

# Using WBT to Train Food Industry Personnel to Protect and Secure the Global Food Supply Chain

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## ABSTRACT

The Certificate Program in Food Protection and Homeland Security at Saint Joseph's University was designed for professionals who are involved in the food industry from "farm-to-fork". In addition to providing ADL/SCORM web-based training to federal, state, and local governments in preparation for acts of terrorism aimed at food, this program is also designed to train those in the private sector of the food industry to prepare and respond to food terrorist incidents. The certificate program is further applicable to those individuals who scholarly pursue the study of food science and marketing as it applies to terrorism and emergency response.

### **Food Security and Protection.**

In the last decade developments in food safety and security policy have helped to ensure that the global food supply is safe from intentional alteration. However, in response to the recent terrorist acts, international agencies are working to further develop policies and procedures to protect the food supply in locations where it is most vulnerable to chemical, biological, radiological, and nuclear contamination. Furthermore, the potential threat of unintentional contamination of the food supply must be guarded against as well. While awareness and precautions have heightened, much more can and must be done in the form of ongoing information, education, and training that will continuously engage *all stakeholders* at *every point* along the food supply chain (including private industry, government agencies, the agricultural community, national and international food agencies, the military, and institutes of higher learning) to react and respond properly and effectively in protecting the global food supply chain (Akhter, 1999; Groth, 2000; Clapp, 2002).

### **Governmental Response**

United States government actions over recent years reflect a growing concern about food safety. For nearly a century, the US Department

of Agriculture (USDA) and the Food and Drug Administration (FDA) have been protecting the US food supply and, overall, it is safe. A review of the recent food safety initiatives illustrates the steps that have been taken to ensure US programs and services are responsive to potential threats: January 1997, National Food Safety Initiative- a five-point plan working with consumers, producers, industry, states, universities, and the public to strengthen and improve food safety; October 1997, Partnership for Food Safety Education, a federal-private partnership to reduce food-borne illness by educating Americans about Food Safety; January 1998, Pathogen Reduction/Hazard Analysis and Critical Control Point (HAACP) system for 300 largest meat and poultry plants; August 1998, President's Food Safety Council charged with developing a strategic plan for federal food safety activities and ensuring that all relevant agencies work together to develop coordinated food safety budgets each year; December 1999, Egg Safety Action Plan to reduce Salmonella enteritidis illnesses attributed to eggs.

Likewise, the US Food and Drug Administration has two recent (June, 2004) and important factors generating a need for private sector training regarding new food import regulations and the registration of facilities: Compliance Policy Guide: Guidance for FDA and CBP Staff; Prior Notice of Imported Food Under the Public

Health Security and Bioterrorism Preparedness and Response Act of 2002 (see <http://www.foodsafety.gov/foodsafe.html>).

### **Bio-security Measures**

In the wake of the terrorist acts on September 11, 2002, the US Congress requested \$45 million to strengthen bio-security measures at USDA which includes increased security, building more facilities to adequately store hazardous materials, and additional resources to provide education, training, and technical support to the states, local governments, and the food and agriculture sector. The FDA and many other government agencies have vigorously responded to the need for strengthening food supply bio-security measures. For example, in a letter dated October 25, 2001 from USDA, Secretary Ann M. Veneman clearly pronounces that USDA *“inspectors are on heightened alert at ports of entry and in food processing plants. We have steeped up security at appropriate USDA facilities. We are coordinating with other federal agencies...on biosecurity issues.”* Security measures are in place to protect silos loaded with corn and grains. Train cars carrying grains, crops, and livestock are sealed more securely and monitored more closely. Food processors and manufacturers have intensified HACCP procedures, initiated more comprehensive surveillance, and heightened awareness of personnel movement. Supermarkets, the segment closest to the consumer, have increased security measures and assumed greater responsibility as a depot for dissemination of consumer food safety information (see <http://www.fda.gov/oc/opacom/hottopics/bioterrorism.html>).

### **Rapid Detection**

A detailed investigation after the September 11<sup>th</sup> tragedies has unveiled the need for heightened surveillance and rapid detection measures that can quickly and effectively protect against contamination of the food supply. In addition to those measures already in place, additional precautionary steps are needed to ensure the safety of the food supply at every point along the supply chain. According to recent FBI findings, acts of bio-terrorism are considered to be a major and serious concern to national and global security. Furthermore, most experts believe that the food supply chain is one of the most vulnerable bioterrorist targets. For example, the

program for the 2001 IFT Annual Meeting included the topic of *“Bio-terrorism: Is the food industry at risk?”* which addressed “real world” situations on such issues as food contamination, business disruption, and consumer response. Biological warfare (using germs or viruses) has long been considered by military strategists. There are known cases of successful efforts to contaminate domestic and global food supplies through bio-terrorism. Research activities focus on various biological agents that could be used as weapons; these biological agents and pathogens mentioned in the GAO (General Accounting Office) report include anthrax, plague, salmonella, smallpox, tularemia, and West Nile virus. A recent case under investigation involves the adulteration of jarred baby food with ricin. The U.S. government has implemented measures to protect personnel in overseas installations from infliction of “Mad Cow Disease” (BSE) and Foot and Mouth Disease.

