine pilots, involving multiple agencies in each State and FDA Field Office partners, has developed multiple key or unique response capabilities and is making notable strides in improving multidisciplinary and multijurisdictional collaboration, such as emergency response plans, commodity-specific tools, and joint training and exercises.

In July 2010, the RRTs participated in an annual face-to-face meeting involving 80 participants from 40 Federal and State offices and shared capabilities developed and harmonized project directions. Since the meeting, the RRTs have formed working groups to develop a documentation of best practices in the development of key response capabilities, such as communication standard operating procedures and joint investigations. These documents

included various measures that were further developed into metrics of capacity and achievement. This compilation was shared nationally for review during the month of April 2011 in preparation for sharing as a tool for all States to use.

The "RRT Playbook" describes best practices gathered from all nine pilot States on seven key response capabilities that can be used by any State to improve those aspects of their response programs. At least 17 organizations involved in food emergency response are being engaged in a national review of this playbook.

5.12 Food Risk Models for the Bioterrorism Risk Assessment

To address the urgent need for a methodology to generalize food systems for the Bioterrorism Risk Assessment, NCFPD has undertaken a food risk analysis. NCFPD's objectives for this project were to:

- Develop clusters of foods that represent similar characteristics with respect to intentional contamination;

- Develop a metric for selecting exemplary foods from within each cluster;

- Select the exemplary foods from each cluster;

- Support the development of food risk models; and

- Support data collection for the next generation of food risk models.

To develop the clusters of foods, NCFPD considered how those foods would fit into broad categories, from pre-farm inputs through consumption. This designation includes considering current and potential vulnerabilities, interventions/mitigation strategies, response systems, and recovery strategies. Ten food clusters have been identified with an exemplary food selected from each cluster. This project is ongoing.

5.13 USDA/FSIS Incident Management System

The USDA/FSIS continues to enhance the capabilities of FIMS, a Web-based common operating platform for managing significant incidents. FIMS allows program managers to rapidly identify, respond to, and track the agency's response to significant incidents, such as suspected tampering of products, threats to facilities, natural disasters, and Class 1 recalls with at least one illness. During this year, monthly maintenance enhancements ensured continuous operation of the system. Additional enhancements are under way that will greatly increase its universal functionality and efficiency. The FIMS platform also hosts the Import Alert Tracking System for tracking illegal imports. The system also provides alert capabilities for food-borne investigations. These capabilities will be increased during this calendar year. USDA/FSIS has revised the FIMS

User Guide to harmonize the instructions with FIMS enhancements. FIMS users received a series of training sessions (both live and via Webinar), and "Tech Tips" were prepared and distributed.

5.14 Industry Adoption of Food Defense Plans

While not a regulatory requirement, FSIS encourages all establishments to develop a functional food defense plan. Once implemented, the plan helps the establishment to focus prevention, response, and recovery actions to protect the business, its employees, and its customers.

The USDA Strategic Plan for FY 2010 through FY 2015 established as a performance objective that 90 percent of all establishments have a functional food defense plan by 2015. FSIS also set annual incremental performance goals leading toward the ultimate objective of a 90 percent adoption rate. FSIS's performance goal for 2010 was an adoption rate of 67 percent for all plants, which was up from the 62 percent rate measured by the 2009 annual food defense plan survey.

The adoption of food defense plans is measured in an annual survey conducted by FSIS inspection program personnel. The survey assesses whether each establishment has a written plan and, if so, whether the plan is functional (i.e., the measures described in the plan are implemented and periodically tested, and the plan is reviewed at least annually and revised if needed). The annual survey provides critical data to guide FSIS in its outreach efforts and its consideration of whether to undertake rulemaking to require adoption and implementation of food defense plans. Results from four previous surveys determined that nearly all large establishments have a food defense plan; historically, however, less than half of the very small establishments had a food defense plan. Therefore, FSIS conducted outreach targeted to small and very small establishments to provide education and guidance to facilitate development of food defense plans.

FSIS recently completed the Fifth Annual Food Defense Plan Survey, which found that 74 percent of all establishments have a functional food defense plan, well exceeding the FY 2010 goal of 67 percent. Much of this gain resulted from an increase in the number of very small establishments with functional food defense plans, which increased from 49 percent in 2009 to 64 percent in FY 2010. FSIS will continue outreach efforts in FY 2011, especially to very small plants, to maintain this positive movement in the voluntary adoption of food defense plans.

5.15 Innovative Food Defense Program Grants

The specific goal of the Innovative Food Defense Program (IFDP) Grant is to generate programs that complement, develop, or improve State and local food defense programs, identifying concepts which may then be applied to food defense programs nationwide.

There are two currently funded programs: one focuses on educating the regulator community, which can subsequently educate the regulated industry; and the other project seeks to address training needs within the food worker population. These initiatives are described in greater detail below.

One project seeks to address the FDA's goals of improving awareness, response, and recovery of intentional food contamination by training regulators in food defense awareness, risks, and mitigation strategies by using a program that would be innovative and transferable for use by other national, State, and local entities. These regulators would then be charged with assessing and training a targeted group of food service establishments over a 12-month period. Methods for accomplishing project objectives include use of the FDA's current programs in food defense awareness, along with pre-existing, established food safety infrastructure to develop and deliver a food defense training project.

The second project seeks to continue to distribute information on food defense to food facility employees and managers. The following activities are currently being addressed:

- Installing television screens, digital signage control systems, and audio in various lobbies of offices where food workers prepare to take food worker certification examinations. The screens will run the Employees FIRST (Follow, Inspect, Recognize, Secure, Tell) DVD.

- Creating a video of the jurisdiction's Food Worker Certification manual by incorporating food safety practices with the food defense information from the Employees FIRST DVD. Copies of the DVD will be provided to food workers and food facilities requesting an additional teaching tool. The video will also be added to the rotation of programming presented to food workers on the lobby televisions.

- Contracting with a graphic artist to develop a brochure describing the key concepts of the Employees FIRST food defense program. The brochure would provide a visual presentation of the Employees FIRST initiative and would build on the information cards already available through the FDA. These brochures will be distributed to all food facility employees when they obtain their food workers certification card and will also be available for food facilities requesting information on the initiative.

- Designing and distributing useful promotional items to remind food workers about the food defense concepts they have learned.

Innovative Food Defense awards for FY 2010 exceeded the amounts awarded in previous years by a large margin. The two recipients of the IFDP funds were the Oklahoma State Department of Health and Riverside County, California; each was awarded a grant of up to $100,000 in FY 2010.

5.16 Integrated Food Safety System/Partnership for Food Protection

Together with our Federal and SLTT partners, FDA is working to plan and implement an inspection and enforcement program to ensure high rates of compliance with the agency's food safety standards. By working with its Federal and SLTT regulatory and public health partners, FDA will establish a fully integrated national food safety system that will be built on collaboration among all of these partners. The system will encompass inspections, laboratory

testing, and response and will place priority on preventing food-borne illness in food for both humans and animals through the adoption and uniform application of model programs, such as the Manufactured Food Regulatory Program Standards (MFRPSs) and the Retail Food Regulatory Program Standards and other appropriate program standards. This collaboration will result in (1) better ability to assess potential risk at domestic food facilities and greater and more consistent inspectional coverage of these facilities across the entire food supply chain; (2) greater food surveillance through integration of food facility inspection and testing information; and (3) improved rapid response capacity and efficiency.

Under this system, FDA and Federal and SLTT regulatory agencies will conduct food facility inspections under the same set of standards. FDA will work with its regulatory partners to develop uniform national standards, including inspection, investigation, and testing protocols; develop training and certification requirements; establish program audit criteria; and create performance metrics to help ensure that program objectives are met. System integrity and credibility will be maintained through regular program oversight and accountability at all levels. Federal and State inspections will be conducted in accordance with a public national work plan driven by health risk reduction objectives that FDA will develop with its regulatory partners. An integrated system will result in more coordinated response efforts to better respond to multistate outbreaks when they occur.

To be fully successful, the national food safety system must be built with continuous input from FDA's regulatory and public health partners. It must be sustained through multiyear investments by all levels of government to build the necessary State and local infrastructure; it must also contain adequate legislative authorities to facilitate information sharing and communication among all partners and include infrastructure for a national electronic information-sharing mechanism. These actions will result in a national food safety system that reduces food-borne illness, identifies sources of risk throughout the system, and reduces the time it currently takes to detect and respond to outbreaks. An approach to food safety activities and responsibilities that is collaborative, leveraged, and driven by public health concerns will be reflected in improved public sector resource utilization at a national level, which provides additional capacity for helping to ensure a safe and secure food supply.

Outcomes:

On August 17–19, 2010, FDA held a 50-State workshop, entitled "A United Approach to Public Health," in Denver, Colorado. This meeting brought together more than 267 officials involved in food safety across the Nation from all 50 States, five territories, and multiple Federal agencies.

The 50-State workshop was a key milestone in building an integrated national food safety system. Working in various breakout sessions, the participants identified and developed a series of recommendations to further the development and implementation of an Integrated Food Safety System. Topics addressed included managing conflict, integrating response efforts, conducting joint investigations, improving communication, measuring outcomes, and resolving issues associated with the current resource crisis. A final report can be found online at: http://www.fda.gov/downloads/ForFederalStateandLocalOfficials/Meetings/UCM236060.pdf.

The Partnership for Food Protection Workgroups organization is currently involved in implementing various recommendations made by breakout groups from the 50-State workshop, developing and implementing food- and feed-integrated assignments, and working to address applicable Federal-State provisions in FSMA.

The August 50-State workshop brought together 267 attendees with diverse perspectives from Federal and SLTT government agencies. This gathering included officials with expertise in food, feed, epidemiology, laboratory processes, animal health, and environmental and public health from all 50 States, five U.S. territories, and several Federal agencies, including FDA, CDC, USDA/FSIS, DOD, DHS, EPA, and the Indian Health Service.

5.17 Manufactured Food Regulatory Program Standards

The FDA, along with selected State program managers, worked to develop a set of standards that could be used by the States as a guide to continuous improvement in State food manufacturing programs. These standards were designed to be used as a foundation for creating, implementing, documenting, and operating a State food manufacturing program. States choose to implement the MFRPSs as an option under their State food contracts.

States are currently paid $5,000 a year to implement the MFRPSs and for each year they continue in the program. The first contractual obligation for the newly implementing State is to conduct a self-assessment of its food manufacturing program against the MFRPSs and develop an improvement plan for program areas where the State feels it does not meet the intent of the standard(s). The next step is to participate in an FDA assessment of the State's self-assessment and improvement plan. This assessment is performed between the twelfth and eighteenth months of the State's participation. A second FDA assessment is conducted around the 36-month participation mark to ensure that the State food program is on track with its improvement plan. The first two assessments are led by FDA/Division of Federal-State Relations (DFSR) and involve individuals from the FDA District offices. At the 60-month mark, an external audit of the State food manufacturing program is conducted to assess full compliance with the MFRPSs.

DFSR has created the Development and Integration Branch to assist States with implementing the MFRPSs. This branch includes eight positions. Six of these positions are co-located in the field, and two are located in Rockville, Maryland. The six standards specialists are located in six regional offices and assist States with self-assessments, gap analysis, technical guidance to promote compliance with the MFRPSs, the sharing and exchange of best practices related to implementation of the MFRPS, and development and improvement of the standards.

Metrics:

- Thirty-two (32) States were visited in 2010.

- Sixteen (16) States have conducted pre-assessments as of April 2011.

- Three new States—Connecticut, Iowa, and Pennsylvania—participated in 2010.

- It is possible that six new States—Idaho, Illinois, Indiana, Kentucky, Tennessee, and Vermont—will particulate in 2011.

- Thirty (30) programs in 29 States are implementing the MFRPSs, as follows:

    - $5,000 awarded each year elected;
    - State conducts self-assessment and develops improvement plan;
    - FDA assessment of self-assessment/improvement plan at 12- to 18-month mark;
    - Second FDA assessment conducted at the 36-month mark; and
    - Audit takes place at 60 months.

5.18 Mitigation

During the reporting period, both USDA and FDA launched tools to assist owners and operators with identifying mitigation strategies.

5.18.1 FDA's Food Defense Mitigation Strategies Database

FDA launched the Food Defense Mitigation Strategies Database on March 23, 2011. The database is one of several tools developed by the FDA for the food industry to help protect the Nation's food supply from deliberate acts of contamination or tampering. This resource is designed for companies that produce, process, store, package, distribute, and/or transport food or food ingredients. The database provides a range of preventive measures that companies may choose to implement to better protect their facility, personnel, products, and operations. The database is posted online at: http://www.fda.gov/Food/FoodDefense/ucm245544.htm.

Metrics:

Since the launch of the database on March 23, 2011, there have been a total of 2,212 visits to the Web site.

5.18.2 FSIS Food Defense Risk Mitigation Tool

One countermeasure identified by industry during VAs conducted jointly with FSIS was to develop a searchable, user-friendly tool that is needed to facilitate identification and selection of applicable mitigation strategies (i.e., countermeasures). To serve this need, ODIFP developed the FSIS Food Defense Risk Mitigation Tool, an online resource for industry. ODIFP created a framework for the tool that would achieve the desired search functionality but could be easily implemented on the FSIS Web site. After internal review of the tool, ODIFP solicited industry input and demonstrated the tool to the co-chairs of the FASCC and FDA. Users can readily look up information specific to their industry or area of interest. The Food Defense Risk Mitigation Tool is available on the FSIS Web site. This tool complements existing guidance materials and makes it easier for establishments and plants to develop effective food defense plans, thus

enhancing measures to protect public health. In the first two months after it was launched, the site received more than 1,100 visits. Internal development of the tool enabled rapid implementation and saved hundreds of thousands of dollars.

5.19 National School Lunch Program Threat Agent Testing Program

FSIS/ODIFP/Food Defense and Assessment Staff (FDAS) and the NSLP developed and implemented a threat agent testing program for the NSLP. Threat agent testing on the NSLP was identified as a critical countermeasure during a recent update to the NSLP VA. This program is an additional effort to detect intentional contamination. The program includes all FSIS-regulated NSLP suppliers. A significant outcome is that this project is a major effort to better protect the millions of school children whose schools participate in the NSLP.

5.20 Natural Antimicrobials to Mitigate Biological Threat Agents

The University of Kentucky is identifying effective Generally Recognized as Safe (GRAS) antimicrobials that can be used either as a direct additive in the product formulation, an edible bio-film/coating, or a component of the packaging process to control the growth and survival of bio-threat agents in foods. The results of this research should provide effective, safe, economical, and practical solutions for food processors attempting to control the growth of several threat agents in high-risk foods.

Initially, the Technology Readiness Level (TRL) of this project is rated at Level 3. This means that sufficient information exists in the literature to indicate that the objectives described should be successful. Effective mitigation techniques to control the risk of both heat-resistant pathogenic bacteria and traditional food-borne pathogens identified in this work will result in prototype foods produced in a pilot food-processing laboratory. The development of these prototypes should improve the TRL to Level 6.

Actual application of the technology in the food processing industry will be dependent on the application techniques employed. Simply adding the antimicrobial compounds to the product directly or including them as a "volatile" component to a packaging system should require little additional effort beyond the scope of this work to achieve a TRL of Level 9. The development of edible films/coatings or packaging modifications that would require the manufacture of industrial food processing equipment would require additional development to help ensure effective and economical adaptation to the processing environment.

This research has already evaluated 16 promising antimicrobial GRAS compounds and identified three that inhibit spore-forming bacteria. Continuing efforts are under way to determine how to protect the processed food without compromising taste. The project, including the five deliverables in the National Institute for Hometown Security's (NIHS's) chief technical officer review, is approximately 50 percent complete.

5.21 Optical Detection of Microbial Contamination in Food Matrices

This project's objective is to improve analytical methods to enhance and validate detection of a wide spectrum of biological threats against the food supply system. This project is being pursued because threat agents can be effective in very low doses and, therefore, agent detection systems need to have high sensitivity (i.e., the ability to detect small amounts). They must also be able to identify a specific signal from the chemical/biological agent while rejecting, or at best, minimizing any signal originating from a nonpathogenic or nontoxic biological background.

The University of Kentucky and the USDA/Agricultural Research Service (ARS) Quality Assessment Research Unit in Athens, Georgia, are researching the potential for real-time detection, identification, and quantification of microorganisms in food matrices. ARS will collect background optical information on pure cultures of pathogens in plates and solutions, and this information will be used to determine the identifiable detection levels of pathogens in food matrices. The University of Kentucky will develop a microbial separation technique to separate microorganisms from the food solids in matrices to enhance the opportunity for optical identification, and an ultrasonic technique will be tested for concentrating microorganisms in solutions. An ultrasonic standing wave system and hyper spectral imaging system will be combined to enhance the limits of detection of microorganisms in solution.

Laboratory equipment needed to conduct this research has been identified and ordered. The Hyper Spectral system arrived in late May 2011. Subcontracting arrangements for USDA/ARS have been completed.

5.22 QuEChERS Technologies for Detection of Threats to the Food Supply

The overall objective of this project is to improve analytical methods that enhance and validate the detection of chemical threats to the U.S. food supply. USDA/ARS has developed a method called QuEChERS for chemical residue analysis of food matrices. The objective is to further develop, validate, and extend this method to the detection of threat agent chemicals and agricultural and commercial chemicals that could be used to contaminate the food supply.

The University of Kentucky is developing a risk-based approach that will be used to decrease the probability of introduction of chemical or biological toxin contaminants into the food supply by analyzing and assessing vulnerabilities in two food model systems. A systematic application and iterative development of these models will aid in establishing critical control points in the supply, processing, and distribution chains, with the ultimate goal of implementing analytical QuEChERS technologies to prevent and/or detect toxin contamination.

