

# Threats and Risks to Animal Agriculture Down the Food Chain

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About the Author

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# Threats and Risks to Animal Agriculture

## Down the Food Chain

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# Canada-US Agro-food Chains Share Commonalities

- Intensive, geographically concentrated farming practices favour spread of disease
- On farm practices increase susceptibility
- Distribution systems facilitate rapid disease spread
- Security in food processing/storage/distribution chain may be vulnerable to attack
- Consumer food consumption practices provide opportunities for terrorist actions

# Canadian Initiatives to Address Agro-Security

- Public Security Anti-Terrorism Initiatives
- Emergency Preparedness/Response Plans
- Chem-Bio- RN Research and Technology Initiative (CRTI)
- Smart Border Accord
- CA-US Public Security Technical Plan (PSTP)

# Public Security AT Initiative

- Immediate actions post September 11
- Enhanced border security (imports, travelers, enhanced tools, blitzes, enhanced enforcement, more front line inspectors)
- Improved surveillance, emergency preparedness /response measures,
- Food recall procedures updated/practiced
- Increased industry preparedness initiatives, etc.

# CRTI

- National S&T initiative to enhance capability and capacity for preparedness and response
- Established clusters of federal and other government laboratories (Chem, Bio, RN )
- Research fund to address priority areas and to accelerate technology into hands of first responders
- Consolidated threat risk assessment identified vulnerabilities, gaps, national priorities

# Consolidated Risk Assessment (CRA) ...

- Framework to identify prioritize S&T work in support of preparedness, prevention and response to a possible terrorist incident
- Reviewed threats to public health, critical infrastructure, agro-systems (animals, plants and the environment), food/ water and consumer products
- scenario approach

## ... CRA

- Assessed vulnerability (technical feasibility plus impact) x intelligence assessment to determine relative risk
- Immediate and high risks were identified and mitigation strategies have been developed
- Key knowledge gaps being addressed through technology acquisition, acceleration, research development and demonstration/collaboration with provinces, academia and industry

# Key Knowledge Gaps ...

- Early warning systems
- Rapid detection systems
- Rapid identification and comprehensive emergency response plans
- Training and exercising
- Availability of surge capacity
- Medical/veterinary response, ability to manage casualties/countermeasures, e.g. Antidotes, pretreatment

## ... Key Gaps

- Access to therapeutics, such as vaccines
- Biology and pathogenesis
- Containment and quarantine procedures
- Preventative measures, including preparedness of transport
- Remedial measures, decontamination and disposal

# Key Investment Areas for R&D

- Lab management and operations
- Collective command, control, communications, coordination, information planning capabilities
- Equipping/training first responders
- Prevention, surveillance and alert capabilities
- Immediate, NT and LT consequence management
- Criminal investigation capabilities
- Risk assessment
- Public confidence and psycho-social issues

# Looking Down the Farm Gate- Food Continuum

***The speed of detection, diagnosis and control spell the difference between an isolated incident and economic disaster*** (Segarra, 2001)

- CFIA and AAFC have conducted additional specific analyses re preparedness, prevention, and response, building on lessons/ best practices from recent emergencies

# Identified Farm Gate Research Needs ...

- Early warning systems
  - need for enhanced surveillance systems for animal pathogens/remote detection/security devices
- Rapid detection and ID
  - RT multiplex pathogen kits for FRs
  - Validation of RT kits for FMD, anthrax, etc.
  - Faster laboratory confirmation methods

# Identified Farm Gate Research Needs...

- Product/Commodity Identification Systems  
Additional training for vets to recognize FADs
- Tested emergency plans including surge capacity of laboratory networks
- Improved access to therapeutics
- Integrated information management systems
- Decontamination/disposal methods/products
- Secure transportation

# Food Processing and Production ...

- Greatest risks for terrorist intervention:
  - high consumption commodities, e.g. milk, beverages, infant formula/meat
  - RTE/minimally processed/fresh over processed
  - widely distributed foods
  - access past security systems, through entry, personnel

# ... Food Processing and Production

- R&D Issues:
  - nature of pathogen/food combinations virulence/ survivability/strain type/susceptibility of human population sub sets/mode distribution of pathogen, etc.
  - exposure of workers : security of workforce/ measures to prevent/spread/decontamination/ protection, etc.
  - scope of distribution/storage, etc.

# Meat/ Food Processing Facilities

- CFIA provided guidance to Industry to aid enhancing security measures post Sept 11
- Security at slaughter/processing plants is being strengthened, e.g on site CI Protection, more controlled access, improved screening of personnel, control of CCPs, HACCP-based approaches. QC/integrity of all ingredients in food (including additives, seasonings, flavourings)
- Research needs being reviewed by FDA, Institute of Food Technologists and Battelle Memorial Institute

# Distribution and Transportation

- Particularly vulnerable to attack
  - industry concentration, bulk containers, just in time delivery of product to be transported, etc.
  - product identity/integrity/traceability are key
- R&D needed
  - improved mechanisms for security in transport
  - alternatives to hands on inspection required: remote sensors/IT systems/ traceback mechanisms for detection/enforcement

# Retail

- Deliberate acts of contamination of foods are well documented worldwide, CDC considers sabotage of food and water the easiest mode of terrorist attack, due to centralization of food production/ global distribution/wide range of agents, many readily accessible
- May not know at beginning that a result of terrorist activity, but food borne illness/food recall protocols are well exercised and current
- Maintenance of public confidence during event is one of the key issues

# Management of a Terrorist Event

## Lessons Learned

SARS and BSE incidents identified areas for improvement, particularly related to operations management during the event:

- communication linkages between levels of government and clear understanding of roles and responsibilities
- strained surge capacity in the supporting laboratory networks (employee burnout and reagent exhaustion)

## ... Lessons

- timely access to data
- absence of protocols for sharing data among different levels of government
- Uncertainties about data ownership
- Processing of incoming data, need for integrated information processing systems to link epidemiological information and lab results,
- Communications: data streams re managing issue and providing info to media/client
- Managing the fear factor

# Conclusion ...

- Rogue terrorists and states present a real threat to the agri-food industry in Canada and the US. AT has potential for severe economic impacts at personal, industry, and national level
- Canada will likely be affected by any agro-terrorist event occurring in the US, and vice versa
- We can never be too prepared, sessions such as this are valuable to improve performance

## ... Conclusion

- We need to continue to work together to enhance preparedness to:
  - develop confidence in each other's measures, systems, and standards;
  - share surveillance and preparedness plans
  - exercise our joint readiness, adjust our contingency and response plans, in order to mitigate potential impacts

***Preparing the nation to address  
the threat of terrorism is a  
formidable challenge, but the  
consequences of being  
unprepared could be devastating.***

(U.S. CDC Strategic Plan, 2000)

