A Secure Milk Supply (SMS) Plan in Preparedness for an FMD Outbreak Response

Current Focus and Progress to Date...

National Institute of Animal Agriculture
Animal Health Emergency Management Council
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Pam Hullinger DVM, MPVM, DACVPM
UC Davis, School of Veterinary Medicine
Presentation Overview

• Foot-and-mouth disease (FMD)
  – Why is preparedness critical?
• FMD SMS Response Planning
  – FMD Continuity of business planning
  – SMS national and regional efforts
• Secure Milk Supply (SMS) Plan
  – Partners
  – Project components
  – Products and developments to date
  – Current focus
The US Dairy industry has changed since 1929

“We must be prepared to respond in new ways”
FMD virus in dairy products

- Shed in milk
- Single HTST pasteurization does not completely inactivate it
  - Low levels of virus if milk pH above 7.0
- Traditionally zero tolerance despite no public health risk
- Trade partners (OIE), other industry lack of acceptance
• “...assures the sanitary safety of international trade in terrestrial animals and their products”
  – Article 8.5.38 (2010)
    • Procedures for inactivation of FMD virus in milk and cream for human consumption
  – Article 8.5.39 (2010)
    • Procedures for inactivation of FMD virus in milk for animal consumption
National FMD Response Planning and Preparedness

Continuity of Business (COB) Planning
What is the national Secure Milk Supply Project?

• A US dairy industry focused continuity of business planning effort for a foot-and-mouth disease outbreak response
  – Initially focused on raw milk movement from farm to processing
• Public-private partnership for FAD response planning facilitated by academia
• Desired outcome is mutually agreed upon and understood response approaches that allow disease control without “destroying” the dairy industry
Developed in coordination with the National FMD Response Plan

- FMD Response Goals (5.1.1)
  - Detect, control, contain FMD in animals as quickly as possible
  - Eradicate FMD using strategies that stabilize animal agriculture, food supply, economy
  - Provide science- and risk-based approaches and systems that facilitate **continuity of business** for *non-infected animals* and *non-contaminated animal products* (eg MILK)
• FMD Control Area
  – Size variable
  – Movement by permit and risk assessment only

• Goal: Movement within the Control Area does not promote FMD virus spread

“Move milk, not FMD virus”
First 72 Hours of FMD Outbreak

**Figure 5-9. Critical Activities in First 72 Hours of U.S. FMD Outbreak**

**Critical Activities**

- **0-24 HOURS**
  - Initiate controlled movement orders and 24-hour standstill orders for relevant zones and regions
  - Notify States, industry, trading partners, media
  - Initiate biosecurity measures
  - Initiate tracing activities
  - Initiate virus identification for vaccine

- **24-48 HOURS**
  - Ongoing surveillance and tracing activities
  - Initiate public awareness campaign
  - Increased biosecurity measures
  - Initiate continuity of business plans
  - Continue virus identification for vaccine

- **48-72 HOURS**
  - Continue ramping up ICS and Operations Center
  - Ongoing surveillance and tracing activities
  - Ongoing biosecurity activities
  - Ongoing public awareness campaign
  - Continue virus identification for vaccine

**FMD Detected in the United States**
Secure Milk Supply (SMS) Plan – Partners
National SMS Partners

**USDA-APHIS-VS**
- National Center for Animal Health Emergency Management (NCAHEM)
  - Jon Zack, DVM
  - Provides funding for project
- Centers for Epidemiology and Animal Health (CEAH)

**Academia**
- Iowa State University, Center for Food Security and Public Health
  - Jim Roth, DVM, PhD, DACVM
  - Danelle Bickett-Weddele, DVM, MPH, PhD, DACVPM
- University of California, Davis
  - Pam Hullinger, DVM, MVPM, DACVPM
- University of Minnesota, Center for Animal Health and Food Safety
  - Tim Goldsmith, DVM, MPH, DACVPM
  - Kristen Johnson, DVM, MS