Two selected toxins will be evaluated in each of two food models with the goal of developing commercial applications of the QuEChERS detection technology for use at key vulnerable stages in food handling, processing, and distribution. The food models include freshly cut produce and raw ground beef, and the toxins include endotoxin, a component of Gram-negative bacterial cell walls, and 2-(butylamino)ethanethiol, a known simulant for the chemical warfare nerve agent

VX. Both models focus on raw food products because they are not heat treated and thus can pose a danger not only from deliberate attack but also from ordinary mishandling. Results obtained with this modeling approach will be useful in preventing both deliberate and accidental contamination of the U.S. food supply.

The project, which began in March 2011, is on schedule as planned. The team is working on subcontracts and project initiation activities; the first milestone was due in May 2011.

5.23 FDA's Reportable Food Registry

The Reportable Food Registry (RFR) was established by Section 1005 of the Food and Drug Administration Amendments Act of 2007 (Pub. L. 110-85), which amended the Food, Drug, and Cosmetic Act (FD&C Act) by creating a new Section 417, Reportable Food Registry [21 USC 350f]. The RFR required FDA to establish an electronic portal by which reports about instances of reportable food must be submitted to FDA within 24 hours by responsible parties and may be submitted by public health officials. These reports may be primary, the initial submission about a reportable food, or subsequent, a report by either a supplier (upstream) or a recipient (downstream) of a food or food ingredient for which a primary report has been submitted.

The RFR covers all human and animal food/feed (including pet food) regulated by FDA, except infant formula and dietary supplements. (Other mandatory reporting systems exist for problems with infant formula and dietary supplements.) Submissions to the RFR electronic portal provide early warning to FDA about potential public health risks from reportable foods and increase the speed with which the agency and its partners at the State and local levels can investigate the reports and take appropriate follow-up action(s), which include ensuring that the reportable foods are removed from commerce when necessary.

Outcome:

The Reportable Food Registry Annual Report was released in January 2011 and comprises the reporting period of September 8, 2009, through September 7, 2010. The report can be accessed at: http://www.fda.gov/Food/FoodSafety/FoodSafetyPrograms/RFR/ucm200958.htm.

Metrics:

- In all, 2,240 submissions of reportable food incidents were entered into the Registry:

  - A total of 2,600 submissions were received, of which 360 were determined to be nonreportable after review by the FDA Risk Control Review Team.

- RFR migration:

  - On May 24, 2010, FDA and the National Institutes of Health (NIH) launched the HHS Safety Reporting Portal (SRP), a new Web site for reporting several types of

problems, including reportable foods. The SRP features new, more user-friendly software than previously available on the Reportable Food electronic portal. Responsible parties and/or public health officials can open accounts that provide greater convenience than was available on the original RFR portal.

- RFR-driven food industry changes:

  – Several large third-party food safety audit firms have incorporated the requirements of the RFR into their audit standards or the guidance documents they provide to their clients.

  – One of the Nation's largest baking industry trade associations is reviewing and enhancing its industry guidance on preventing unintended allergens from being introduced into bakery products.

  – Following publication of reportable food data relating to Salmonella in spices and seasonings, a national spice trade association is developing guidance to reduce the risk of pathogen contamination in spices.

  – One of the Nation's largest food retailers now instructs its suppliers around the world about their RFR responsibilities at its periodic summits for suppliers.

- FDA initiatives associated with RFR data:

  – In three notable situations, reportable food submissions alerted FDA to significant food safety issues and helped the agency respond quickly to help ensure that potentially harmful products were not available in the marketplace.

  – Because of reportable food submissions involving Salmonella in nuts and nut products, the FDA intends to include an annex on nuts in industry guidance currently under development on Salmonella in low-moisture foods.

  – The FDA is preparing a publication explaining its sulfite regulation and labeling requirements as a result of reportable food data concerning imported dried fruits and vegetables containing undisclosed sulfites.

  – In two cases, reportable food submissions triggered follow-up investigations by the FDA and resulted in the placement of two firms on Import Alert.

  – The FDA issued six Import Bulletins to increase surveillance by its investigators at ports of entry as a result of reportable food submissions.

  – The FDA issued four field assignments as a result of RFR data for increased inspection and sampling of certain imported and domestic products based on reportable food submissions.

− The FDA has revised its internal RFR system to distribute information on reportable food submissions automatically to commissioned officials at appropriate State agencies in addition to FDA District Offices.

5.24 Sampling and Analysis of Products at the Port of Entry

One of the priorities identified by the President's Food Safety Working Group was collaboration among FSIS, FDA, and CBP so that CBP could collect and test imported food samples on behalf of the two agencies at ports of entry. FSIS collaborated with the FDA and CBP to identify scenarios in which collaboration on the sampling and analysis of imported food products would further the agencies' needs and objectives. On the basis of this understanding, FSIS and CBP exchanged information on applicable sampling and analysis methods; drafted a summary document that identifies each agency's points of contact; and describes the expected scenarios in which collaboration might be needed, as well as lines of communication, roles and responsibilities, information sharing, and next steps to expand and enhance collaboration. FSIS, FDA, and CBP will continue to work together to expand collaboration, for example, by facilitating technical information exchange among laboratory staff, organizing training, and conducting workshops to test collaboration protocols. This interagency collaboration will strengthen Federal coordination to address cross-cutting problems (one of the recommendations of the Food Safety Working Group) and enable the agencies to respond more quickly and efficiently to investigate and mitigate incidents of potential adulteration of food products.

5.25 Small/Very Small Plant Outreach

The 2009 FSIS food defense plan survey found nearly 100 percent adoption of food defense plans by large establishments, and a rate of above 70 percent adoption by small plants. However, less than half of the approximately 2,600 very small establishments surveyed in 2009 had food defense plans. Therefore, FSIS expanded outreach in 2010, with particular emphasis on small and very small establishments. FSIS highlighted food defense issues at exhibitions, conventions, and educational seminars and worked with State Hazard Analysis and Critical Control Point Contacts and Coordinators and trade associations representing very small establishments to distribute food defense information, guidance, and educational materials. Language was identified as a barrier to reaching some small and very small establishments. Therefore, ODIFP had its *Guide to Developing a Food Defense Plan for Meat and Poultry Slaughter and Processing Plants* translated into Spanish, Mandarin Chinese, Korean, and Vietnamese and posted on the FSIS Web site. ODIFP also had its *Guide to Developing a Food Defense Plan for Warehouse and Distribution Centers* translated into Spanish and Mandarin Chinese and posted on the FSIS Web site. The General Food Defense Plan was also translated into Spanish, Mandarin Chinese, Vietnamese, and Korean and is available on the FSIS Web site. FSIS also mailed copies of the General Food Defense Plan to all establishments that lacked a written food defense plan. The 2010 Food Defense Plan Survey determined that, as a result of the various outreach efforts, 82 percent of small establishments and 64 percent of very small establishments have a functional food defense plan—up from 2009 rates of 72 percent and 48 percent,

respectively. The adoption and implementation of functional food defense plans enhance protection of the food supply and public health.

5.26 USDA/Food and Nutrition Service Tabletop Exercises for the National School Lunch Program

USDA/FNS is developing a TTX toolkit for program operators that will involve the contamination of food in the NSLP. The toolkit will provide stakeholders with the means to test their school food defense plans, including communication protocols and response activities. Three school district pilot tests were conducted in Georgia, Oklahoma, and New Mexico, the last was completed in May 2010. These pilots informed the development of a draft toolkit, which will be used in three field tests to be conducted in 2011/2012. The results of the field tests will guide the revision of the toolkit, for which a 2012 release date is projected. Pending funding, FNS will support a limited number of TTXs in school districts on a first come/first served basis in 2012.

5.27 Updated Food Defense Guidelines for Transportation and Distribution

The purpose of this guidance, produced by USDA/FSIS/ODIFP/FDAS, is to assist those handling food products during transportation and storage. These guidelines provide a list of security measures that can be taken to prevent intentional contamination of meat, poultry, and egg products during loading, unloading, transportation, and in-transit storage.

These guidelines address security measures specifically intended to prevent intentional contamination due to criminal or terrorist acts. They apply to all points of shipment of the products from the processor to delivery at the retail store, restaurant, or other facility serving consumers.

A significant outcome is that this guidance strongly encourages all shippers, receivers, transporters, and import brokers of these products to develop controls for ensuring the condition and integrity of the products through all phases of distribution.

5.28 Vulnerability Assessments

5.28.1 FDA Company-Specific Vulnerability Assessments

In the fall of 2010, the FDA entered into a contract with the Institute of Food Technologists (IFT) to make use of the CARVER+Shock software to conduct company-specific VAs of FDA-regulated commodities. A total of 35 VAs will be conducted using the manufacturing, agriculture, and retail/foodservice software to identify vulnerable points in the food supply, appropriate mitigation strategies, and future research needs for the FDA.

- To date, 22 VAs have been conducted regarding the following FDA-regulated commodities:

  – Alfredo sauce
  – Apple packing
  – Cheese
  – Chocolate
  – Chocolate-coated nut confections
  – Eggs
  – Flour tortillas
  – Frozen, breaded fish patties
  – Frozen sandwiches
  – Gluten-free pancake mix
  – Mushrooms

  – Onion packing
  – Peanut brittle
  – Peanut butter
  – Pickled watermelon rinds
  – Powdered flavor
  – Salad dressing
  – Salsa
  – Seasoning
  – Strawberry jelly
  – Squash/okra
  – Trout aquaculture

5.28.2 Vulnerability Assessment of Food Systems—Farm, Manufacturing, Retail, and Distribution

HSPD-9 requires the FDA to conduct VAs of the food sector and to update them every two years. The FDA/Center for Food Safety and Applied Nutrition (CFSAN)/Office of Food Defense, Communication, and Emergency Response (OFDCER) is responsible for coordinating the agency's food defense efforts. OFDCER has identified the need to conduct VAs of key areas within a food system that are susceptible to intentional contamination and to identify the means for contamination prevention and protection of food systems, as well as for detection, decontamination, disposal, and recovery in the event that such a contamination should occur. A contract was put in place to perform updates of 17 existing VAs and to perform VAs of at least 14 food systems that have not previously been assessed.

- To date, the following 15 VAs were updated and validated:

  – Apple juice
  – Baby food (applesauce)
  – Bottled water
  – Breakfast cereal (frosted flakes)
  – Dairy (fluid milk)
  – Dairy (retail milk)
  – Distribution
  – Feed mill

  – Frozen food (pizza)
  – Grain
  – Grocery store (rotisserie chicken)
  – Fresh produce (bagged salad)
  – High-fructose corn syrup
  – Infant formula (powdered)
  – Yogurt

- The following 12 new VAs have been conducted:

  – Animal by-products
  – Baked goods
  – Breaded food (breaded fish product)
  – Chocolate – candy bar

  – Coffee shop
  – Cooked, refrigerated ready-to-eat seafood (surimi)
  – Ice cream
  – Imported product – spices

- Pet food
- Restaurant

- Transportation – milk
- Transportation – orange juice

5.28.3 International and Domestic Food Transportation Vulnerability Assessments

USDA FSIS previously conducted International and Domestic Food Transportation Vulnerability Assessments on the beef trim and liquid egg supply chains to determine risk from intentional contamination of regulated products. During the reporting period, USDA/FSIS/ODIFP/FDAS presented results of the assessments to the United Egg Association, FBI Regional Agroterrorism Workshop, Highway Transportation Subsector Coordinating Councils, and DHS, as well as in a national Webinar. The total audience included 124 participants. In previous VAs conducted by FSIS, transportation was identified as among the highest potential areas of concern for the intentional contamination of food. These VAs confirmed that critical vulnerabilities exist in food transportation.

The Transportation Vulnerability Assessment Work Group acknowledged that progress has been made by industry, the Federal Government, and State agencies in implementing mitigation strategies (i.e., countermeasures) to limit the potential for intentional contamination of food during transport. However, realizing that more work needs to be done, the work group not only identified critical countermeasures for industry to implement but also recommendations for government agencies to enhance food transportation defense.

5.28.4 Update of Legal and Illegal Imported Meat, Poultry, and Egg Products Vulnerability Assessments

In March 2004, FSIS carried out a VA of legally imported meat, poultry, and egg products. This farm-to-table assessment considered the entire supply chain, including processing of the commodity in the country of origin, transportation to a port or border location, maritime transport, receipt of products at a U.S. seaport, and truck transport of the commodity to its destination in the United States. In August 2007, FSIS conducted an assessment to examine food products that do not enter the country legally. FSIS recognized that such products can pose both food safety and food defense concerns. These products could be used to smuggle contaminated foods or contraband (such as equipment or devices enabling biological warfare and biological, chemical, or radiological agents and technologies) into the United States. In October 2007, FSIS also conducted a VA on Import Re-inspection Establishments as part of the Strategic Partnership Program on Agroterrorism. In 2010, FSIS conducted a VA on international transportation of FSIS-regulated food products. FSIS is in the process of updating both the legal and the illegal import VAs and are combining them into one updated VA report.

5.28.5 USDA/FSIS Directive 5420.3 Vulnerability Assessment Data Analysis

Compliance investigators with the USDA/FSIS/Office of Program Evaluation, Enforcement, and Review (OPEER) Compliance and Investigation Division (CID) conduct food defense surveillance in order to identify potential security vulnerabilities at in-commerce locations. A potential vulnerability can exist in any part of the food continuum. Examples of potential vulnerabilities include unrestricted access to product storage and staging areas, product processing areas, shipping/receiving areas, and water systems.

When compliance investigators conduct food defense surveillance procedures, they will ask the establishment's owners and operators a series of 12 questions relating to a food defense plan, outside/inside security, receiving/shipping areas, and product observation. The answers to these 12 questions are entered into the *AssuranceNet In-Commerce* system and subsequently stored in the FSIS data warehouse. The FSIS/ODIFP/Data Analysis Integration Group retrieves the data and creates a report for FDAS. The report is interpreted by FDAS and then briefed to the OPEER Assistant Administrator, Deputy Assistant Administrator, and CID Director every six months.

Section 6: Agriculture Defense

Agriculture defense is an ongoing process and is implemented through a set of actions and technologies designed to protect livestock, crops, facilities, data, and other assets. This section highlights a variety of agriculture defense initiatives conducted by Federal, SLTT, and private sector partners (see table 6-1 for a listing of projects). Additional information for some projects is available in attachment A. As stated in section 1, the goal/outcome categories of preparedness, detection, emergency response, and recovery capture projects and activities that help FA Sector partners prepare for and respond to incidents in order to minimize disruption of critical infrastructure and associated consequences. Partnership is also an important factor in the successful implementation of agriculture defense programs and initiatives.

Table 6-1: Agriculture Defense Project Highlights Compared to Goal/Outcome Categories

Section	Project	Partnership	Critical Infrastructure	Preparedness	Detection	Emergency Response	Recovery
6.1	Agriculture Screening Tools	X		X	X		
6.2	Animal Health Network – A System to Alert Noncommercial Livestock Owners about Disease Outbreaks	X		X	X		
6.3	Animal Health Sensing and Surveillance (II)			X	X		
6.4	Depopulation, Disposal, and Decontamination Project					X	X
6.5	Evaluation of Immunogenicity of Rift Valley Fever Virus Candidate Vaccines			X	X		
6.6	Extension Disaster Education Network	X		X	X	X	X
6.7	Extension Disaster Education Network Strengthening Community Agrosecurity Planning Workshops	X	X	X	X	X	X
6.8	Foreign Animal Disease Modeling Project	X		X	X		
6.9	Foreign Animal Disease Vaccine and Diagnostics Project			X	X		
6.10	Information Dashboard Framework	X		X		X	
6.11	Iowa Department of Agriculture and Land Stewardship Training						
6.11.1	Fit Testing and Personal Protective Equipment Training			X		X	
6.11.2	Incident Command System Training			X		X	
6.11.3	Racom Radio Systems		X	X		X	
6.12	Iowa Veterinary Rapid Response Team Activities						
6.12.1	Large Animal Handling Equipment Training			X		X	
6.12.2	Cleaning and Disinfection Demonstration			X		X	
6.12.3	Annual Training			X		X	

Table 6-1: (Cont.)

Section	Project	Partnership	Critical Infrastructure	Preparedness	Detection	Emergency Response	Recovery
6.12.4	Web site			X		X	
6.12.5	Small Animal Emergency Trailer			X		X	
6.13	Multi-Application Multiplex Platform Technology			X	X		
6.14	North Carolina Department of Agriculture and Consumer Services Training and Exercises						
6.14.1	Emergency Management Response System Training	X		X		X	
6.14.2	Veterinary Response Corps Training	X		X		X	
6.14.3	Emergency Support Function # 11 – Agriculture Emergency Operations Center Activation Exercise	X		X		X	
6.14.4	Food-and-Mouth Disease Exercise Series	X		X		X	
6.15	Southern Agriculture and Animal Disaster Response Alliance National Veterinary Stockpile 2010 Logistics Exercise	X		X			X

6.1 Agriculture Screening Tools

DHS/S&T is developing standardized protocols and tools to be used at ports of entry, inspection houses, plant inspection stations, and other environments (such as farms and forests) by multiple government agencies. Specifically, this project focuses on development of standardized technologies to detect high-priority FADs that can be used as a screen for disease presence but that require diagnostic confirmation. Such tests could be used in animal surveillance programs or for detection of disease during the import process.