### **Tracing the Food Supply Chain**

Tracking the complete supply chain, including the supply chain of imported foods, is a fundamental problem for the food industry. Furthermore, only a fraction of the food crossing international borders undergoes inspection, and some foods, like those from boat to wholesaler, are not inspected at all. Subsequently, much of our ordinary foods are under the threats of bio-terrorism attack that can go undetected for long periods of time. It is important to note that the closer the food to the consumer, the more vulnerable it is for contamination, including the processing stage before packaging. It is very important, now than ever before, to implement a detailed tracking system, to trace finished products from its source despite the implication it may have on market profits. Retailers are taking steps to maintain operations and deter, limit, or prevent planned contamination of the food supply and their products in particular. These steps taken together can increase confidence in a safe and abundant food supply (Clapp, 2002).

### **Available Training Options**

While some training in preparation for acts of bio-terrorism aimed at food—from farm to fork—is available, and while training is on-going for emergency responders in state and local governments, there are few attempts to engage

*private sector leaders* in learning about and supporting preparations for response, or for private sector emergency response training (Krimsky, 1986; Zimmerman, 1987; Kraft & Vig, 1988). Although non-government agencies have received some education on food safety and protection, it has come mainly in the form of *information materials only* (for example, the Investigations Operations Manual, May 1996; Official Methods of Analysis of the AOCAC International 16<sup>th</sup> Edition January 1995; Bacteriological Analytical Manual 7<sup>th</sup> Edition, 1992; Import Alerts and Detention Reports).

### **The Certificate Program in Homeland Defense Food Security and Protection at Saint Joseph's University**

In response to these needs, the Early Responders Distance Learning Center (ERDLC) and Center for Food Marketing (CFM) at Saint Joseph's University have developed a SCORM compliant web-based integrated food security and protection curriculum for critical facilities. While food protection and safety training was available in some areas, nothing was available that encompassed the entire farm to table continuum. Subsequently, ERDLC and the CFM created a training curriculum that satisfies the special needs of the food supply channel members throughout the world. Ultimately, the ERDLC and the CFM employed the latest innovations in distance learning technology to develop and deliver an accredited eight-course ADL SCORM conformant Certificate Program in Homeland Defense Food Security and Protection delivered over a Virtual University architecture consisting of computer-based internet delivery systems. Additionally, this same curriculum is available in the traditional CD-based Computer Based Training (CBT) and classroom formats.

Listed below is a short description of each of the courses in the curriculum which will be ready for deployment by the end of 2004:

#### ***Introduction to Food Security and Terrorism:***

The purpose of this course is to highlight the reality of food terrorism and the importance of the program. It focuses on the breadth of the program by addressing the basic concepts of food security, reviewing case studies on food terrorism, looking into the overall vulnerability of food supply chain and the different components of defending our food supply and responding to food terrorism.

***Food Security Risk Assessment:*** This course has been prepared to assist Food Industry organizations perform food security risk assessment. The goal of this course is to provide skills and tools that can be used to increase security and reduce a successful terrorist attack's impact to consumers, employees, and to businesses.

***Food Supply Chain Traceability:*** This course examines the subject of tracing food products throughout the production and supply chain from farm to fork. The focus of the training encourages the learner to view traceability planning and methods as a way to limit the potential damage caused by breaches in security and subsequent, intentional contamination of the food supply.

***Food Security Risk Communication:*** The Operational Risk Analysis (ORA) paradigm is a process that helps food industry agencies identify and mitigate food security risks. This course examines one piece of the ORA structure called "Risk Communication". People perceive food-related risks differently than most other risks. Because food risks are largely uncontrollable, have significant cultural and emotional ties, and involve fear of the unknown, they are perceived by the public as being more significant and less acceptable than other risks.

***Food Security Risk Management:*** The Operational Risk Analysis (ORA) paradigm is a process that helps food industry agencies identify and mitigate food security risks. This course examines one piece of the ORA structure called "Risk Management." The Food Security Risk Management course provides an overview of risk management and introduces the Analyze, Implement, and Monitor (AIM) model. The AIM model is a systematic food security risk management model designed to help organizations protect their goods from deliberate, unauthorized contamination.

***Food Security Law:*** This course will provide the student with a brief history of the major food security statutes enacted by the US Congress, as well as the principal Federal regulatory organizations responsible for ensuring a secure food supply. In addition, this course will describe the bioterrorism legislation, implementing regulations, and guidelines to assist the Food Industry in following the recent

legislation.

***Securing our Global Food Supply:*** This course examines the global food supply chain from an industry perspective. It will describe those factors that make our global food supply vulnerable, list ways each individual food facility can secure its global food supply, and describes new practices introduced by the government and by leading companies to secure their supplies. In addition, this course will discuss why overseas food businesses are particularly vulnerable, and how multi-national food businesses can prevent terrorism on or tampering with their food products.

***Crisis Leadership in the Food Industry: The Missing Competency:*** This course introduces the food industry professional to issues associated with leadership during times of crisis. It involves a review of the crisis leadership literature plus exercises and examples that seek to train appropriate and effective crisis leadership skills specially adapted to food industry personnel.

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