**Industry**
- Primary stakeholders
- Subject matter experts
- Workgroup participation

**State Animal Health Officials**
State/Regional SMS Efforts

- North Carolina – Dairy biosecurity workgroup
- SMS-Wisconsin
  - Coordinated by the Wisconsin Milk Marketing Board
- New England States Animal Agricultural Security Alliance (NESAASA) – Six NE states
- 5 Mid-Atlantic states
  - Colorado
  - New York
  - California
  - North-West states

- Quarterly coordination calls
SMS Partners: National Steering Committee

• Members
  – Awareness of the topic, issues
  – Access to industry and emergency management expertise

• Participation in Working Groups

• Organizers welcome input, opportunity to discuss project with other stakeholder groups as needed
Originally four workgroups and proactive risk assessment

1. Premises biosecurity
2. Milk hauler (transport) biosecurity
3. Milk processing biosecurity
   • Draft guidance shared with USDA-APHIS, States, informs risk assessments
4. Milk movement decision support
   • Develop a proposed decision matrix/tools for Incident Management Team to utilize during FMD outbreak
5. Proactive risk assessment
Secure Milk Supply (SMS) Plan – Components
Biosecurity Performance Standards

• Establish *expectations* to prevent FMD spread
• Overarching goal by which to *develop more specific* protocols or procedures
• Developed by *members* of various SMS Plan Biosecurity Working Groups
• Designed to be objective, realistic, verifiable, and clearly stated *pre-event*
The dairy industry (producer and processor) business flow is complex.

- Feed: Forage, Grains, Supplements
- Genetics: Seedstock, Semen
- Misc: Pharmaceuticals, Supplies, Equipment, Etc.
- Dairy Operation (Milk cows and youngstock)
  - Heifer Grower
  - Calf Nurseries And Growers
    - Raw milk
    - Heifer calves and replacements
    - Raw waste milk
    - Bull calves
    - Manure
      - Waste (manure)
      - Fertilizer
    - Animal Feeding Operations
      - Beef Production Flow
    - Dead
      - Fed cattle
      - Rendering
- Creamery (Commercial)
  - Further Processing
- Creamery (On Farm)
  - Further Processing
- Sale Barns (Commingling)
  - Replacements
  - Cull cows
  - Calves
  - Culls, calves, and replacements
  - Culls and replacements
  - Cull cattle
  - Slaughter Facilities
Executive Summary and Biosecurity Documents

- Premises, hauler, processing plant
- Standardized language based on input
  - Purpose
  - Intended Audience
  - Scope
  - Info about FMD
  - Terminology
  - Cleaning and Disinfection
  - Approved Disinfectants
- Final ‘drafts” with executive summary delivered in January 2012
FMD Entering/Leaving a Dairy

- Transport Vehicles
- People’s Clothing, Footwear
- Off-farm Equipment
- Feed
- Raw Milk
- Animals and Animal Products
- Rodents, Birds
- Dogs, Cats
- Airborne
Movement Decision Tools and Matrix Workgroup

• Developing tools to facilitate managed movement and permitting decisions
  – Proposed scheme for phases and types of an outbreak
  – Decision matrix by phases of an outbreak
  – Recommendations for milk recall
  – Recommendations for processing milk for human and animal consumption

• Call with the NASAHO in April
Proposed phases and types of an FMD outbreak response

### Phases and Types of FMD Outbreaks

**Overview of Phases and Types of FMD Outbreaks**

An FMD outbreak in the United States will be a complex event. Having pre-defined phases and potential types of an FMD outbreak may be useful to facilitate the development of adaptable emergency response plans and processes. This information is intended to be guidance, acknowledging that any FMD outbreak will be unique and responders will need to tailor the response accordingly. The phase and the type of the FMD outbreak will change over the course of the outbreak.

**Phase:** A temporal stage in FMD outbreak response.

**Type:** A categorical measure of magnitude of an FMD outbreak.

### Six Types of FMD Outbreaks

- **Type 1:** Focal FMD Outbreak
  - Even a focal FMD outbreak would require significant operational capabilities and have significant economic implications for the United States, including from lost international trade and disruptions to interstate commerce.

- **Type 2:** Moderate Regional FMD Outbreak

- **Type 3:** Large Regional FMD Outbreak

- **Type 4:** Widespread or National FMD Outbreak

- **Type 5:** Catastrophic U.S. FMD Outbreak

- **Type 6:** Catastrophic North American FMD Outbreak

### Phases of FMD Response

- **Heightened Alert Phase:** FMD Outbreak in either Canada or Mexico, but not U.S.