The goal of the agriculture screening tools (ASTs) project is to develop diagnostics and field-ready disease detection devices that will be useful for detecting FADs in U.S. livestock and plants. The livestock diseases of highest interest are Foot-and-Mouth Disease (FMD), classic/African swine fever, exotic Newcastle disease, HPAI, and Rift Valley Fever (RVF). The AST project is developing identification capabilities that will be useful for early recognition/detection of disease, as well as response and recovery from an outbreak. The AST project is also concerned about detection of diseases and pests in plant materials during the import of foreign goods. This effort is a close collaboration between USDA/APHIS and the Plant Protection and Quarantine (PPQ) service, as well as DHS centers of excellence related to food and agriculture defense.

The AST project has accomplished two important projects to date. The first was a study that gathered and reported information about capability levels in the United States to perform diagnostic testing for FADs. This study identified specific FAD-related gaps in U.S. diagnostic capabilities, as well as provided a detailed landscape of diagnostic testing for veterinary diseases.

The second project was a series of workshops conducted with USDA diagnosticians, emergency response personnel, livestock industry representatives, and State veterinarians. These workshops focused on identification and prioritization of needs within U.S. veterinary diagnostic capabilities that would be useful in the surveillance for FADs in livestock populations. The AST project is funding specific studies to begin to address those needs to bolster abilities in the United States to identify an outbreak early and to respond to a potential outbreak, as well as demonstrate freedom from disease so that commerce might return to pre-outbreak levels more rapidly.

AST will enhance the ability of multiple government agencies to detect animals infected with foreign diseases for rapid control of an outbreak and eradication purposes. It will provide the ability to detect food contaminated with biological threat agents to protect the U.S. food supply outside of a reference laboratory or at a point of inspection. Tests that can be rolled into normal business operations and can enhance the number of products tested with single samples are high priority.

FY 2011 funds are being used to address 12 top-priority projects that were identified through workshops. These workshops included participation from various agencies within USDA, private industry, State animal health professionals, and law enforcement. Future years will focus on tools to enhance CBP's inspection responsibilities during the import process and on specific testing technologies that are field deployable and highly sensitive and can be used to control animal movement and recovery efforts.

6.2 Animal Health Network—A System to Alert Noncommercial Livestock Owners about Disease Outbreaks

The Animal Health Network (AHN; see http://animalhealthnetwork.org/) is led by FAZD and Texas Agrilife Extension. The AHN concept enables State veterinarians to reach underserved communities of noncommercial livestock and poultry owners through networks of local feed retailers. Cooperative Extension agents are a vital part of building these networks and ensuring that the transmission process works smoothly. With support from the USDA/National Institute of Food and Agriculture (NIFA) Food and Agricultural Defense Initiative as an Extension Disaster Education Network (EDEN) project, the network was piloted in 2009 by Arkansas, Kentucky, North Carolina, New Hampshire, Michigan, Montana, Tennessee, and Texas. In 2010, it was fully adopted by Michigan and partially adopted by Arkansas, Kentucky, and Texas. In 2011, NAHLN hopes to expand adoption to an additional five States.

6.3 Animal Health Sensing and Surveillance (II)

The purpose of this project is to build a medical awareness system for animal health that will provide a mechanism for improving medical situational awareness in a focused local area, State, or collection of States.

The lead researcher at the University of Kentucky is focused on the development of coordinated surveillance, monitoring, and response systems for tracking and early detection of disease outbreaks in the U.S. livestock population to help prevent disruptions of the beef supply. This project has developed an ear tag–based sensor that monitors the health of individual animals. The system is designed to communicate wirelessly with a personal computer to provide livestock producers with continuous information about the health status of their animals. The health status and herd contact information is transferred into a sophisticated computer model that has been shown to be capable of providing early warning of animal disease outbreaks.

The complete system will provide meaningful animal health information to a variety of stakeholders, from individual farm operators to State and national animal health care officials. Because of the breadth of information that will become available, this system will enhance the operational efficiency of livestock production and will simultaneously improve our ability to detect and respond to disease threats at regional and national levels. The current estimate of the DHS TRL is Level 7. A TRL level of 9 is anticipated at the conclusion of the project.

6.4 Depopulation, Disposal, and Decontamination Project

The President's FY 2012 budget request contains $2.56 million for a new project in DHS/S&T focused on Depopulation, Disposal, and Decontamination (3D). The goal of the 3D project is to enhance current capabilities necessary to rapidly and effectively respond to and recover from an animal health emergency. This project will provide new and enhanced methodologies and equipment to ensure that (1) the depopulation of infected animals is handled as efficiently and humanely as possible, (2) disposal of animal carcasses is accomplished without further spread of disease and with minimal environmental impact, and (3) safe cleaning and disinfection of affected premises can be performed as rapidly as possible in order to facilitate the return to normal business operations. These three activities are interdependent, and a successful disease outbreak response will further integrate depopulation, disposal, and decontamination efforts into a coordinated, overall FAD response strategy.

6.5   Evaluation of Immunogenicity of Rift Valley Fever Virus Candidate Vaccines

FAZD developed a novel series of Rift Valley Fever Virus (RVFV) candidate vaccines based on the MP-12 derivative for *in vitro* screening. Truncated recombinant antigens and peptides were synthesized and evaluated for use as potential DIVA (differentiate infected from vaccinated animal) markers to ensure responsiveness to Federal vaccine platform requirements.

Active engagement of partners at Plum Island Animal Disease Center (PIADC) and DHS/S&T led to funding to evaluate *in vivo* safety, immunogenicity, and protection in pregnant sheep, cattle, and calves. FAZD advanced live, attenuated vaccine candidates and novel methods for rapid and accurate detection. RVFV is in discussion with industry to partner in the next steps of development. No USDA-licensed FAD vaccines or diagnostic kits are produced commercially in the United States.

6.6 Extension Disaster Education Network

EDEN is a collaborative, multistate effort by Extension Services across the country to improve the delivery of services to citizens affected by disasters, including agricultural disasters. The network has a wealth of national and State-based disaster education preparedness, response, recovery, and mitigation resources available at: http://www.eden.lsu.edu and http://www.extension.org/disasters. These enable locally trusted extension educators to increase their impact before, during, and after a crisis in all 50 States and many U.S. territories.

EDEN has the ability to conduct internal communications behind the Louisiana State University firewall at: https://eden4.lsuagcenter.com and via list-serve. In addition to closed-source telephone, e-mail, and intranet methods, USDA/NIFA can instantly publish open-source communications with the cooperative extension system at https://blogs.extension.org/edenotes and http://www.facebook.com/edenfb.

6.7   Extension Disaster Education Network Strengthening Community Agrosecurity Planning Workshops

The objectives of the workshops are to enable community partners to:

- Build capacity to handle agricultural issues during an emergency or disaster;

- Improve networking among stakeholders who can plan for and respond to emergencies; and

- Develop community agrosecurity planning teams to establish or enhance agrosecurity components within existing local emergency operations plans.

A total of 19 EDEN Strengthening Community Agrosecurity Planning (S-CAP) workshops have already been conducted in 16 States. A Train-the-Trainer program enables States to continue training to maximize dissemination of the program. To date, 12 States have trained their own trainers.

Past participants identified the following outcomes as a result of their involvement in the workshop:

- 91.8 percent agreed or strongly agreed that they met and networked with new individuals who will aid community emergency planning efforts in the future;

- 87.5 percent agreed or strongly agreed that the workshop established and/or strengthened their opinion that their community needs a community agrosecurity planning (CAP) team;

- 86.2 percent agreed or strongly agreed that the workshop provided tools needed to continue development of a local agricultural emergency operations plan and/or start an S-CAP Team; and

- 84.4 percent agreed or strongly agreed that the workshop motivated them to collaborate with community leaders to pursue further readiness, response, and/or recovery capabilities.

Past participants were asked to identify possible future training needs that would enhance their local emergency planning efforts. The following areas were identified as important to workshop participants:

- 87.5 percent of workshop participants agreed or strongly agreed that their community would benefit from additional training and assistance in development of agricultural discussion-based exercises;

- 84.4 percent of workshop participants agreed or strongly agreed that their community would benefit from additional training and assistance in the creation of local agricultural response teams;

- 80.7 percent of workshop participants agreed or strongly agreed that their community would benefit from additional training and assistance in establishment and/or support of a local agrosecurity planning committee; and

- 77.5 percent of workshop participants agreed or strongly agreed that their community would benefit from additional training and assistance in development of agricultural operations-based exercises. Additional information can be found at: http://eden.lsu.edu/s-cap.

6.8 Foreign Animal Disease Modeling Project

The Foreign Animal Disease Modeling Project includes basic and applied research projects developed in concert with interagency partners and academic institutions to improve the state-of-the-art of FAD modeling; leverage lessons learned from infectious disease modeling and advances in mathematical biology, with the goal of developing next-generation modeling and analysis tools; and train the next generation of experts in this highly interdisciplinary field.

Examples of currently active projects include: Research and Policy for Infectious Disease Dynamics, with NIH/Fogarty International Center; National Institute for Mathematical and Biological Synthesis, with the National Science Foundation; the enabling of scalable and fault-tolerant multiregional epidemiological simulations, with the Department of Computer Science at Colorado State University; models of disease spread in livestock transportation networks in the United States, United Kingdom (UK), and Sweden, led by the Department of Biology at Colorado State University; and analytical frameworks for infectious disease dynamics (modular reusable software toolkits and scalable modeling architectures), with USDA/ARS in Ithaca and Cornell University.

Outcomes of the projects include the following: (1) knowledge and technology gaps (data, theory, models) that limit current capabilities are addressed in peer-reviewed scientific publications, and (2) prototypes for next-generation modeling and analysis tools for high-priority diseases are developed (e.g., scalable architectures, reusable toolkits, simpler models with reduced complexity and parameter uncertainty). Working group products enhance the understanding and knowledge base for priority topics (e.g., model hierarchies and validation, zoonoses, pathogen emergence and meta-dynamics, disease vectors, and wildlife). The next generation of expertise (postdoctoral fellows) is trained and transitioned to independent scientific careers, thereby enhancing national capability in the field.

6.9 Foreign Animal Disease Vaccine and Diagnostics Project

The Foreign Animal Disease Vaccine and Diagnostics Project develops new and next-generation vaccines, diagnostics, and biotherapeutics for high-priority zoonotic and FAD pathogens for transition to the USDA/National Veterinary Stockpile (NVS). Currently, there are no USDA-licensed FAD vaccines or diagnostic kits produced commercially in the United States. There are several prioritized FAD pathogens affecting a variety of economically significant agricultural (livestock) species. In addition to developing new vaccines and diagnostics, this project will identify high-quality FAD vaccines and diagnostics currently manufactured by foreign companies and coordinate the process for USDA/APHIS/VS/Center for Veterinary Biologics permit approval for importation and short-term availability.

Currently, DHS and USDA scientists at PIADC are working with GenVec, Inc., a small biopharmaceutical company located in Gaithersburg, Maryland, to license a new vaccine for FMD that can be manufactured in the United States. This new vaccine will also allow the differentiation of FMD-infected animals from vaccinated animals, thereby providing the USDA with the option to employ a vaccinate-to-live response. In FY 2010, the project completed pivotal potency, efficacy, and safety studies required for vaccine licensure. In FY 2011, the project will complete licensure requirements, including a pivotal field safety study, for the lead FMD vaccine serotype. The project will also complete import permits and licensing requirements to supply the NVS with access to a USDA–approved, four-way FMD vaccine manufactured in South America. The use of foreign-produced FAD vaccines satisfies a key gap and near-term recommendation identified for importation of ready-to-use FMD vaccines.

Researchers are focusing on final development and commercialization of an ear tag–based health monitoring system. NIHS has reviewed and validated all submitted milestones according to the contract, and the project is on course for the expected completion date.

6.10 Information Dashboard Framework

In 2009 and 2010, FAZD developed dashboards for emergency response support and training to help emergency response managers make decisions. The dashboards provide a consolidated view of a disease outbreak by using multiple data sources in real time. An Information Dashboard Framework customized for the DHS/OHA National Biosurveillance Integration Center to track,

organize, and share real-time biological event information from around the world was loaded into the HSIN environment in early 2011 (for 25,000 users). The CDC used the dashboard as an information-sharing tool during the outbreak of H1N1 (a subtype of the Influenza A virus), and the U.S. Coast Guard in Washington State has employed a similar, common operating picture developed by the Zoonotic and Animal Disease Defense (ZADD) to facilitate training exercises. Future ZADD projects leveraging this technology are in development to support first-responder capabilities for USDA/APHIS, NAHLN, and the Integrated Consortium of Laboratory Networks (ICLN).

6.11 Iowa Department of Agriculture and Land Stewardship Training

6.11.1 Fit Testing and Personal Protective Equipment Training

In March, 2010, several employees of the Iowa Department of Agriculture and Land Stewardship (IDALS) attended fit testing and personal protective equipment (PPE) training to learn how to use a respirator, namely, how to put a respirator on, how it should be positioned on the face, how to set the strap tension, and how to determine an acceptable fit. The training included using brands of respirators from MSA and 3M.

6.11.2 Incident Command System Training

Several IDALS employees attended various levels of ICS training provided by the Iowa Department of Public Health to teach them how to work with a wide variety of agencies that have a common management structure with common terminology; how to provide logistical and administrative support to operational staff; how to be cost effective by avoiding duplicative efforts and provide a unified, centrally authorized emergency organization. A total of approximately 20 IDALS staff members attended different ICS-level training offerings.

6.11.3 Racom Radio Systems

The purpose of the statewide radio system is to maintain advanced internal communication capabilities, as well as communication with other potential responding agencies—whether police, fire departments, health departments, military units, utility companies, etc. This radio system is composed of six very high-frequency mobile radios that have been updated to be compliant with the narrowband mandate, as well as 24 portable 800-MHz radios and six mobile 800-MHz radios. Radio usage has been exercised for communication during the Iowa State Fair.

6.12 Iowa Veterinary Rapid Response Team Activities

The Iowa Veterinary Rapid Response Team (IVRRT) members are volunteers who help protect Iowa's animal industry. IVRRT members act under authority of the State District Veterinarian to prevent and control FAD and respond to animal health emergencies.

6.12.1 Large Animal Handling Equipment Training

On May 19, 2010, the IVRRT Coordinator and the State District Veterinarian hosted a training meeting at ISU for veterinarians and personnel from the ISU College of Veterinary Medicine, ISU Extension Service, USDA/APHIS/VS, IDALS field staff, and livestock industry representatives. The training included a demonstration of the use of livestock handling equipment that may be used in the event of a livestock emergency or disease event.

6.12.2 Cleaning and Disinfection Demonstration

On May 19, 2010, the IVRRT Coordinator demonstrated cleaning and disinfection (C&D) of a disease-infected premise by utilizing IVRRT's pressure sprayer. This demonstration was used as part of training on C&D protocols in response to an animal disease emergency event.

6.12.3 Annual Training

On September 15, 2010, the AgPreparedness Emergency Responder Training at Kirkwood Community College taught IVRRT members how to respond to agricultural emergencies, including the use of PPE, euthanasia and disposal protocols, and C&D practices and ended with an example scenario and activity. More than 100 members attended. This successful training also allowed members to receive continuing education credits.

6.12.4 Web Site

The purpose of the IVRRT Web site is to provide both public education about what the IVRRT is and a forum for receiving information about IVRRT, IDALS, and agricultural emergency response. The Web site can be accessed at: http://www.iowaagriculture.gov/AgSec/publicAccess.asp.

6.12.5 Small Animal Emergency Trailer

IVRRT purchased a dual-axle trailer to transport small animal supplies and equipment in the case of an emergency event. The supplies and equipment are stored in the trailer itself and in the storage area of IDALS and may be available by request at the Federal, State, or local level. Supplies and equipment include PPE for responding personnel, as well as items needed to

manage small animals in the event of an emergency, including, but not limited to, animal crates, leashes, identification collars, buckets, etc. The trailer has been covered in a wrap to indicate the entity supplying the equipment and supplies.

6.13 Multi-Application Multiplex Platform Technology

The Multi-Application Multiplex Platform Technology (MAMPT) project is addressing the need for rapid identification and quantification of the pathogen responsible for infection to support HSPDs 9, 10, 18, and 21. The MAMPT Program goal is to develop a common laboratory platform across agencies that can be leveraged to support surveillance and detection. This technology will enable an expeditious response for managing public/animal health consequences to traditional bio-threat agents, emerging threat agents, enhanced threat agents, and advanced threat agents detected through the National Bio-monitoring Architecture, National Food Safety and Detection, National Water Safety and Detection, National Public Health Surveillance and Detection efforts, or National Animal Health Surveillance and Detection efforts. The developed platform will be rapidly deployable, quantitative, and easy-to-use; its highly multiplexed nucleic acid detection system will have high specificity and sensitivity.

The benefits of a common laboratory platform are reduced platform costs and reagent costs with standardized reagents and assays and an increased potential for sustainability. In the event that a need arises for surge capacity, assay cartridges could be shipped to any supporting agencies using the same platform technology so they can provide support for event mitigation without requiring any additional training and with the understanding that all results will be reported only through the lead agency.

To date, the MAMPT project has successfully completed feasibility studies and initial development of the breadboard. Currently, work continues on both multiplex target detection and assay development and optimization. This work is scheduled to be completed during FY 2012 and will be followed by designing a prototype for testing and evaluation.

6.14 North Carolina Department of Agriculture and Consumer Services Training and Exercises

6.14.1 Emergency Management Response System Training

The Emergency Management Response System (EMRS) training session was held on February 5, 2011, for administrative and field personnel from the Emergency Programs Division (EP), Veterinary Division, Meat and Poultry Inspection Division, and the USDA area office. This half-day training reviewed the reporting protocols for FAD investigations and offered an opportunity for participants to review navigation through the EMRS database and procedures for entering data.

