

Science and Technology Based Countermeasures to Foodborne Terrorism

June 29 – July 2, 2003

National Conservation Training Center
Shepherdstown, West Virginia USA

Until recently food was considered an unlikely target for terrorism. But, terrorism events around the world now require a redoubled effort to protect the safety of the food supply. Concerned governments and industries need to evaluate and adapt countermeasures to reduce potential threats to this most fundamental need. To achieve this goal, research is needed to develop and deploy technologies that minimize the likelihood of attacks. The conference will focus on the technology-based efforts that can be employed to prevent, detect, and minimize health effects of terrorist attacks throughout the food chain, from production to consumption

Conference Objectives

- (1) Provide a forum to discuss the current state of knowledge associated with foodborne terrorism, including:
 - threat assessment methods,
 - methods of detection,
 - track, trace, authentication and anti-tampering technologies, and
 - hazard mitigation
- (2) Identify research needs to develop effective science and technology-based countermeasures; and
- (3) Foster collaborative ties to advance the scientific and technological basis for threat reduction.

Modes of Deliberation

The combination of lectures, question and answer periods, and ample discussion time during each session will provide a foundation for information exchange. The opportunity for further discussions will be fostered, however, by the nature of the meeting facilities. All meals will be taken as a group, and the Center offers opportunities to congregate each evening.

Meeting Recommendations and Publication

Session chairs have been charged to challenge speakers and audience participants to develop a series of recommendations and conclusions for each session. Results will be compiled and published as a book or as a supplement to the journal of Food Protection.

Organization

Primary Sponsor:

US-Israel Binational Agricultural Research and Development (BARD) Fund

Primary Organizer:

Joint Institute for Food Safety and Applied Nutrition (JIFSAN)

Acknowledgements

BARD Organizing Committee

Arthur J. Miller, Ph.D., Food and Drug Administration, United States
Samir Droby, Ph.D., Agricultural Research Organization (ARO), Israel
Nachman Paster, Ph.D., ARO, Israel

U.S. Scientific Advisory Committee

David Lineback, Joint Institute for Food Safety and Applied Nutrition
Walter Hill, USDA, Food Safety and Inspection Service
Robert L. Buchanan, U.S. Food and Drug Administration
Terrance M. Wilson, USDA, Animal and Plant Health Inspection Service
LTC Dana Scott, U.S. Army, Veterinary Command
Frederick L. Fricke, Jr., FDA Forensic Chemistry Center
Isabel Walls, International Life Science Institute

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PROGRAM

7:00 pm Sunday, June 29
Welcome Mixer, Roosevelt Room,
NCTC Commons

DAY 1 Monday, June 30

OPENING SESSION- Byrd Auditorium

8:00 Welcome and Meeting Overview:
Arthur J. Miller (FDA) JIFSAN Welcome

8:15 Edo Chalutz, (BARD) Welcome from
BARD

TECHNICAL SESSION I -- PERSPECTIVES (Co-Chairs: Samir Droby; Arthur Miller). Byrd Auditorium

8:30 Jesse Majkowski (USDA, Food
Safety and Inspection Service) Food
Security Initiatives

8:55 Oded Nir (Veterinary Services and
Animal Health, Israel Ministry of
Agriculture) Bio-terrorism against animals
and Humans

9:20 Mordechai Cohen (Embassy of
Israel, Washington D.C., Ministry of
Health) U.S.-Israel Counter Bio-Terrorism,
Present and Future Cooperation

9:45 Break

10:15 Steve Wearne (Food Standards
Agency, UK)

10:40 Rhona Applebaum (National Food
Processors Association)

11:05 Peter Ben Embarek (World Health
Organization) Strengthened food safety
systems

11:30 Joseph Levitt (FDA, Center for
Food Safety and Applied Nutrition)

11:55 Jay Ellenberger (EPA, Office of
Pesticide Programs)

12:30 Lunch

TECHNICAL SESSION II -- THREAT ASSESSMENT (Co-Chairs: Douglas Abbott; Avi Stark). Byrd Auditorium

1:30 Robert Brackett (FDA, Center for
Food Safety and Applied Nutrition)

2:00 Avi Stark (Tel Aviv University),
Threat assessment of mycotoxins as
weapons: molecular mechanisms of acute
toxicity.