- **Phase 1:** From confirmation of the first case of FMD in the U.S. until reasonable evidence to estimate outbreak extent.

- **Phase 2:** Surveillance and epidemiology provides timely evidence of outbreak extent to support decisions by Incident Command.

- **Phase 3:** Recovery; surveillance and epidemiology indicates FMD is under control; plan implemented to recover disease-free status.

- **Phase 4:** U.S. declared free of FMD, possibly with vaccination.
Permitted movements during an outbreak response differs from routine permitting

- Who sets the criteria
  - States vs. Incident Command

- Who manages the data
  - States vs. Incident Command

- Data collection and management
  - Requires a scalable system, web-based?

- Who needs to know?
  - Interconnectivity with state systems?
Decision and permitting support – key messages

• Make as many decisions as possible prior to the outbreak
  – Incorporate into response plans

• For COB plans to be implemented quickly, a robust, scalable, functional permitting system must be in place
  – This requires premises data and permitting criteria
  – Without traceability in place, populating a permitting system will take more time
Proactive risk assessment

• Scope:
  – Assessment of the risk associated with the movement of raw Grade A milk into, within, and outside of a Control Area during a FMD outbreak prior to processing

• First step: Normal dairy operations

• Supports proposed SMS biosecurity standards and movement matrix

• First draft available soon, industry input/review will be needed
This is one part of the larger proactive risk assessment for the transport of raw milk into, within, and outside of a control area during an FMD outbreak.

Scenarios considered for bioaerosol formation:

1. during pumping of raw milk into the tanker and passage of aerosols through the vent system
2. via accidental loss of raw milk through the vent system during conveyance on the road
Conclusion: The overall risk of bioaerosols containing FMDv emanating from a milk tanker and causing disease in susceptible animals is **low to very low with moderate uncertainty**.

Moderate uncertainty indicates knowledge gaps and a need for future research.

Given the available research, expert opinion is that this event is very unlikely to occur.
Many challenges remain

• Adaptation and integration of national guidance to states and regions

• Development, review and agreement on specific farm and plant disinfection SOPs that are feasible, meet BPS and local/state regulations

• Citric Acid – US EPA Section 18 exemption
Many challenges remain

• Movement guidance for live animals and other non-animal movements
• Agreement on permit criteria and understanding of available tools for issuing and management
• Raw milk processors
  – Pre-planning for how these facilities will be handled
We welcome your participation and input on the Working Groups

Sunseted Premises, Milk hauler (transport) and Processing plant BWG

1. Decision support and permitting tools
   – Chairs: Jim jaroth@iastate.edu or Pam phullinger@ucdavis.edu

2. Cleaning and Disinfection
   – Chair: Danelle dbw@iastate.edu

3. Risk Assessment
   – Chair: Tim gold0188@umn.edu
Preparedness is a choice.....

Industry and regulators must pre-plan together.

Biosecurity will be key to stopping the disease!
The Secure Milk Supply (SMS) Plan is currently under development. In the event foot-and-mouth disease (FMD) is diagnosed in the United States, an animal health emergency will be declared and livestock and allied industries will feel the immediate impacts of animal quarantines, increased testing, and product movement restrictions. The just-in-time supply practices of milk movement in the U.S. could result in significant interruptions of milk and milk products to consumers, as well as create significant milk disposal and animal welfare issues on dairies. A well-developed, science and risk-based plan requires the input of industry, state and federal animal health officials.

Goals of SMS:

- Avoid interruptions in raw milk movement from dairy farms (with no evidence of infection) to a FMD Control Area to commercial processing;
- Provide a continuous supply of wholesome milk and milk products to consumers; and
- Maintain business continuity for dairy producers, haulers, and processors through response planning.

For more information:
Summary: SMS Plan for a Foot-and-Mouth Disease Outbreak
Project Update: October 2011

Get Involved

• Project updates
• Working group info
• Partner information
  – Contact information
• FMD info

• Documents are NOT posted due to ‘draft’ status
Questions?