6.14.2 Veterinary Response Corps Training

EP staff has continued to train veterinarians, veterinary technicians, students, and other animal care providers throughout the State to participate as North Carolina Veterinary Response Corps (NCVRC) responders to work as part of our State Animal Response Team (SART). Licensed veterinarians and technicians were trained at the North Carolina Veterinary Conference in November 2010. Students in their final year of the veterinary technician program at Central Carolina Community College were trained in April 2010, and students at Asheville Buncombe Community College were trained in July and December 2010. At the NCVRC trainings, EP personnel have trained participants on FAD response plans, biosecurity protocols, the practice of donning and doffing PPE, sheltering protocols, emergency management concepts and operations, and Public Health topics. More than 400 individuals have attended one or more training offerings, and 164 responders have registered in the statewide volunteer database management system (servNC). NCVRC also publishes a quarterly newsletter that helps keep responders informed about upcoming events and topics of interest.

6.14.3 Emergency Support Function # 11—Agriculture Emergency Operations Center Activation Exercise

During the State's Hurricane Exercise in August 2010, EP activated the Agriculture Emergency Operation Center (AgEOC) to test North Carolina Department of Agriculture & Consumer Services (NCDA&CS) operations and to integrate partners into preparations for hurricane season. Participants received "Just in Time Training" to simulate their first-time participation in the activation of the AgEOC. Training included an orientation on AgEOC and ICS structure and stations layout; an update on VIPER (Voice Interoperability Plan for Emergency Responders) communications; and a refresher on the WebEOC software used by emergency managers in managing the event. After breaking out into the ICS structure scenario, "injects" were received via WebEOC from the State Exercise. The AgEOC team discussed and developed actions and responses to the scenario injects.

6.14.4 Foot-and-Mouth Disease Exercise Series

From May through August 2010, EP personnel worked to develop an exercise series focused on FMD preparedness and response. This series, funded by a State Homeland Security grant, included a workshop to develop an ICS Operations Section structure for a response, a seminar to educate partners on the FMD response and containment plan, and a TTX to work through concepts from the workshop and seminar to exercise communication protocols with our partners. Sixty to 70 people participated in each exercise and represented a wide variety of local, State, Federal, academic, and industry partners. State veterinarians from three of our four contiguous States participated in the entire series and provided a regional perspective to planning efforts. Staff also provided input to the Veterinary Division during the process of updating the North Carolina Response and Containment Plan for Foot-and-Mouth Disease. Documents developed during the North Carolina FMD series were shared with the UK's Department of

Environment, Food, and Rural Affairs officials. EP is the recipient of documents used in the UK for assessing risk and movement of animals during FMD outbreaks.

6.15 Southern Agriculture and Animal Disaster Response Alliance National Veterinary Stockpile 2010 Logistics Exercise

On April 28 and 30, 2010, SAADRA and USDA/APHIS conducted 1-day logistics exercises in Montgomery, Alabama; Pearl, Mississippi; and Baton Rouge, Louisiana. The purpose was to test State and Federal request procedures for the NVS, deployment and response plans, and logistics response capabilities on the basis of a simulated RVF outbreak. During each exercise, the NVS deployed countermeasures (including supplies, equipment, and simulated vaccine) to each location, and the States conducted logistics warehouse and inventory management operations. Approximately 180 participants from SAADRA, private industry, and USDA/APHIS regional offices attended the exercise. Additional information is available at: http://nvs.aphis.usda.gov.

Section 7: Laboratory Efforts

Laboratory capability and capacity are essential components of food and agriculture defense initiatives. Within the Federal Government, laboratory networks are coordinated through the ICLN. The ICLN was established by a Memorandum of Agreement signed in June 2005. Senior officials of Federal agencies with primary responsibility for current and emerging networks, as well as those with a strong supporting role, joined together to endorse the laboratory organizational framework. The goal of the effort is to optimize national laboratory preparedness by improving coordination of laboratory response to incidents; promoting common standards of performance across all laboratory response assets to ensure that data supporting homeland security decisions are defensible and of the highest possible quality; assessing and filling in gaps in coverage across multiple sample types and potential victim groups (human, animal, and plant); and covering all weapons of mass destruction and all response phases. The targeted date for transition of operational aspects of the ICLN to DHS/OHA is FY 2012.

Establishing a laboratory network system to strengthen early detection and consequence management is consistent with HSPDs 9, 10, 21, and 22.

Three of the laboratory networks that comprise the ICLN support the FA Sector. This section highlights activities and initiatives associated with the NAHLN, NPDN, and FERN, as listed in table 7-1. Additional information for some projects is available in attachment A.

Table 7-1: Laboratory Efforts Project Highlights Compared to Goal/Outcome Categories

Section	Project	Partnership	Critical Infrastructure	Preparedness	Detection	Emergency Response	Recovery
7.1	Food Emergency Response Network						
7.1.1	Laboratory Capacity	X		X	X	X	X
7.1.2	Methods Repository	X		X	X	X	X
7.1.3	Proficiency Testing Program	X		X	X	X	X
7.1.4	Surveillance, Rapid Detection, and Surge Capacity	X		X	X	X	X
7.1.5	Transparency and Communication	X		X	X	X	X
7.2	National Animal Health Laboratory Network						
7.2.1	NAHLN Laboratory Review Process	X		X	X	X	X
7.2.2	Training on the Quality Management Systems	X		X	X	X	X
7.2.3	NAHLN Foot-and-Mouth Disease Tabletop Exercises	X		X	X	X	X
7.2.4	Development and Delivery of an Electronic Mechanism to Determine Diagnostic Testing Capacity in Individual NAHLN Laboratories	X		X	X	X	X
7.3	National Bio and Agro-Defense Facility	X		X	X	X	X
7.4	National Plant Diagnostic Network	X		X	X	X	X

7.1 Food Emergency Response Network

FERN is a robust national network of food regulatory laboratories with a proven ability to respond to food emergencies by providing vital laboratory capabilities and capacities to large-scale food events. It has the technical expertise to develop, validate, disseminate, and make use of rapid screening techniques and is often required to meet the challenges of outbreaks of novel contaminants affecting previously uninvolved foods. Significant progress has been made in implementing the network's structure and operations. FERN integrates the Nation's food-testing laboratories at the local, State, and Federal levels into a network that is able to respond to emergencies involving biological, chemical, or radiological contamination of food. The FERN structure is organized to ensure Federal and State interagency participation and cooperation in the formation, development, and operation of the network.

The FERN plays a number of critical roles related to food security and food defense. These include the following:

- **Prevention.** FERN provides for an early means of detecting threat agents in the American food supply;

- **Preparedness.** FERN prepares the Nation's laboratories to be able to respond to food-related emergencies;

- **Response.** FERN offers significant surge capacity that will strengthen the Nation's response to widespread complex emergencies, whether intentional or inadvertent related to agents in food; and

- **Recovery.** The FERN network of laboratories enhances the ability of the country to restore confidence in the food supply following a threat or an actual emergency targeting the Nation's food supply.

Currently, FERN consists of 172 laboratory members from Federal, State, and local agencies, representing the public health, agriculture, veterinary diagnostic, and environmental disciplines. FERN plays a critical role in food defense by integrating these food-testing laboratories into a network that is able to detect, identify, respond to, and provide recovery from emergencies involving biological, chemical, or radiological contamination of food. The FERN focuses on preparedness through awareness, surveillance, prevention, and capacity building and provides response and recovery efforts through organized large-scale surge capacity.

7.1.1 Laboratory Capacity

FERN coordinates the food laboratory capacities of State, local, and tribal food laboratories, including the adoption of novel surveillance and identification technologies and the sharing of data between Federal agencies and State laboratories to develop national situational awareness through its many support programs. For example, the FERN Methods Coordination Committee is responsible for generating Method Validation and Submission guidelines, determining method priorities for the FERN, soliciting method submissions from member laboratories, and reviewing

and approving submissions as FERN methods. In addition, FERN coordinates electronic communications and collaboration through eLEXNET and the FERN Web site, with eLEXNET acting as the analytical data and official document repository for the FERN.

7.1.2 Methods Repository

The FERN develops and implements a methods repository for use by Federal, State, and local officials through the Methods Coordination Committee, which, as stated in section 7.1.1, is responsible for generating Method Validation and Submission guidelines, determining method priorities for the FERN, soliciting method submissions from member laboratories, and reviewing and approving submissions as FERN methods. FERN also participates in method harmonization workgroups with other laboratory networks and programs, such as the CDC/Laboratory Response Network (LRN), through ICLN.

7.1.3 Proficiency Testing Program

FERN works diligently through its support programs to provide rapid and accurate analytical testing. The FERN/National Program Office (NPO) works with the member laboratories to promote the use of validated rapid methods, including the development and validation of new methods. The FERN/NPO Proficiency Testing Program provides proficiency and competency testing to all of its member laboratories—testing that includes all three disciplines of microbiological, chemical, and radiological methods. FERN surveillance assignments provide all participants with the opportunity to engage in the testing of actual samples that the FERN/NPO can review and assess.

- A proficiency testing sample for chemical laboratory quantitation of arsenic, cadmium, and lead (dry, powdered, low-fat food matrix) was issued in April 2010 to 33 FERN laboratories. Twenty-eight (28) laboratories reported either satisfactory or questionable results for all three analytes.

- A proficiency testing sample for microbiology laboratory testing of Escherichia coli O157:H7 (raw cookie dough) was issued in May 2010 to 71 FERN microbiology laboratories. Overall, FERN laboratories were able to detect the presence of E. coli O157:H7, with 90 percent of laboratories submitting satisfactory final results for all five samples.

- In August 2010, a chemistry competence-building sample set for the quantitation of cyanide in liquid apple juice was shipped from the CDC to 44 FERN laboratories. The EPA, CDC, and FDA conducted a joint confidence-building exercise the second week of August 2010. This exercise tested the ability of the EPA/Environmental Response Laboratory Network (ERLN), CDC/Chemical LRN, USDA/FERN, and FDA/FERN laboratories to analyze samples containing the same analyte in network-specific matrices and report data according to their respective laboratory networks' processes and procedures. The overall goal of the exercise was to create working relationships between

the participant laboratory networks and their laboratories. Thirty-five (35) laboratories reported either satisfactory or questionable results for all three spike levels.

▪ In September 2010, a capability assessment environmental swab sample for the detection of *Bacillus anthracis* was shipped from the Lawrence Livermore National Laboratory to five FERN laboratories. In October 2010, capacity assessment samples were sent to one additional FERN laboratory. The EPA, CDC, USDA, and FDA conducted a joint competency assessment exercise. This exercise tested the ability of the EPA/ERLN, CDC/Biological Laboratory Response Network (LRN-B), USDA/NAHLN, USDA/FERN, and FDA/FERN laboratories to analyze environmental swab samples containing *B. anthracis* using LRN-B protocols. Participating laboratories reported data according to their respective laboratory networks' processes and procedures. Using the ICLN Web site portal, results from all of the laboratory networks were collected and merged into a single report. The overall goal of the exercise was to create working relationships between the participant laboratory networks and their laboratories and to evaluate the ability of the laboratories to successfully execute a method of which they are capable but which they seldom or never conduct. Overall, FERN laboratories were able to detect the presence of *B. anthracis*, with 100 percent of laboratories submitting satisfactory final results for all five samples.

● On December 7, 2010, sets of five liquid whole egg proficiency testing samples for the detection of pesticides were shipped to 53 FERN laboratories. Overall, 100 percent of participating laboratories were able to detect the presence or absence of pesticides in liquid whole egg samples, with 69 percent of the laboratories submitting satisfactory results for all five samples.

7.1.4 Surveillance, Rapid Detection, and Surge Capacity

FERN's efforts to provide ongoing surveillance, rapid detection, and surge capacity for large-scale food-related emergencies is evidenced by the numerous times FERN has been activated for microbiological and chemical emergencies, providing surge capacity for both Federal and State lead investigation and response efforts. Within this reporting period, FERN was activated for the Deepwater Horizon Oil Spill in 2010 (discussed below) and the Japan nuclear reactor response in 2011.

Once FERN activation is approved by the FERN Directorate, FERN can activate any of a variety of activities, from providing technical guidance and reagents to directing sample collection and analysis by member laboratories.

The Deepwater Horizon Oil Spill, caused by an explosion on a drilling rig on April 20, 2010, released several million barrels of crude oil into the Gulf of Mexico until the wellhead was capped on July 15, 2010. The oil from the Deepwater Horizon well contaminated a large number of Gulf State fisheries in Louisiana, Alabama, Mississippi, and Florida, which resulted in an almost total shutdown of the industry. The National Oceanic and Atmospheric Administration (NOAA), FDA, and State governments cooperated in an effort to close State and Federal waters to commercial fishing as a result of the public health threat from contamination of seafood by

polyaromatic hydrocarbons (PAHs), the principal toxicologic concern. To address this threat, a detailed protocol for reopening State waters was implemented involving an extensive chemical testing program. This protocol outlined specific levels of concern for each PAH that the laboratories were tasked with measuring. FERN laboratories (including FDA/Office of Regulatory Affairs [ORA] Field Laboratories and FERN Cooperative Agreement Laboratories) were used to analyze these reopening samples. Two methods were used in the chemistry testing portion of the protocol—a method developed by NOAA and a PAH screening method developed by the FDA Forensic Chemistry Center. FERN Cooperative Agreement Program laboratories (Connecticut Agricultural Experiment Station and Minnesota Department of Agriculture) were critical to the development and implementation of this PAH screening procedure. Without the analyses performed by the FERN laboratories and the development of a rapid screening method, the safe and rapid reopening of the Gulf State fisheries would not have been possible.

The FERN was activated in May 2010. Immediately thereafter, the FERN began to assess network capabilities and capacities for the NOAA method, and selected FERN Cooperative Agreement Program laboratories were tasked with analyzing samples using the NOAA methodology. In addition, the FERN Storeroom ordered and stocked standards and reagents required for performing the NOAA method. Reagent requests were filled on a prioritized basis, with first priority going to Gulf State laboratories and laboratories conducting FERN directed testing. Over the course of the FERN Activation, 307 finfish, crab, oyster, and shrimp samples from Florida, Alabama, Mississippi, and Louisiana were analyzed for PAHs by using the liquid chromatography–mass spectrometry alternative screening method as part of the State reopening process (performed by FDA Forensic Chemistry Center, Connecticut Agricultural Experiment Station, and the Minnesota Department of Agriculture). Of those samples, 66 received parallel NOAA method analysis (performed by California Animal Health and Food Safety, Wisconsin Department of Agriculture Trade and Consumer Protection, FDA Arkansas Regional Laboratory, and FDA Kansas District Laboratory). In addition to the reopening samples, 88 State baseline samples were analyzed using the NOAA method (performed by FDA Arkansas Regional Laboratory; FDA Kansas District Laboratory; FDA Denver District Laboratory; FDA Southeast Regional Laboratory; Arizona Department of Health Services; California Animal Health and Food Safety; Wisconsin Department of Agriculture, Trade, and Consumer Protection; and Florida Department of Agriculture and Consumer Services). The FERN was deactivated for this incident in November 2010.

7.1.5 Transparency and Communication

The FERN/NPO routinely communicates with other laboratory networks and programs to increase transparency and communication, as well as to identify potential areas for harmonization of activities and leveraging. Such Federal partners include FDA RRTs (managed through FDA/ORA) and Microbiological and Pesticide Data Programs (managed through USDA/Agricultural Marketing Service [AMS] and the CDC/LRN).

The FERN/NPO is also an active member of DHS/ICLN Subgroups, such as Proficiency Testing/Quality Assurance, Methods, and Information Technology. The FERN Directors participate in the ICLN Network Coordination Group to promote transparency and

communication about FERN activities and to discuss how FERN can better work with other ICLN members to meet the harmonization and standardization criteria as set by the ICLN. All of these activities clearly depict FERN's integration with relevant laboratory networks administered by other Federal agencies.

7.2 National Animal Health Laboratory Network

USDA established the NAHLN as part of a national strategy to coordinate and network the diagnostic testing capacities of the Federal veterinary diagnostic laboratories with the extensive infrastructure (facilities, professional expertise, and support) of State and university veterinary diagnostic laboratories. This network enhances the Nation's early detection of, response to, and recovery from animal health emergencies, including bioterrorist events, newly emerging diseases, and FAD agents that threaten the Nation's food supply and public health.

In 2002, USDA/APHIS and NIFA initiated the network by entering into cooperative agreements with 12 State and university veterinary diagnostic laboratories. These were funded by NIFA Food and Agriculture Defense Initiative appropriations. APHIS has since contracted with additional State and university diagnostic laboratories to assist with testing and surveillance. These contracts are with 54 State/university laboratories; the U.S. Department of the Interior (DOI) laboratory in Madison, Wisconsin; USDA/FSIS laboratory in Athens, Georgia; and the National Veterinary Services Laboratories (NVSL) at the Ames, Iowa, and PIADC (New York) campuses, for a total of 58 laboratories in 43 States. In FY 2010, 28 of these laboratories received cooperative agreement funding through NIFA (http://www.aphis.usda.gov/animal_health/nahln).

7.2.1 NAHLN Laboratory Review Process

NAHLN program staff collaborated with the American Association of Veterinary Laboratory Diagnosticians (AAVLD) to establish a review process for NAHLN laboratories, ensuring the development and implementation of a quality system consistent with AAVLD, the World Organization for Animal Health, and standards from the International Organization for Standardization. Standardized reports detailing nonconformances and requirements to maintain NAHLN status are provided to each audited laboratory. A summary report, which details the site visits conducted in 2009, the issues found, and the program goals for 2010, was prepared. The 2010 goals are now being compared to the 2010 laboratory review accomplishments and will be used to develop goals for 2011.