2:30 Break

3:00 Darryl Drayer (Sandia National
Laboratory) A prototype biosecurity risk
assessment tool

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3:30 Daniel Elad (Kimron Veterinary Institute) Risk assessment of malicious bio-contamination of food

4:00 Terry Wilson (USDA-APHIS) Post 911 farm-to-fork surveillance

4:30 Discussion

Day 2, Tuesday, July 1

TECHNICAL SESSION III -- MICROBIOLOGICAL SAMPLING AND DETECTION METHODOLOGIES (Co-Chairs: Isabel Walls; Judith Rishpon). Byrd Auditorium

8:00 Antje J. Baeumner (Cornell University) Bioanalytical Microsystems: approaching single cell level detection of bacteria and viruses

8:30 Judith Rishpon (Tel Aviv University) Electrochemical biosensors for detection of toxic agents

9:00 Bart Weimer (Utah State University) Microbe detection with fluidized bed capture

9:30 Thomas Cebula (FDA) Chips and SNPs, bugs and hugs: a molecular sleuthing perspective

10:00 Break

10:30 Andre G. Senecal, (US Department of Defense) Initiatives for in-field rapid detection of biological agents in foods.

11:00 Richard Durst (Cornell University) Detection of femto-/attomolar concentrations of botulinum neurotoxin and cholera enterotoxin using a ganglioside-nanovesicle immunoassay.

11:30 Discussion

12:00 Lunch

TECHNICAL SESSION IV – TECHNOLOGIES FOR TRACKING, ANTI-TAMPERING, AND SECURITY (Co-Chairs: Sherri Clark; Daniel Elad). Byrd Auditorium

1:30 Sherri Clark (New Mexico State University) The product surety center: current activities and future services

2:00 Richard Jotcham (Axess Technologies, Ltd.) A review of authentication, anti-tampering and track and trace technologies for use in foods

2:30 Break

3:00 Alan Shlosberg (Kimron Veterinary Institute) Chemical bioterror in food products of animal origin – assessment of risk and monitoring exposure

3:30 Alan Rudolph (Defense Advanced Research Projects Agency) Agricultural security technologies

4:00 Charles Sizer (Illinois Institute of Technology) Cutting edge anti-tampering technologies

4:30 Discussion

Day 3, Wednesday, July 2

TECHNICAL SESSION V --- CHEMICAL AND NUCLEAR SAMPLING AND DETECTION METHODOLOGIES (Co-Chairs: Roni Shapira; Doug Park). Byrd Auditorium

8:00 Thomas B. Whitaker (USDA-ARS) Sampling uncertainties for the detection of chemical agents in complex food matrices

8:30 Frederick L. Fricke, Jr. (FDA Forensic Chemistry Center) Application of toxin screens for food matrices using LC/MS and GC/MS.

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9:00 Robert M. Eppley (FDA CFSAN)
Analysis of T-2 Toxin in food matrices
using ELISA technology.

9:15 Michael E. Stack (FDA CFSAN)
Analysis of foods for amanitin

9:30 Eric A. E. Garber (FDA CFSAN)
Detection of ricin in food matrices using
ELISA and lateral flow devices

10:00 Break

10:30 Richard C. Whiting (FDA CFSAN)
Analysis of *Clostridium botulinum* toxin in
food matrices using ELISA technology.

10:50 Reginald W. Bennett (FDA
CFSAN) Rapid identification of
staphylococcal enterotoxin in foods by
ELISA-based technology

11:10 Patricia A. Hansen (FDA CFSAN)
Methods for detection of radionuclides in
food – An overview with examples of
current FDA efforts relevant to counter-
terrorism

11:30 Douglas L. Park (FDA CFSAN)
Analytical method validation programs

11:45 Discussion

12:00 Lunch

TECHNICAL SESSION VI -- MITIGATION TECHNOLOGIES (Co- Chairs – Nachman Paster; Charles Sizer). Byrd Auditorium

1:30 Nachman Paster (Agricultural
Research Organization) – Mycotoxins in
agricultural produce and food: prevention
and decontamination

2:00 Break

2:30 Roni Shapira, (Hebrew University of
Jerusalem) Biodegradation of mycotoxins

3:00 Bruce Cords, (Ecolabs)
Decontamination and disinfection of
contaminated environments

3:30 Discussion

CLOSING SESSION

4:00 Research Needs Discussion – Panel

4:15 Arthur Miller, Samir Droby – Closing
comments

4:30 Meeting closes