7.2.2 Training on the Quality Management Systems

The NAHLN Program Office collaborated with members of the AAVLD Accreditation Committee and NVSL personnel to develop and deliver a Quality Management System (QMS) Training Program. The QMS Training Program was held August 3–5, 2010, at the National Centers for Animal Health in Ames, Iowa. The training program provided an interactive class

environment that included training on quality system requirements, the accreditation process, document control, internal auditing, and root cause analysis. In addition, a wet laboratory provided the opportunity for participants to conduct an audit, recognize nonconformances, analyze the root cause, and write corrective actions. A total of 87 participants representing 53 laboratories attended the training, including 40 NAHLN laboratories, eight prospective laboratories, four Federal laboratories (NVSL in Ames, Iowa; NVSL's Foreign Animal Disease Diagnostic Laboratory at PIADC, New York; USDA laboratory in Topeka, Kansas; and one guest from the University of Montreal. A summary report will be prepared and will include options for further deliveries and possible expansion.

7.2.3 NAHLN Foot-and-Mouth Disease Tabletop Exercises

The NAHLN, in collaboration with the National Agriculture Biosecurity Center at Kansas State University and the CNA Corporation, coordinated a series of FMD TTXs based on recommendations from the HPAI TTX series in 2008. In April 2010, representatives from multiple USDA/APHIS/VS program units participated in the first component of these exercises—a policy-level workshop with objectives to: identify existing policies related to laboratories, NAHLN activation, and sample shipping during an FMD outbreak; determine roles and responsibilities of individual units related to laboratory decisions prior to, during, and following an FMD outbreak; and clearly define gaps and processes for VS to address prior to and during the subsequent exercises. The second component of the exercise series involved an FMD outbreak in Kansas and Iowa that was simulated in order to examine the following: early-, mid-, and late-response laboratory activities regarding the decisionmaking process for NAHLN activation and deactivation; testing capacity at each of the State's NAHLN laboratories; surveillance sample collection protocols; testing algorithms; integration of surveillance and testing results; and communication and coordination processes. The third component of the exercises consisted of 15 follow-up exercises that were conducted in NAHLN laboratories across the country, each involving single or multiple States. These exercises were designed so participants could practice policy implementation, decisionmaking, and communication as identified in the first two components of the series with laboratory personnel and VS and State field personnel. Individual exercise reports have been shared with participants. An overall summary report, including findings and recommendations, is to be generated and shared with stakeholders. Additional internal exercises will be held at the NVSL to increase our internal preparedness, with a focus on decisionmaking, primary and support role activities, interaction and support of NAHLN laboratories, collaboration, and communication. A wrap-up VS policy workshop was held in the late spring of 2011 to complete the policy matrix, which will include findings and any existing gaps in VS policy, from the first phase of the exercise series.

7.2.4 Development and Delivery of an Electronic Mechanism to Determine Diagnostic Testing Capacity in Individual NAHLN Laboratories

FAZD will be working with NAHLN program staff and NAHLN laboratories to develop a diagnostic testing capacity estimation program. The software program will include multiple technologies and can be personalized for individual laboratories. In addition, it will aid in the

identification of rate limiting processes and help maximize efficiency as laboratories update their information on an annual basis. NAHLN laboratories will have the opportunity to participate in setting the requirements, as well as in user acceptance testing. It is anticipated that the prototype could be available within nine months.

This project will increase the Nation's capability to prepare for and respond to a high-consequence animal emerging and/or zoonotic disease by developing a software system to determine diagnostic testing capacity estimates in individual and overall NAHLN laboratories. The system developed and data generated will improve knowledge in individual and overall NAHLN diagnostic testing capacity, aid in the modification of the NAHLN activation plan, assist in the prioritization of the additional resources needed, and serve as a critical tool for managing a large number of diagnostic tests simultaneously.

7.3 National Bio and Agro-Defense Facility

The National Bio and Agro-Defense Facility (NBAF) will replace the current Biosafety Level (BSL)-3Ag facilities at PIADC. The NBAF will be an integrated, BSL-2/3/3Ag/4 laboratory facility for studying FADs, emerging diseases, and zoonotic diseases (i.e., diseases that affect both animals and humans). DHS/S&T issued a Record of Decision on January 16, 2009, to construct the NBAF at the Manhattan Campus Site in Manhattan, Kansas. Facility design is under way, with plans for construction of the main laboratory to begin in FY 2012.

7.4 National Plant Diagnostic Network

NPDN was established in 2002 by legislative mandate in response to the need to enhance agricultural security through protection of the health and productivity of plants in agricultural and natural ecosystems in the United States. With support from the USDA/NIFA Food and Agricultural Defense Initiative, the specific purpose of the NPDN is to provide a nationwide network of public agricultural institutions with a cohesive, distributed system to quickly detect high-consequence pests and pathogens that have been introduced into agricultural and natural ecosystems, identify them, and immediately report them to appropriate responders and decisionmakers. To accomplish this mission, NIFA and NPDN have invested in plant diagnostic laboratory infrastructure and training, developed an extensive network of first detectors through education and outreach, and enhanced communication among the agencies and stakeholders responsible for responding to and mitigating new outbreaks (also see http://www.npdn.org).

Section 8: Other Sector Activities

This section highlights cross-cutting, international, and other FA Sector activities and initiatives conducted by Federal, SLTT, and private sector partners (see table 8-1 for a listing of projects). Additional information for some projects is available in attachment A. As stated in section 1, the goal/outcome categories of preparedness, detection, emergency response, and recovery capture projects and activities that help FA Sector partners prepare for and respond to incidents in order to minimize the disruption of critical infrastructure and associated consequences.

Table 8-1: Other Sector Activities Project Highlights Compared to Goal/Outcome Categories

Section	Project	Partnership	Critical Infrastructure	Preparedness	Detection	Emergency	Recovery
8.1	Agriculture Priorities and Allocation System	X	X	X		X	X
8.2	Annual Report on Food Facilities, Food Imports, and FDA Foreign Offices			X			
8.3	Best Practices for Companies in the Food Supply Chain: A Diagnostic Tool to Benchmark Practices for Food Defense			X	X		
8.4	Center for Agriculture and Food Security and Preparedness			X	X	X	
8.5	Commodity Operations Emergency Response Handbook			X			X
8.6	Customs and Border Protection	X		X	X		
8.7	Emerging Chemical Threat Research and Planning	X		X			
8.8	FAZD Education and Outreach Efforts	X		X			
8.9	Food and Agriculture Defense Sub-IPT Efforts	X		X	X	X	
8.10	Food and Agriculture Readiness Measurement (FARM) Toolkit	X		X		X	X
8.11	Food Defense Research Database	X		X			
8.12	Food Emergency Response Plan Template version 2.0	X		X		X	
8.13	Food Safety and Defense Task Force	X		X			
8.14	Integrated Food Safety System Online Collaboration Development						
8.14.1	PETNet	X		X			
8.14.2	Food Protection Taskforce Conference Grant Program	X		X			
8.14.3	FoodSHIELD Support Funding	X		X			
8.15	International Activities						
8.15.1	International Food Defense Workshops	X		X			
8.15.2	International Food Protection Training Institute	X		X			

Table 8-1: (Cont.)

Section	Project	Partnership	Critical Infrastructure	Preparedness	Detection	Emergency	Recovery
8.16	National Center for Biomedical Research and Training	X	X	X	X	X	
8.17	National Center for Food Protection and Defense Activities						
8.17.1	Freight Transportation Risk and Resiliency in International Food Supply Chains	X		X	X	X	
8.17.2	Food Product Tracing Technology Capabilities and Interoperability	X		X	X	X	
8.17.3	Experimental Evidence for Best Practices in Food Crisis Communication	X		X	X	X	
8.17.4	Food Protection and Defense Education and Outreach Efforts	X		X	X	X	
8.17.5	Food Defense Architecture Assessment	X		X	X	X	
8.18	National Environmental Health Association Activities	X		X			
8.19	Small Scientific Conference Grant	X		X			

8.1 Agriculture Priorities and Allocation System

The Agriculture Priorities and Allocation System (APAS) is an ongoing USDA/Farm Service Agency (FSA) program that supports national defense and emergency preparedness initiatives by addressing essential civilian needs (food and food resources) through the placing of priorities or allocations on contracts for items and services. The ability to prioritize or allocate items/services is triggered by a determination by the president or designated entities that this action is necessary and essential to promote national defense. Under the Defense Production Act (DPA) of 1950, the term "national defense" includes emergency preparedness, response, and critical infrastructure protection. Authority for priorities and allocations of contracts is found in the DPA and further defined in Executive Order 12919.

8.2 Annual Report on Food Facilities, Food Imports, and FDA Foreign Offices

The FSMA requires many deliverables from the FDA, including special reports and studies to be submitted to Congress. The first *Annual Report on Food Facilities, Food Imports, and FDA Foreign Offices* was submitted to Congress by HHS Secretary Sebelius on April 6, 2011, in response to Section 201 (b) of the Act. The report briefly describes the scope of FDA's responsibility and its activities in protecting the U.S. food supply under its jurisdiction. It also discusses how Federal, State, and local agencies cooperate with FDA in that effort. Baseline data are provided on the cost and number of domestic and foreign food facility inspections; the numbers of field samples analyzed to support FDA's compliance actions; and FDA's foreign

posts and their staff who extend the international impact of FDA. The report is available online at: http://www.fda.gov/Food/FoodSafety/FSMA/ucm250569.htm.

8.3   Best Practices for Companies in the Food Supply Chain: A Diagnostic Tool to Benchmark Practices for Food Defense

The online diagnostic tool administered by The Food Industry Center in the Department of Applied Economics at the University of Minnesota was developed in collaboration with the Department of Marketing and Supply Chain Management, College of Business Administration at Michigan State University for food firms within the food industry to assess/benchmark their firm's standings in terms of food safety and food defense practices. Companies can do this assessment both at the headquarters and unit level. The way the tool works is that users of the tool answer a set of 42 questions. On the basis of those answers, the users get to see how a particular firm compared to the best performer in the industry and also to industry averages in the four strategic areas of food defense: products, practices, supply chain partners, and people. The diagnostic tool is available at: http://webapps.cfans.umn.edu/TFIC/Main/index.html.

The primary purpose of this diagnostic tool is to provide food companies with a private, free, easy, and comprehensive method of assessing their preparedness for a potential terrorist attack on food or food company assets. This tool is designed for the use of food companies, large and small, so they can compare the capacity and resilience of their business continuity plans to a potential deliberate attack relative to other companies in their part of the food supply chain: retail food stores, foodservice retail places, retail food wholesalers/distributors, foodservice wholesalers/distributors, and manufacturers. This tool will help to keep the U.S. food supply safer and protect the integrity of the food industry.

8.4   Center for Agriculture and Food Security and Preparedness

The Center for Agriculture and Food Security and Preparedness (CAFSP or the Center) is located at The University of Tennessee (UT) College of Veterinary Medicine in Knoxville, Tennessee. Founded in October of 2006, the Center is dedicated to assisting the Nation in protecting its critical infrastructure, including agriculture and the food supply. The Center combines the expertise of UT faculty with other institutions across the country to develop and deliver training programs and conduct research related to agroterrorism, biosecurity, FAD, and more. During the reporting period, CAFSP provided training to 1,389 representatives of the FA Sector. The training courses are summarized below.

MGT 332: Agriculture and Food Vulnerability Assessment Training Course. The overall course goal is to assist communities and industry to prevent and deter criminal and terrorist acts that target the agricultural and food sectors. This course is offered over 2½ days (20 instructional hours) and is a practical, exercise-based course that stimulates learning with multiple case studies and scenarios. This course covers crops, animal facilities, and food processing and offers the choice of one of four practical exercises (milk processing, tomato farm, soybean farm, and beef cattle) per delivery of the course.

Key learning objectives include the following:

- Assessing the vulnerabilities of agriculture and food facilities on a community-wide basis;

- Assessing vulnerabilities at the level of a single facility; and

- Identifying and implementing possible mitigation measures, including the development of agriculture and food defense plans, to reduce vulnerabilities.

Dates and locations are shown below for the 2010–2011 series.

2010–2011 Dates	Course #	Location	Count
May 18–20	2010-72	Colby, Kansas	20
July 19–21	2010-75	Nashville, Tennessee	6
Jan. 31–Feb. 2	2011-76	Cheyenne, Wyoming	36
March 14–16	2011-78	Riverton, Wyoming	21
March 22–24	2011-79	Moses Lake, Washington	31 = **114 total**

MGT 337: Food Vulnerability Assessment Training Course. The overall course goal is to assist communities and industry to prevent and deter criminal and terrorist acts that target the agricultural and food sectors. This course is offered over 1½ days (12 instructional hours) and is a practical, exercise-based course that stimulates learning with multiple case studies and scenarios. This course focuses on the food sector and features a practical exercise with two scenarios (milk processing or tomato farm) from which participants will choose.

Key learning objectives include the following:

- Assessing vulnerabilities of agriculture and food facilities on a community-wide basis;

- Assessing vulnerabilities at the level of a single facility; and

- Identifying and implementing possible mitigation measures, including the development of food defense plans, to reduce vulnerabilities.

The intended audience participants for *MGT 332* and *MGT 337* include Federal, State, county, and local officials; law enforcement; public health officials; emergency management personnel; veterinarians; extension personnel and crop specialists; agriculture and food industry; military personnel; and others involved with food and agriculture security planning. Dates and locations are shown below for the 2010–2011 series.

2010–2011 Dates	Course #	Location	Attendees
May 4–5	2010-11	Lake Tahoe, California	43
May 11–12	2010-12	Denver, Colorado	38
May 12–13	2010-14	Reynoldsburg, Ohio	49
June 15–16	2010-13	Dover, Delaware	20

Aug. 4–5	2010-19	Tallahassee, Florida	38
Aug. 31–Sept. 1	2010-22	Albany, Georgia	31
Oct. 20–21	2010-20	Catoosa, Oklahoma	53
Oct. 20–21	2010-23	Catoosa, Oklahoma	48
Nov. 19–20	2010-15	Frederick, Maryland	25
Dec. 7–8	2010-25	Tallahassee, Florida	23
Feb. 2–3	2011-26	Highland Heights, Kentucky	31
Feb. 8–9	2011-27	Fort Lauderdale, Florida	32
March 17–18	2011-30	Sykesville, Maryland	25
March 24–25	2011-31	Salisbury, Maryland	21
April 12–13	2011-32	Blackfoot, Idaho	25
April 26–27	2011-33	Miami, Florida	15 = **502 total**

MGT 364: Use of a Standardized Credentialing Program for Management of an Animal Emergency Response and Recovery. The overall course goal is to encourage development of compatible credentialing programs for animal emergency responders in all states to facilitate sharing of personnel resources to support a response-and-recovery effort in the event of an animal-related disaster. This course is offered over 1½ days (12 instructional hours) and is a practical, exercise-based course that stimulates learning with multiple case studies and scenarios. This course will prepare participants to utilize the Animal Emergency Responders Resource typing and credentialing templates, position task books, and Resource Ordering and Status System to manage an animal-related disaster response and recovery at the local, State, and regional level. The course teaches participants to conduct a gap analysis, identify what personnel resources are needed to respond to the animal-related issues associated with a disaster, and order additional material resources that may be needed from other States through the Emergency Management Assistance Compact. The course features the choice of four exercises: wildfire, storms and flooding, earthquake and tsunami, and animal disease outbreak.

The target audience includes personnel with responsibility for the response to an animal disaster, such as: emergency managers; law enforcement; firefighters; Search and Rescue; veterinarians; extension personnel; public health; academia; animal control; nongovernment organizations (e.g., SART, Red Cross, Voluntary Organizations Active in Disaster, and the Salvation Army); tribal nations and military personnel involved in disaster response; and Federal, State, and local agencies and elected officials. Dates and locations are shown below for the 2010–2011 series.

2010–2011 Dates	**Course #**	**Location**	**Attendees**
June 2-3	2010	Knoxville, Tennessee	51
July 13-14	2010	Las Cruces, New Mexico	66
Aug. 17-18	2010	Richmond, Virginia	15
March 9-10	2011-02	Dover, Delaware	14
March 31-April 1	2011-11	Auburn, Washington	40
April 6-7	2011-04	Saipan, NMI	45
April 13-14	2011-06	Tinian, NMI	30
April 15/18	2011-07	Rota, NMI	30
April 21-22	2011-08	Guam	30
April 29-30	2011-03	Wichita, Kansas	21 = **351 total**

PER 259: Sharing Information and Intelligence Related to Food Importation and Transportation. The overall course goal is to prepare participants to utilize and implement effective sharing of information and intelligence to enhance food safety and security related to the importation and transportation of food. This course is offered over one day (eight instructional hours) and is a practical, exercise-based course that stimulates learning with multiple case studies and scenarios. The course is designed to bring together public health and regulatory officials, the food industry, and law enforcement to develop and strengthen lines of communication for sharing information. Key learning points include: the global movement of food; key vulnerabilities; food importation and inspection processes; Federal, State, and tribal agency responsibilities; a definition of what is information and what is intelligence; observing, assessing, and reporting problems; and seven signs of suspicious activity and highlighting why information flow is critical. A unique practical exercise allows participants to exchange information by making use of a mock fusion center to deal with a scenario involving an imported food shipment.

The target audience for this course are those with a stake in food safety and defense, including: law enforcement; State fusion center personnel; emergency managers and responders; extension personnel; public health personnel; food and agriculture industry; transportation industry; and Federal, State, local, regional, and tribal officials. Dates and locations are shown below for the 2010–2011 series.

2010–2011 Dates	Course #	Location	Attendees
June 29	2010	Knoxville, Tennessee	31
Aug. 19	2010	Richmond, Virginia	48
Sept. 21	2010	Los Angeles, California	19
Feb. 8	2011-01	Pismo Beach, California	43
March 28	2011-11	Las Cruces, New Mexico	50
March 30	2011-12	Albuquerque, New Mexico	60
April 5	2011-04	Saipan, Northern Mariana Islands	45
April 11	2011-05	Tinian, Northern Mariana Islands	30
April 14	2011-06	Rota, Northern Mariana Islands	30
April 20	2011-07	Guam	30
April 20	2011-03	Battle Creek, Michigan	36 = **422**

8.5 Commodity Operations Emergency Response Handbook

USDA/FSA has developed a Commodity Operations Emergency Response Handbook that contains information for the USDA agencies charged with responsibility for providing food assistance in response to a disaster. The manual provides for a quick reference on how/when and which agency orders and which agencies within USDA procure food or food resources. USDA/FNS is the lead agency charged with providing food at the request of State Distributing Agencies that work closely with private sector emergency feeding agencies at the State and local levels. AMS and FSA are the procurement agencies for FNS. On an annual basis, FNS, AMS, and FSA will meet to discuss preparation for potential upcoming disaster preparedness. USDA has the authority to place priorities on contacts for emergency orders under the Agricultural Priorities and Allocation Program if such priorities are needed to ensure that AMS and FSA are able to procure the food requested by the FNS in a timely manner.

8.6 Customs and Border Protection

To address radiological and nuclear risks, CBP employs several types of radiation detection equipment in its operations at both air and sea ports and uses this equipment, along with specific operational protocols, to resolve any security or safety risks that are identified with inbound travelers and cargo. Out of an abundance of caution, CBP issued field guidance in the spring of 2011 reiterating its operational protocols and directing field personnel to specifically monitor maritime and air traffic from Japan. At seaports and in its international mail and express consignment facilities, CBP continues to use sensitive, large-scale Radiation Portal Monitors and scans all maritime cargo and express consignment and mail arriving from Japan. CBP maintains similar protocols for identifying and resolving radiation alarms in these operations and will deny entry to contaminated cargo and mail. CBP continues to evaluate the potential risks posed by radiation contamination on inbound travelers and cargo and will adjust its detection and response protocols, in coordination with its interagency partners, as developments warrant.

8.7 Emerging Chemical Threat Research and Planning

Despite adoption of the Chemical Weapons Convention (CWC), a real and serious risk still exists that either traditional or emerging chemical threat (ECT) agents could be introduced into U.S. food and agriculture. ECTs encompass a wide range of potential threat chemicals, many of which are not prohibited under the CWC. Some of the ETCs possess characteristics that make them especially dangerous if used to contaminate the food supply; a contamination could result in deaths in the range of hundreds of thousands of causalities. FSIS has entered into an interagency agreement with the U.S. Army's Edgewood Chemical Biological Center (ECBC) to perform a scoping study and gap analysis of ECTs and, in so doing, to conduct research that will help address knowledge gaps related to ECTs and the food system. A scoping study has collected all information from DOD and contractors working on ECTs to determine what previous work can be extrapolated to food defense and what work remains to be carried out in food matrices.

USDA/FSIS and ECBC have developed a gap analysis and research plan that identifies and prioritizes critical knowledge gaps regarding the contamination of food by ECTs. The plan provides FSIS with a roadmap to develop a comprehensive research and development (R&D) program to enhance protection of the Nation's food supply from ECTs and develop remediation methodologies in the event of ECT contamination. Research has already begun with funding provided in 2010 and is anticipated to continue through FY 2012. In addition to the research associated with ECTs, USDA (in cooperation with the Federal Emergency Management Agency [FEMA] and the White House) is planning a Fall 2011 Senior Officials Exercise that will test gaps and communications that result from the intentional addition of an ECT to the American food supply.

8.8 FAZD Education and Outreach Efforts

ZADD research and education programs have developed the tools and contacts necessary to engage partners in training initiatives. For example, a recent series of workshops focused on introducing under-represented minority high school students from 30 California high schools to veterinary medicine topics, including zoonosis research. ZADD organized a DACUM (**D**eveloping **A** Curricul**UM**) workshop to identify gaps in FAZD workforce development. ZADD coordinates with DHS/S&T on areas of interest for outreach initiatives, bringing together academia, industry, USDA, and DHS to help inform the development of integrated stakeholder efforts.

8.9 Food and Agriculture Defense Sub-IPT Efforts

The mission of the Agricultural Defense sub-IPT is to collect, analyze, and prioritize capability gaps and recommend investments on an annual basis to DHS/S&T Chemical and Biological Division (CBD). The interagency group makes these recommendations with a goal of increasing the Nation's preparedness against agricultural threats through improved threat awareness, advanced surveillance and detection, and protective countermeasures. Current topics considered within CBD's mission space include threats to animal health and the use of food as a vehicle for chemical and biological threats. Over the past year, the group has launched a major effort to review all previously submitted capability gaps related to food and agriculture. This effort involves the DHS/S&T Agriculture Defense Branch to review the complete list of 226 capability gaps that were submitted between FY 2007 through FY 2010. The end goal of this effort will be the creation of a "Grand Challenges Document" that will serve to identify duplicative capability gaps; close out capability gaps that have not been addressed; and review the remaining gaps to determine whether they are still valid and, if not, to update or close the gaps in question.

8.10 Food and Agriculture Readiness Measurement (FARM) Toolkit

The DHS/OHA Food, Agriculture, and Veterinary Defense Branch is supporting the development of the FARM toolkit in partnership with NCFPD and FoodSHIELD. The toolkit is designed to improve State governments' ability to prepare for, respond to, and recover from

adverse food incidents by providing best-in-class information that will further the integration of the food sector into the greater emergency management community.

The toolkit features a questionnaire that helps to determine a State's level of readiness to respond to a food incident. The toolkit measures readiness using 15 indicators developed by subject matter experts and partners in six States: Kansas, Minnesota, Mississippi, Oklahoma, Pennsylvania, and Wisconsin.

Upon completion of the questionnaire, the toolkit identifies areas of strengths and areas for potential improvement. It then links the user to resources specific to those areas of potential improvement, such as best practices, training opportunities, grant opportunities, and a model Food Emergency Response Plan (FERP). In addition, through aggregated data, the toolkit will provide insight to Federal partners on areas where increased education, funding, and resources are needed to enhance food sector capabilities.

The beta version of the toolkit for the food sector was launched for Federal partners on January 26, 2011, and expanded to State partners on April 12, 2011, through a Webinar available on FoodSHIELD.

DHS/OHA is supporting NCFPD and FoodSHIELD in scheduling both in-person discussions with States about the tools and a seminar at the annual conference of the Association of Food and Drug Officials, scheduled for June 18 to 22, 2011, in Dallas. DHS/OHA continues to work with Federal, State, local, and private sector partners on improvements to the toolkit and anticipates a full release on October 1, 2011.

In FY 2012, DHS/OHA will continue to support NCFPD in developing the tool for the agriculture sector, for which it will address issues pertaining to livestock and plants. As tools are developed, they will become part of a larger toolkit on FoodSHIELD for the FA Sector, including the grants tutorial and the revised FERP template.
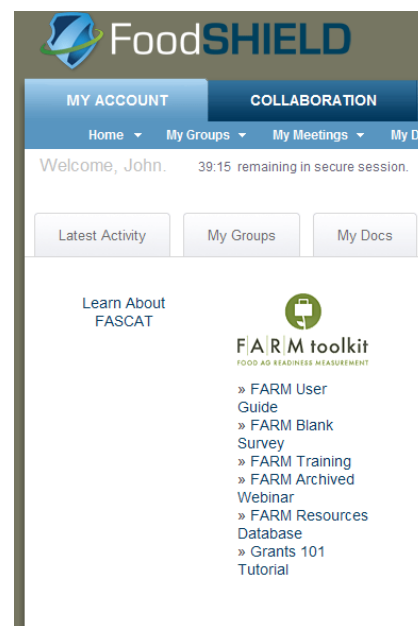
8.11 Food Defense Research Database

The Food Defense Research Database project was initiated in 2009 as a result of the FA Sector's Joint Committee on Research to address the gap in identifying research (either completed or under way) that is pertinent to preventing intentional or catastrophic events in the FA Sector. The work accomplished in this project assists public and private sector leaders in addressing research gaps and needs and in conducting VAs.

NCFPD was tasked to establish a database to help ensure that research in the sector was captured and available for viewing. NCFPD has identified and assessed existing research from numerous international and U.S. databases. Those projects deemed of value—totaling more than

300 entries to date—have been added to the database, while more than 1,000 have been reviewed. The project entries contain projects addressing the intentional contamination of the food protection, animal, and water supply. Entries include methods of contamination, detection, persistence, risk assessment/communication, and decontamination. The final aims of the project are to create a Food Defense Research Agenda. This goal will be accomplished by matching research requirements and needs from government and the private sector with gaps identified through this project. The Food Defense Research Database can be accessed online at: https://rds.ahc.umn.edu/test/research_database/public/index.cfm/search.

8.12 Food Emergency Response Plan Template Version 2.0

In September 2004, NASDA signed a cooperative agreement with USDA/FSIS, FDA, and DHS/IP to develop best practices and guidelines for State and local emergency response efforts for incidents involving the Nation's food supply. This document was designed to help States develop FERPs that dovetail with the Federal response protocols outlined in the National Response Framework and associated annexes. The document was completed in February of 2006.

After consulting with stakeholders, such as the USDA, FDA, DHS/IP, and State stakeholder associations, DHS/OHA contacted NASDA about revising and updating the FERP. In 2010, DHS/OHA contracted with NASDA to revise the FERP template by the end of FY 2011. The updated version will be incorporated in the FARM toolkit to assist States in improving their planning and food emergency response preparedness.

8.13 Food Safety and Defense Task Force

The Indiana State Department of Health (IDSH) was awarded an FDA Food Safety and Defense Task Force Grant to build valuable industry, academia, and regulatory partnerships. Over the last several years, this effort has grown from a partnership with about eight people to one with more than 150 members. IDSH was one of the first State government agencies to use FoodSHIELD to bring people together and communicate information. The last meeting involved more than 80 participants and was recently chosen by FDA as one of four task forces in the Nation to appear on a national satellite downlink showcasing good examples of these task forces.

8.14 Integrated Food Safety System Online Collaboration Development

FDA is in the first year of a five-year cooperative agreement with the NCFPD to expedite program development to support critical Federal-State collaboration. FDA is funding projects for the continued development and operations of collaborative online tools involving a range of stakeholders for the purposes of (1) sharing information on the development of an integrated food safety system, and (2) developing and implementing a sustainable model for continued

collaborative communication and information sharing. Projects for this fiscal year (October 2010–September 2011) are described below.

8.14.1 PETNet

The Pet Event Tracking Network (PETNet) is a collaborative project to provide a secure reporting/notification system, accessible by Federal and State government officials, which will allow for the exchange of information early in a disease outbreak that is associated with the consumption of adulterated pet food. PETNet began beta testing in February 2011, and development of the tool will continue through the spring of 2011.

8.14.2 Food Protection Taskforce Conference Grant Program

The Food Protection Taskforce Conference Grant program, funded by FDA/DFSR, supports meetings that foster communication, cooperation, and collaboration among all stakeholders of the food protection system in an effort to enhance food safety and defense capabilities. These stakeholders include regulatory agencies, academia, industry, consumers, State legislators, and boards of health and agriculture. Currently, 27 States receive the grant award of up to $10,000; five of these States were newly added recipients in FY 2010. In the future, DFSR hopes to have an FDA-funded taskforce in every State.

On the basis of feedback from the current taskforce grant recipients, DFSR learned that there is a need for more communication with other taskforces and FDA to be able to share best practices, ask questions, generate ideas, and discuss issues.

To address this need for more communication among taskforces, DFSR hosted a live Webcast for members of the Food Protection Taskforces on December 2, 2010. Participants included FDA's Associate Commissioner for Regulatory Affairs, DFSR's Director, the Deputy Commissioner for Foods, and four representatives of Food Protection Taskforces from Michigan, North Carolina, Tennessee, and Indiana. The State participants discussed some key areas of concern for the taskforces, including the value these taskforces bring to a State's food safety system, how taskforces can be structured, and the expectations of the taskforce members.

The taskforces were encouraged to schedule their meetings around the broadcast and to view it as a group. The Webcast was well attended, with 25 of the 27 taskforces agreeing to host the Webcast in conjunction with one of their regular meetings. In addition, there were more than 400 direct call connections to audiences of various sizes.

FoodSHIELD has helped create an online community for the Food Protection Task Forces. There will be a main Web site administered by DFSR, which will be the go-to Web address for all taskforce-related topics, including a section dedicated to the latest news concerning food safety and a page containing FDA releases, advisories, and initiatives.

Each FDA-funded taskforce (27 total) will also have a customizable Web page that will be linked to the DFSR main page and will be able to:

- Start discussions and share news, etc., between taskforces and FDA;

- Follow events going on with other States and FDA;

- Share information (i.e., videos, pictures, training, documents, news, and events) with constituents; and

- Share nonpublic information with members in a secure portal.

8.14.3 FoodSHIELD Support Funding

FoodSHIELD is an online collaboration portal that supports Federal, State, and local governmental regulatory agencies and laboratories in defending the food supply through Web-based tools that enhance threat prevention and response, risk management, communication and asset coordination, as well as public education.

As a portal dedicated to food and agriculture participants across the sector, FoodSHIELD is built on the CoreSHIELD framework and Coordinate, Communicate, Collaborate, Educate, and Train standard. CoreSHIELD is the enabling technology that powers all dedicated portals in the ecosystem. In addition, FDA is providing support funding for the maintenance and operations of CoreSHIELD.

Stakeholders in this effort include USDA, DHS, CDC, State regulatory partners, and industry. NCPFD, a DHS Center of Excellence, receives funding from DHS, USDA, and FDA and has FA Sector participation at all levels. NCFPD's objectives are consistent with the 2010 FA SSP, in which NCFPD is explicitly listed for its leadership on FASCAT.

8.15 International Activities

The United States has one of the safest food supplies and among the highest standards of consumer protection in the world. However, the rapid growth in the volume of imports, as well as the number of importers and exporting countries, present challenges to the current import safety system. FDA and USDA have engaged in a variety of activities to strengthen the import system.

8.15.1 International Food Defense Workshops

Pilots 3 (Vietnam) and 4 (The Republic of the Philippines) of the Asia-Pacific Economic Cooperation (APEC) Food Defense Pilot Program were completed in 2010–2011. This effort was funded by the U.S. Department of State (DOS), coordinated by USDA/Foreign Agricultural

Service (FAS), and staffed by USDA/FSIS, FDA, and U.S. food industry consultants. The goals of the program were to (1) increase awareness of food defense and the potential for intentional contamination of the global food supply; (2) provide training on food defense planning, VAs, and mitigation strategies; and (3) establish regional centers of food defense expertise within the APEC economies. The program includes three phases conducted via two separate visits to the host economy. Phase 1 is a relationship-building trip focused on identifying key contacts to administer Phases 2 and 3 and develop sustainability agents. Phase 2 includes a one-day facilitator training session (with the key contacts identified during Phase 1) followed by a two-day food defense awareness workshop. In Vietnam, this Phase 1/Phase 2 program was held in Ho Chi Minh City and hosted by Nong Lam University and Ho Chi Minh City University of the Food Industry, respectively. There were more than 140 participants representing government, academia, and industry. Phase 1 in the Philippines was such a success that the Secretary of Agriculture of the Philippines offered to provide additional funding in order that the team could conduct workshops in the northern (Manila), middle (Cebu), and southern (Davao) areas of the country. Each workshop attracted more than 100 participants representing government, academia, and industry. The Philippine government formed a task force to pursue development of food defense guidance and initiate VAs. In addition, they are planning to submit a proposal to APEC for follow-up activities focused on joint VAs with the other three APEC host economies and the United States. The APEC Food Defense Pilot Program will conclude with a regional workshop to be held in Malaysia in September 2011 and led by FDA and FAS.

FDA, along with USDA/FAS and FSIS, conducted follow-on workshops on food defense for Peru and Panama. These activities grew out of the success of the APEC Food Defense Pilot Programs in Peru and Thailand in 2008 and 2009, respectively, as well as the success of a coordinated FDA and FAS outreach activity held in Panama in 2009. Building on the success of these prior programs, the team focused on advanced training in VAs and food defense planning.

Collaboration with Canadian regulatory partners was also a focus of 2010–2011. In September 2010, the Canadian Food Inspection Agency (CFIA)—in partnership with The International Science and Technology Center; the Department of Foreign Affairs and International Trade Canada; and the Chemical, Biological, Radiological-Nuclear, and Explosives Research and Technology Initiative—hosted a three-day meeting on "Biological Threat Prevention – The Global Food Supply Chain." FDA, CDC, FSIS, DHS, NCFPD, and two U.S. national laboratories (Sandia National Laboratory and Lawrence Livermore National Laboratory) participated, along with representatives of Canada (CFIA, Public Safety Canada, Health Canada and Foreign Affairs, and International Trade Canada), Russia, the UK, the European Union, Tajikistan, and Kyrgyzstan. Main outcomes of this meeting were (1) the identification gaps in communication as a major hurdle to cooperation in efforts to prevent and respond to intentional contamination of the global food supply; and (2) the identification of research gaps with regard to detection of biological contaminants in the food chain.

In January 2011, CFIA partnered with the Canadian Security Intelligence Service to host "Security Dimensions of the Global Food System." FDA, DHS, and DOS were represented. CFIA further hosted a meeting with FDA, DHS, UK Food Standards Agency, and FSIS to discuss potential follow-on activities to address identified gaps. As a result, a joint U.S.–Canada Food Defense Workshop is currently being planned for the fall of 2011.

In 2010–2011, FDA partnered with FAS to conduct Food Defense Awareness Road Shows in China and Mexico. The road shows are structured to couple one day of relationship-building meetings with a two-day awareness workshop in each of three cities in each country. In China, the road show will travel to Beijing, Guangzhou, and Shanghai. Working with the FDA and USDA posts, FDA and FAS have partnered with the General Administration of Quality Supervision Certification and Accreditation Administration of China to coordinate and host the events. The Mexico road show workshops will be held in Mexico City, Puebla, and Guadalajara, and planning is currently in progress.

In April 2011, FDA provided food defense training as part of the North Atlantic Treaty Organization–Advanced Training Course "Strategies for Achieving Food Security in Central Asia," which was held in Antalya, Turkey. Topics covered included raising food defense awareness and building global food defense capacity.

In June, FDA and FAS traveled to Europe to meet with partners at the World Health Organization, the Food and Agriculture Organization of the United Nations, the UK Food Standards Authority, and others to discuss food defense collaborative efforts. This event was followed by one-day food defense awareness symposia delivered by FDA at the U.S.-hosted Codex Alimentarius colloquia in Latin America (August) and Africa (September). These events are providing opportunities for multilateral engagement in the effort to prevent intentional contamination of the global food supply.

These activities enable the U.S. Government to continue to make progress on trend-setting international efforts to build the capacity of emerging economies in preventing intentional attacks to the food supply. The workshops focused on U.S. food defense awareness initiatives, as well as the use of tools that will aid in the development of comprehensive food defense plans. The overall goal of the project was to encourage both the public and private sector within these countries to implement food defense practices. Participants included representatives from government, academia, and industry.

8.15.2 International Food Protection Training Institute

In support of the Integrated Food Safety System, a need for a uniform national training and certification program with our regulatory and public health partners was identified. The Association of Food and Drug Officials and the Kellogg Foundation (Battle Creek, Michigan) created an International Food Protection Training Institute (IFPTI). IFPTI's mission is to deliver career-spanning, certified food protection training to SLTT food protection professionals to meet established U.S. food safety standards. FDA was asked by IFPTI to work collaboratively in the development and delivery of food regulatory training programs. FDA/ORA has supported IFPTI and believes such support is in line with our strategic goals under the Integrated Food Safety System to develop and implement a national food safety training system that provides the knowledge and skills to regulators and public health partners at all levels of government in a timely and efficient manner.

The Institute's target audience for training is primarily the local, State, and Federal staffs who deliver food safety/food protection services across the country. Training site locations for each course are selected cooperatively between FDA and IFPTI.

Specifically, work is conducted under this program to achieve the following four specific aims:

- Develop a training network to provide technical, management, and leadership training to regulatory and public health officials;

- Serve as a hub for the administration of a training network;

- Develop and deliver standards-based training programs not currently offered; and

- Build an Instructor Development Cadre to ensure the availability of highly trained instructors within regulatory and public health agencies across all jurisdictions.

FDA/ORA continues to work with IFPTI in the development and implementation of a national food safety training system that provides the knowledge and skills to regulators and public health partners at all levels of the government in a timely and efficient manner.

Outcomes: IFPTI formed a Curriculum Team consisting of a diverse group of State and local officials, academicians, and FDA staff. To date, the team has completed these objectives:

- Determined the journey-level, core, and main specialty content areas of the curriculum framework;

- Identified and validated competencies;

- Mapped competencies to framework subject areas;

- Mapped existing courses into framework;

- Reviewed existing courses for fit within the IFPTI curriculum framework;

- Identified certificate programs;

- Mapped courses into certificate programs;

- Determined content area gaps at the core journey-level;

- Identified courses for core content areas; and

- Identified scope and topics within core content area courses.

A license for the use of a robust Learning Management System (LMS) has been purchased from Absorb LMS under the grant. A contracted System Administrator is working with IFPTI's

curriculum delivery staff to develop the LMS system to IFPTI's specifications. All IFPTI staff members have completed training on the new system that was aligned with their expected level of usage of the new system.

DHS has developed a Common Organizational Registry Environment information-sharing framework called CoreSHIELD that will allow data to be entered once in a linked system but used by other systems within the secure network. The CoreSHIELD platform employs standards and tools that enable partner organizations to communicate, coordinate, collaborate, educate, and train within a framework that facilitates targeted, real-time knowledge of the people, organizations, resources, and capabilities that need to be accessed. IFPTI began meetings with programmers in order to become satisfied that the LMS contains linked fields that will enable communication with Food and Agriculture directories, such as those contained in FoodSHIELD, FERN, and HSIN.

IFPTI has developed a set of quality practices that comply with American National Standards Institute/International Association for Continuing Education and Training 1-2007 Standard for Continuing Education and Training. This standard provides a framework that will enable IFPTI to adhere to quality practices concerning continuous education and training.

IFPTI formed a national workgroup to serve as a Research Council linking to the FDA's and CDC's national performance metrics efforts. A meeting was held on October 25, 2010, with representatives from CDC, FDA, USDA, DHS, NIH, and others to develop a national impact model(s) for determining the levels of attribution of an integrated national food protection training system in reducing the prevalence of food-borne illness in the United States.

IFPTI serves as the administrative hub for the Food and Agriculture Protection Training Consortium, which is composed of eight university-based training centers focused on developing and delivering food protection training primarily to U.S. Government regulatory officials at the Federal and SLTT levels, along with other persons or entities responsible for the safety of the U.S. food supply, such as industry, third-party auditors, and regulatory officials in other countries.

Metrics:

- IFPTI completed an inventory and classification of more than 700 existing food protection training courses in the United States in order to assess gaps and place courses into the national curriculum.

- As of November 2010, IFPTI provided training for 1,138 food safety professionals, exceeding its goal of training 1,000 officials in 2010. More than 75 percent of the trainees were U.S. Federal and SLTT regulators representing 47 of the 50 States. Members of academia, industry, and other international representatives made up the balance.

- A process was developed to identify individuals in the food protection community interested in being considered for contract use as instructors and subject matter experts. To date, more than 130 candidates have applied through a Web-based application. Information was collected from these candidates regarding their areas of expertise and the

existing courses in which they have an interest in teaching, with an emphasis on FDA core series courses.

- Four instructor development workshops were scheduled over the course of this grant. To date, two courses have been held—one took place on August 3–5, 2010, and the other on September 14–16, 2010. Thirty-five (35) instructor candidates successfully completed the workshop.

8.16 National Center for Biomedical Research and Training

NCBRT is a DHS training partner that provides high-quality training to emergency responders throughout the United States and its territories under the NCBRT's Homeland Security National Training Cooperative Agreement. NCBRT conducts the following training courses in support of the FA Sector (course statistics are provided in table 8-2):

- **A Coordinated Response to Food Emergencies: Practice and Execution.** This course provides responders with training on all-hazards food emergency response procedures with an emphasis on enhancing communication to facilitate the response effort. For the purposes of this course, food emergencies may include terrorism, naturally occurring events, or accidents that impact the food chain with the potential for mass consequences. The course focuses on Federal, State, and local agency communication and coordination during the response to and recovery from such emergencies. This course is delivered in 16 hours.

- **Preparing Communities for Agroterrorism: Awareness Level.** This course raises awareness regarding the impact of agroterrorism on the food system, animal and plant health, the public's physical and mental health and welfare, environmental health, and the financial well-being of communities. This course has several options for methods of delivery:

  - *Train-the-Trainer* delivery enables supervisors to attend the course, become certified as trainers of the course, and then return to their organization to teach co-workers and employees. Upon request, NCBRT will provide all necessary instructional materials to certified trainers who want to provide instruction to their organizations. This version requires 6.5 hours.

  - *Direct delivery* format is taught by NCBRT instructors and is intended for anyone who is interested in the content of the course. Participants will receive credit for the course but will not be certified to instruct. This version requires 5 hours.

  - *Indirect delivery* format is taught by someone who has passed the Train-the-Trainer version of the course and is intended for anyone who is interested in the content of the course. The instructor in this type of course delivery is not directly employed by the NCBRT. Participants will receive credit for the course but will not be certified to instruct. This delivery format requires 5 hours.

– *Web-based* delivery is available online by accessing the NCBRT Web site. Participants are able to take the course at a self-managed pace. At the completion of the course, participants are provided credit for taking the course via a completion certificate and CEUs (continuing education units).

▪ **Preparedness and Response to Food and Agriculture Incidents.** This course enables participants to identify and recruit those in their neighborhoods whose daily activities place them in a unique position to identify potential threats to the cultivation, production, processing, transportation, or distribution of the Nation's food supply. Participants develop an incident response plan for their area, and learn to identify and obtain local, State, and Federal resources that can help protect the agricultural resources of the United States. This course is designed to promote community response to and recovery from food- and agriculture-based incidents, whether intentional, accidental, or naturally occurring. The course is 16 hours long.

Table 8-2: Course Statistics: May 1, 2010, through April 30, 2011

Course Name	Classes Delivered	Students Trained	Contact Hours
A Coordinated Response to Food Emergencies: Practice and Execution	20	649	9,440
Preparing Communities for Agroterrorism: Awareness Level (Direct Delivery)	6	271	1,285
Preparing Communities for Agroterrorism: Awareness Level (Indirect Delivery)	2	28	140
Preparing Communities for Agroterrorism: Awareness Level (Train the Trainer)	1	17	110.5
Preparing Communities for Agroterrorism: Awareness Level (Web-based)	-	127	508
Preparedness and Response to Food and Agriculture Incidents	8	229	2,976

8.17 National Center for Food Protection and Defense Activities

8.17.1 Freight Transportation Risk and Resiliency in International Food Supply Chains

NCFPD, in conjunction with the Georgia Institute of Technology, developed quantitative methods to help prioritize critical freight transportation infrastructure and key resources serving U.S. food supply chains. This research extends food supply chain network optimization models to develop estimates of the potentially large economic impact that could result because of a natural event or terrorist attack on key freight transportation systems.

8.17.2 Food Product Tracing Technology Capabilities and Interoperability

NCFPD and IFT-affiliated researchers will compare and contrast seven product-tracing technology providers to determine their effectiveness alone and together at better securing the food supply. NCFPD will secure supply chain data for at least one complex product and at least one product with a straightforward supply chain. As a result of this 18-month effort, NCFPD will determine: (1) critical points throughout the food supply chain for collecting product-tracing data; (2) current capabilities of product-tracing technologies; (3) ability of product-tracing technology providers to work collaboratively; and (4) ways to further develop product-tracing systems to increase interoperability and utility.

8.17.3 Experimental Evidence for Best Practices in Food Crisis Communication

NCFPD has used Internet-based surveys to refine risk communication best practices as they apply to food terrorism and other food crisis events. Experimental factors tested include varying the contextual information provided about the event; the manner of presenting identifying information about products; information provided about illnesses and symptoms related to the contaminant; specificity and sensitivity of the warnings given; information concerning the means of contamination; information regarding those responsible for both causing and failing to prevent the contamination; and information concerning purported government, industry, and public response to the threat. The research will help to provide clear, empirically based guidance for communicating to a wide audience about such events.

8.17.4 Food Protection and Defense Education and Outreach Efforts

Ten undergraduate and graduate students at NCFPD-affiliated universities received one- or two-year Food Protection and Defense, Border and Immigration Security, or Frontier Interdisciplinary eXperiences awards to promote career development in 2010–2011 and 2011–2012. The undergraduate scholarships and graduate fellowships provide monthly stipends, as well as support for tuition; books; and conferences related to food defense, border security, and homeland security. Undergraduate recipients receive an internship-related stipend, and all students are actively "tracked" into homeland security-related employment.

8.17.5 Food Defense Architecture Assessment

NCFPD is performing an overarching architecture analysis of the major food product types to assess vulnerabilities to intentional contamination from various threat agents. This analysis will identify critical gaps in food defense and recommend countermeasure technologies to support identification and prioritization of future R&D efforts in DHS food defense projects. The major goals of this project are to:

- Identify gaps in the current food defense practices that limit the prevention, detection, and response to intentional contamination of foods;

- Recommend technologies that could be used to fill the gaps in the food defense. The focus is to limit casualties associated with intentional contamination; and

- Provide solutions that satisfy the needs of all of the stakeholders (DHS, FDA, USDA, food industry, and U.S. consumers).

This effort supports the capability cap CB-197(Ag 28a) titled "Comprehensive Food Architecture Assessment" submitted to DHS/S&T IPT by DHS/OHA.

8.18 National Environmental Health Association Activities

The National Environmental Health Association (NEHA) represents more than 4,500 environmental health professionals across the Nation. NEHA's mission is "to advance the environmental health and protection professional for the purpose of providing a healthful environment for all." This mission is achieved primarily through educational opportunities, outreach, and partnerships. NEHA members and staff are also available as resources and can provide expert advice on environmental health and public health issues, including food safety and food defense.

The following provides a sampling of partnerships and participation:

- FA Sector Coordinating Councils:

  - Dissemination of information from the FASCC to approximately 50 affiliates, membership (E-news), and Web posting of timely information (as authorized), including the "See Something, Say Something" Campaign.

  - Participation on Strategic Plan Sub–Group.

- FDA 50-State Meetings and Work Groups
- Council to Improve Food-borne Outbreak Response (www.cifor.us); and
- CDC – Environmental Health Training in Emergency Response.

Upcoming educational opportunities include the following:

- 75th Annual Educational Conference, June 18–20, 2011, in Columbus, Ohio (see http://www.neha.org); this conference includes technical sections on All-Hazards Preparedness and Food Protection; and

- E-learning and continuing education available online 24/7.

8.19 Small Scientific Conference Grant

The FDA/DFSR recognizes the value of supporting high-quality conferences relevant to its public health mission. Grant funds are awarded to associations to host an annual conference, seminar, workshop, or symposium with a topic of interest and relevance to DFSR's mission of supporting food and feed safety. This is an FDA-wide program and is not unique to ORA/DFSR. Participating centers include the Center for Biologics Evaluation & Research, Center for Drug Evaluation and Research, Center for Devices and Radiological Health, CVM, CFSAN, Office of Orphan Product Development, and ORA.

Outcomes of Project:

FDA/ORA has supported Small Science Conference Grants since FY 2005 and has accomplished the following in collaboration with the various associations:

- Funding provided to promote uniform State and Federal regulations that provide consumers with high-quality and wholesome eggs. The strategy for accomplishing this goal was to provide interaction between State and Federal agencies and training sessions at the annual conference.

- Funding provided to host an educational conference and program that contributed to the skill levels and competency of the food safety professionals. The conference focused on food safety educational training, such as the establishment of an effective field training process for regulatory retail food protection professionals.

- Grant recipient provided workshops with topics that are reflective of FDA's priorities of reducing food-borne outbreaks and finding solutions to problems in the global food market that impact the public health in the United States through imported food products.

Associations currently receiving funds are NEHA, the Association of Food and Drug Officials (AFDO), Association of American Feed Control Officials (AAFCO), National Egg Regulatory Officials, and Conference for Food Protection. Each group receives funds of up to $25,000. Four additional organizations will be added this year, pending funding information from the Office of Acquisitions and Grants Services.

An example of a meeting funded by this grant is the AFDO 2010 annual conference, which was held on June 23, 2010, with the theme, "A Decade for Integration." A wide range of topics was addressed at this meeting, including the MFRPS, Partnership for Food Protection workgroup progress reports, cooperative State meat and poultry inspection programs, in-commerce surveillance, safety concerns and recurring fresh produce outbreaks, small supplier food safety programs, and certified food protection training programs.

Currently, the only measure for the grant recipients is that each hosts an annual conference promoting food safety and defense.

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Section 9: Summary of Sector Challenges and Path Forward

As demonstrated in sections 3 through 8, significant progress has been made on implementation of FA Sector programs. However, improvements can be made to facilitate better coordination and collaboration on and execution of FA Sector goals and objectives. Examples of the primary areas in need of improvement include the following:

- Awareness and engagement;
- Interdependencies;
- Effectively leveraging resources;
- Information sharing; and
- Tracking and measuring progress.

These and other challenges are discussed in section 9.1. The path forward, including highlights of ongoing efforts to address some of these challenges, is discussed in section 9.2.

9.1 Summary of Sector Challenges

FA Sector partners are faced with competing priorities and limited resources. Resources at the State/local level are further strained by the current economic climate. The importance of day-to-day operations and regulatory requirements for the protection of public health by FA Sector owners and operators cannot be overemphasized. The recent focus of the administration on improved resilience and an all-hazards approach helps to identify multiple benefits of protective programs, allowing for an improved efficiency in accomplishing some sector security goals. However, maintaining the awareness and engagement of FA Sector partners on food and agriculture safety and defense issues remains a challenge.

Within the FA Sector, infrastructure is defined by the private sector by the systems, assets, and networks that comprise the farm-to-fork continuum. However, staffing levels of the individuals who make up the government oversight component of the sector—the workforce within the regulatory-based entities, laboratory facilities, etc., who are based within SLTT entities—have been falling in recent years. These personnel perform, among other mandated tasks, regular as well as complaint-based inspections, follow up on reports of illness, conduct food-borne outbreak investigations, and provide education and outreach addressing food safety and defense with private sector

> **Challenge: Limited Funding to Support Awareness and Engagement**
>
> *Maintaining awareness and engagement in FA Sector activities involves participation in meetings, training, exercises, and other events. Funding restrictions at the SLTT level mean it is difficult for SLTT personnel to stay abreast of national initiatives when a key program cannot obtain representation at meetings and events.*
>
> *For example, personnel from the Indiana State Department of Health's Food Protection Program indicated that they do not have funding to cover the costs of sending even one key staff to attend relevant meetings and conferences, including the 2011 International Symposium on Agroterrorism, the FDA Central Atlantic States Association/ Central Region Retail Foods Conference, and the annual Association of Food and Drug Officials meeting.*
>
> *Other SLTT partners experience similar challenges and limitations.*

stakeholders. With the decreasing number of adequately trained and equipped personnel, the challenges of addressing prevention-based efforts become even more visible. For example, as cited in a recent survey conducted by the National Association of County and City Health Officials, "In 2010, 18,000 LHD [local health department] employees were subjected to reduced hours or mandatory furloughs." It additionally was stated that "29,000 cumulative jobs were lost from 2008 to 2010, approximately 19 percent of the 2008 nationwide LHD workforce."[9] These challenges emphasize the need to more effectively leverage existing resources and other opportunities to support food and agriculture defense initiatives.

In addition, risks, vulnerabilities, and consequences have not been fully assessed; therefore, even though SSAs continue to revalidate and conduct new VAs for specific aspects of the FA Sector, much work remains. The thousands of different types of food and agricultural commodities and operations mean it is prohibitive to conduct a VA for each type of commodity or operation. Requirements to revalidate VAs every two years for processes that do not change significantly place additional burdens on limited resources. As discussed in section 2, while the FA Sector participates in a number of risk assessment efforts led by DHS, these efforts fall short of fully defining and quantifying risk to the sector in a meaningful way and against which progress toward reducing risk can be effectively measured.

The FA Sector shares a number of vital dependencies and interdependencies with other critical infrastructure sectors. Although progress is being made to identify these relationships, collaboration with external partners is still needed to address implementation steps to create cross-sector protective programs. With DHS taking the lead, the FA Sector will help enhance existing coordination mechanisms among all sector partners. This coordination is crucial and may require development of new relationships and more regular and effective communication mechanisms to further understand and address cross-sector dependencies and interdependencies.

Information sharing and communications are vital to critical infrastructure activities. Identification of a standard protocol and platform for disseminating and sharing information with the FA Sector remains a significant challenge. As demonstrated in the July 2010 Food Service Food Defense Exercise (section 3.3), the ability to share classified information with the private sector is limited by the number and diversity of private sector partners who have a security clearance.

Although it is not mandatory for FA Sector owners and operators to implement protective programs, many have performed VAs and have expended significant amounts of time, money, and effort toward improving their protection and resilience posture. Obstacles remain around collection, verification, validation, storage, protection, sharing, and tracking of sector security information and measurements.

Tracking and measuring progress on the multiple FA Sector activities conducted by SSAs, DHS, SLTT, the private sector, academia, and other partners remains a challenge for the sector. For many sector activities, it is difficult to define tangible metrics. In addition, the change in reporting formats and requirements from year to year makes it difficult to address this

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9 http://www.naccho.org/topics/infrastructure/lhdbudget/index.cfm; accessed on March 22, 2011.

prospectively. Recent initiatives within DHS/IP and the passage of FSMA will help to standardize and define metrics and reporting requirements. However, implementation of these metrics and requirements will require synchronization with ongoing and future activities.

FA Sector partners will continue to identify and address current as well as future challenges. Sector partners will have to adapt critical infrastructure efforts to account for any progress they achieve in protection and resilience and for changing risks to the sector. At the national level, an understanding of these challenges should be used to focus Federal and sector partners' attention on areas of critical infrastructure that warrant additional resources or other changes. While DHS often relies on the framework of the NIPP partnership model, there is still a need for better coordination between DHS and SSAs to coordinate across interdependencies, identify common challenges, and accomplish critical infrastructure protection goals.

Implementing the sector's vision, goals, objectives, and milestones requires coordination with all partners when evaluating existing or developing new protective programs and measures of success. These collaborative efforts will, however, help owners and operators be better prepared to prevent, detect, mitigate, respond to, and recover from terrorist attacks, other intentional acts, natural disasters, and other hazards, thereby better protecting the Nation's FA Sector.

9.2 Path Forward to Address Challenges

To improve protection of the FA Sector, SSAs and sector partners are moving forward on many key actions. The FA Sector has an active FASGCC and FASCC that coordinate protection activities. In 2010, both of the FA Sector's coordinating councils developed value proposition statements to improve awareness and engagement within the sector on FA Sector issues. These efforts will continue and will form the foundation for broader strategic planning initiatives.

Development of a FASGCC strategic plan and associated outreach materials is only one mechanism by which to promote awareness and engagement. In order to be effective in not only promoting FA Sector initiatives, but also facilitating implementation of protective programs, there is a critical need to provide guidance to SLTT governments as to how to leverage Federal grant programs and related resources. Figure 9-1 provides a summary of FEMA/Grant Programs Directorate (GPD) funding for animal health and food safety projects from FY 2007 through FY 2010. Notably, there has been quite a large increase in the total requests for funding during this time period. This is mostly attributable to a continued increase in the number of States applying for funds to support FA Sector initiatives and an increase in both the number of projects being supported and the number of grant programs that support food and agriculture programs.

In 2010, there were 30 State projects and 50 investments from FEMA/GPD for the FA Sector totaling more than $79 million, with an average grant award per project of approximately $1.6 million and a median grant award of approximately $500,000.
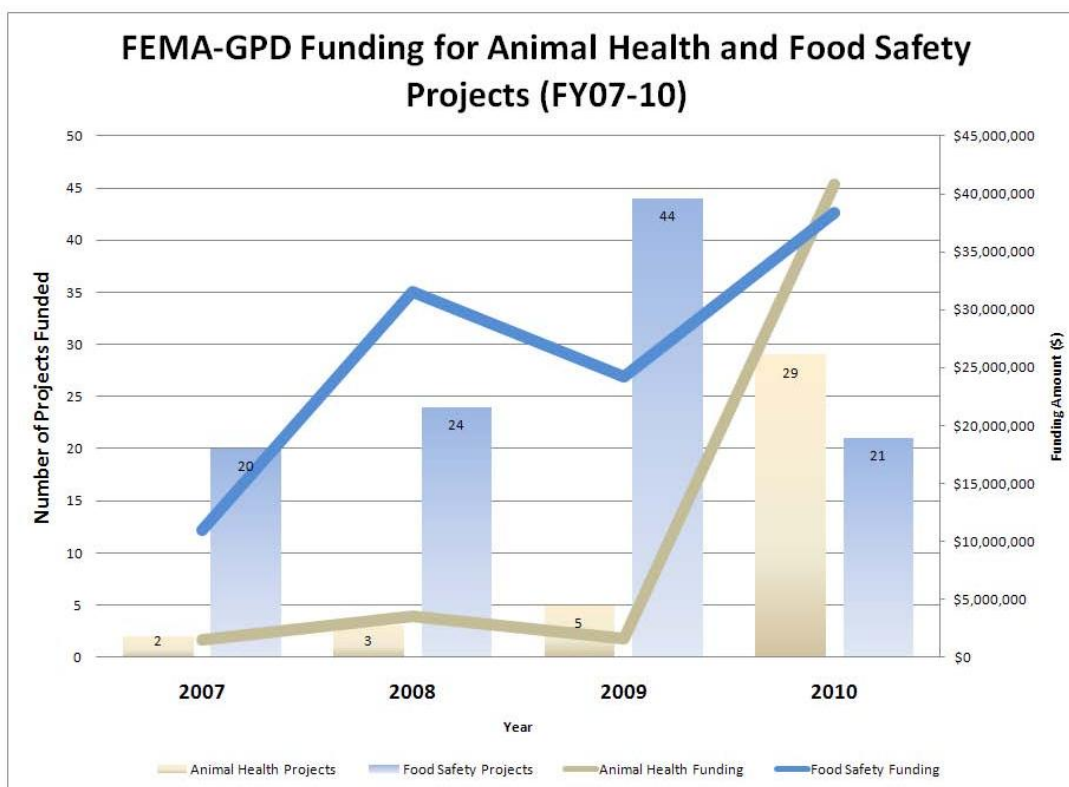
**Figure 9-1: FEMA-GPD Funding for Animal Health and Food Safety Projects
(FY 2007–FY 2010)**

The ISWG will continue to meet on a regular basis to evaluate mechanisms and protocols for information sharing. The ideal information-sharing tool(s) for the sector should (1) be broadly accessible following appropriate vetting of subscribers, (2) add value for emergency and nonemergency situations, and (3) promote two-way information sharing and collaboration.

As discussed in section 4, the identification and prioritization of critical infrastructure are only the first steps in the process of implementing the NIPP Risk Management Framework. Efforts should be initiated to expand and leverage existing vulnerability and site assessment tools, and in some cases, new assessment tools or modules may need to be developed to address the unique aspects of the FA Sector, such as by focusing on systems-based assessments. This effort will require additional partnership and collaboration with offices and entities within DHS that develop and conduct these assessments.

Last, additional effort is needed to identify tangible metrics to track and report sector progress on key risk mitigation activities. The FA Sector will continue to work with DHS to improve our understanding of specific threats and promote broader collaboration on the assessment of cross-sector interdependencies.

Acronym List

AAFCO	Association of American Feed Control Officials
AAVLD	American Association of Veterinary Laboratory Diagnosticians
AFDO	Association of Food and Drug Officials
AgEOC	Agriculture Emergency Operation Center
AHN	Animal Health Network
ALERT	Assure, Look, Employees, Reports, Threat
AMS	Agricultural Marketing Service (USDA)
APAS	Agriculture Priorities and Allocation System
APEC	Asia Pacific Economic Cooperation
APHIS	Animal and Plant Health Inspection Service (USDA)
ARS	Agricultural Research Service (USDA)
ASIS	American Society of Industrial Security
AST	Agriculture Screening Tools
BSL	Biosafety Level
BTRA	Biological Terrorism Risk Assessment
BZP	Buffer Zone Plan
BZPP	Buffer Zone Protection Program
C&D	cleaning and disinfection
CAFSP	Center for Agriculture and Food Security and Preparedness
CAP	Community Agrosecurity Planning
CARVER + Shock	Criticality, Accessibility, Recuperability, Vulnerability, Effect, Recognizability + Shock
CBD	Chemical and Biological Division (DHS/S&T)
CBP	Customs and Border Protection (DHS)
CBR	Chemical, Biological, Radiological
CBRN	Chemical, Biological, Radiological, and Nuclear
CCC	Commodity Credit Corporation
CDC	Centers for Disease Control and Prevention (HHS)
CFIA	Canadian Food Inspection Agency
CFR	Code of Federal Regulations
CFSAN	Center for Food Safety and Applied Nutrition (FDA)
CID	Compliance and Investigation Division (USDA/FSIS)
COOP	Continuity of Operations
CPHST	Center for Plant Health Science and Technology
CTRA	Chemical Terrorism Risk Assessment
CVM	Center for Veterinary Medicine (FDA)
CWC	Chemical Weapons Convention
3D	Depopulation, Disposal, and Decontamination
DACUM	Developing A CurriculUM
DFSR	Division of Federal-State Relations (FDA)
DHS	U.S. Department of Homeland Security

DOD	U.S. Department of Defense
DOI	U.S. Department of the Interior
DOS	U.S. Department of State
DPA	Defense Production Act
ECBC	Edgewood Chemical Biological Center
ECIP	Enhanced Critical Infrastructure Protection
ECOS	Electronic Commodity Ordering System
ECT	Emerging Chemical Threat
EDEN	Extension Disaster Education Network
EMA	Economically Motivated Adulteration
EMC	Emergency Management Center
EMRS	Emergency Management Response System
EP	Emergency Programs Division (NCDA&CS)
EPA	U.S. Environmental Protection Agency
ERF	Emergency Relocation Facility
ERLN	Environmental Response Laboratory Network
FA Sector	Food and Agriculture Sector
FAD	Foreign Animal Disease
FARM	Food and Agriculture Readiness Measurement
FAS	Foreign Agricultural Service (USDA)
FASCAT	Food and Agriculture Sector Criticality Assessment Tool
FASCC	Food and Agriculture Sector Coordinating Council
FASGCC	Food and Agriculture Sector Government Coordinating Council
FAZD	National Center for Foreign Animal and Zoonotic Disease Defense
FBI	Federal Bureau of Investigation
FD&C Act	Food, Drug, and Cosmetic Act
FDA	U.S. Food and Drug Administration (HHS)
FDAS	Food Defense and Assessment Staff (USDA/FSIS)
FEMA	Federal Emergency Management Agency (DHS)
FERN	Food Emergency Response Network
FERP	Food Emergency Response Plan
FIMS	FSIS Incident Management System
FIRST	Follow, Inspect, Recognize, Secure, Tell
FMD	Foot-and-Mouth Disease
FNS	Food and Nutrition Service (USDA)
FOUO	For Official Use Only
FSA	Farm Service Agency (USDA)
FSFD	Food Service Food Defense
FSIS	Food Safety and Inspection Service (USDA)
FSMA	Food Safety Modernization Act
FY	Fiscal Year
GLBHI	Great Lakes Border Health Initiative
GPD	Grant Programs Directorate

GRAS	Generally Recognized as Safe
H1N1	Subtype of Influenza A Virus
HHS	U.S. Department of Health and Human Services
HITRAC	Homeland Infrastructure Threat and Risk Analysis Center
HPAI	Highly Pathogenic Avian Influenza
HSAS	Homeland Security Advisory System
HSIN	Homeland Security Information Network
HSIN–FA	Homeland Security Information Network–Food and Agriculture
HSPD	Homeland Security Presidential Directive
ICLN	Integrated Consortium of Laboratory Networks
ICS	Incident Command System
IDALS	Iowa Department of Agriculture and Land Stewardship
IDCA	Infrastructure Data Collection Application
IDSH	Indiana State Department of Health
IFDP	Innovative Food Defense Program
IFPTI	International Food Protection Training Institute
IFT	Institute of Food Technologists
IICD	Infrastructure Information Collection Division (DHS/IP)
IP	Office of Infrastructure Protection (DHS)
IPT	Integrated Project Team
ISA	International Symposium on Agroterrorism
ISE	Information Sharing Environment
ISU	Iowa State University
ISWG	Information Sharing Working Group
ITRA	Integrated CBRN Terrorism Risk Assessment
IVRRT	Iowa Veterinary Rapid Response Team
LHD	Local Health Department
LMS	Learning Management System
LRN	Laboratory Response Network
LRN-B	Biological Laboratory Response Network
MAMPT	Multi-Application Multiplex Platform Technology
MFRPSs	Manufactured Food Regulatory Program Standards
MSP	Multi-State Partnership for Security in Agriculture
NAHLN	National Animal Health Laboratory Network
NASDA	National Association of State Departments of Agriculture
NBAF	National Bio and Agro-Defense Facility
NCBRT	National Center for Biomedical Research and Training
NCDA&CS	North Carolina Department of Agriculture & Consumer Services
NCFPD	National Center for Food Protection and Defense
NCIPP	National Critical Infrastructure Prioritization Program
NCVRC	North Carolina Veterinary Response Corps

NEHA	National Environmental Health Association
NIFA	National Institute of Food and Agriculture (USDA)
NIH	National Institutes of Health (HHS)
NIHS	National Institute for Hometown Security
NIPP	National Infrastructure Protection Plan
NOAA	National Oceanic and Atmospheric Administration
NPDN	National Plant Diagnostic Network
NPO	National Program Office (CDC)
NSLP	National School Lunch Program
NTAS	National Terrorism Advisory System
NVS	National Veterinary Stockpile
NVSL	National Veterinary Services Laboratories
OCI	Office of Criminal Investigations (FDA)
ODIFP	Office of Data Integration and Food Protection (USDA/FSIS)
OFDCER	Office of Food Defense, Communication and Emergency Response (FDA)
OHA	Office of Health Affairs (DHS)
OHSEC	Office of Homeland Security and Emergency Coordination (USDA)
OIG	Office of the Inspector General (USDA)
OPEER	Office of Program Evaluation, Enforcement, and Review (USDA)
OOEET	Office of Outreach, Employee Education, and Training
ORA	Office of Regulatory Affairs (FDA)
PAH	Polyaromatic Hydrocarbon
PETNet	Pet Event Tracking Network
PIADC	Plum Island Animal Disease Center
PPE	Personal Protective Equipment
PPQ	Plant Protection and Quarantine (USDA/APHIS)
PSA	Protective Security Advisor
PSCD	Protective Security Coordination Division (DHS/IP)
Q&A	Questions and Answers
QMS	Quality Management System
R&D	Research and Development
RAS	Rapid Alert System
RDD	Radiological Dispersal Device
REMS	Readiness and Emergency Management for School
RFR	Reportable Food Registry
RNTRA	Radiological and Nuclear Terrorism Risk Assessment
RRAP	Regional Resiliency Assessment Program
RRT	Rapid Response Team
RVF	Rift Valley Fever
RVFV	Rift Valley Fever Virus
S&T	Science and Technology Directorate (DHS)

SAADRA	Southern Agriculture and Animal Disaster Response Alliance
SART	State Animal Response Teams
SAV	Site Assessment Visit
S-CAP	Strengthening Community Agrosecurity Planning
SES	Secure Egg Supply
SLTT	State, Local, Tribal, and Territorial
SOS	Sweet Orange Scab
SRP	Safety Reporting Portal
SSA	Sector-Specific Agency
SSP	Sector-Specific Plan
TRL	Technology Readiness Level
TTX	Tabletop Exercise
UK	United Kingdom
USC	United States Code
USDA	U.S. Department of Agriculture
USWA	U.S. Warehouse Act
UT	University of Tennessee
VA	Vulnerability Assessment
VIPER	Voice Interoperability Plan for Emergency Responders (North Carolina)
VRPP	Vulnerability Reduction Purchasing Plan
VS	Veterinary Services (USDA/APHIS)
WBSCM	Web-Based Supply Chain Management
WMDD	Weapons of Mass Destruction Directorate (FBI)
ZADD	Zoonotic and Animal Disease Defense

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