Mid-Atlantic Secure Milk Supply Plan: A Hoof and Mouth Disease Preparedness and Continuity of Business Initiative
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Outline
• FAD and Secure Food Supply Plans
• FMD (HMD) Virus
• National Secure Milk Supply (SMS) Plan Components
• Mid-Atlantic SMS Plan

Business Continuity Planning
• Minimize unintended negative effects of disease and disease response, while achieving response goals
  – Control or eradicate disease without “destroying” the industry
• Provide risk-based solutions derived from scientific data, national and international standards
  – Ability to continue key operations of production of safe, high quality food

Goals of an FAD Response
The goals of an FAD response are to
(1) detect, control, and contain FAD in animals as quickly as possible;
(2) eradicate FAD using strategies that seek to stabilize animal agriculture, the food supply, the economy, and protect public health and the environment; and
(3) provide science and risk-based approaches and systems to facilitate continuity of business for non-infected animals and non-contaminated animal products.

Achieving these three goals will allow individual livestock facilities, States, Tribes, regions, and industries to resume normal production as quickly as possible. They will also allow the United States to regain disease-free status without the response effort causing more disruption and damage than the disease outbreak itself.

Source: USDA FAD PReP FMD Response Plan
“The Red Book”, September 2014

Secure Food Supply Plans During an FAD Outbreak
• Overall goals include:
  – Avoid interruptions in animal/animal product movement to commercial processing from farms with no evidence of infection during a foreign animal disease outbreak;
  – Provide a continuous supply of safe and wholesome food to consumers; and
  – Maintain business continuity for producers, transporters, and food processors through response planning.

Common Components of Secure Food Supply Plans
• Voluntary pre-outbreak preparedness components
• Biosecurity, surveillance, epidemiology questionnaires, movement permits
• Risk assessments (completed and in process)
• Plans must be based on current capabilities and will evolve with science, risk assessments and new capabilities
• Guidelines only: Final decisions made by responsible officials during outbreak
• Outreach and training pre and post outbreak
• All funded by USDA National Preparedness and Incident Coordination
Secure Egg Supply (2007)
- High Path Avian Influenza (HPAI)
- Eggs, egg products, chicks

Secure Turkey Supply (2010)
- HPAI
- Movement of birds

Secure Broiler Supply (2011)
- HPAI
- Movement of birds, hatching chicks and eggs

Secure Milk Supply (2009)
- Foot and Mouth Disease (FMD)
- Movement of milk, animals

- FMD, Classical Swine Fever, African Swine Fever, and Swine Vesicular Disease
- Movement of animals

Secure Beef Supply (2014)
- FMD
- Movement of animals

*Some funding also provided by National Pork Board

Secure Food Supply Plans
Movement from Premises with No Evidence of Infection

Global Prevalence of FMD
World Organization for Animal Health (OIE) has 178 member countries
- 66 countries free of FMD
- 96 countries are endemic and have never been free of FMD
- 11 countries have free zones either with or without vaccination
- 5 countries were free and recently suffered from a re-emergence of FMD

U.S. has had Nine Outbreaks of FMD
- 1870, 1880 and 1884: Due to importation of infected animals
- Since development of Federal system of inspection and quarantine of imported livestock, no outbreak has been attributed to admission of live animals
- 1902, 1908, 1914, 1924 (two separate outbreaks) and 1929
- All outbreaks were controlled by stop movement and stamping out

Question?
What point is there to a “Successful Response” if the response also eradicates the industry?

If milk movement is halted for more than 3-5 days, dairy farms will quickly be out of business: the “Response” will hurt the industry worse than the disease itself.

We must plan and be prepared to respond in new ways

“US livestock industries have changed dramatically since 1929”
If we get FMD, we likely will be dealing with it for a long time …

Managed Movement

- Extensive interstate movement of non-infected animals, animal products
- Consequences of stop movement great
  - Welfare, environmental issues, loss of protein for human population
- Rely HEAVILY on animal observations
  - AOS: Active Observational Surveillance
  - Milk to processing, calves to production sites
  - Cattle to production sites, market

Tools for Control of FMD

- Stop Movement
- Biosecurity
- Stamping Out
  - Slaughter of all clinically affected and in-contact susceptible animals (within 24 hours or as soon as possible)
- Trace back/Trace forward
  - 2 incubation periods prior to outbreak (OIE incubation period for FMD is 14 days)
- Rapid Diagnostics
- Vaccination
  - Vaccinate to kill/Vaccinate to live

FAD Response Planning
Moving in a New Direction

FMD or HMD?
**Messaging**

- FMD is NOT a public health concern
  - NOT hand-foot-mouth disease that affects children
  - NOT the same as BSE or “mad cow disease”
- www.FootAndMouthDiseaseInfo.org
- Industry representative suggests using term “HOOF and Mouth Disease” (HMD)

**The Virus**

- Picornaviridae, Aphthovirus
  - 7 distinct serotypes
- Affects cloven-hoofed animals
- Inactivation: pH below 6.5 and above 11
- Survives in milk, milk products, bone marrow, lymph glands

**HMD Virus in Dairy Products**

- Cows may shed HMDv in the milk up to 4 days before they show clinical signs
- Standard milk pasteurization (HTST) and some cheese processing times and temperatures used in the US are not sufficient to completely eliminate HMDv from dairy products
- HMD is not a public health or food safety problem

**SMS Plan**

**National Plan Overview**

**SMS Partners**

**Secure Milk Supply Plan**

- **Initial Goal**
  - To maintain intra and interstate milk movement from Grade “A” dairy farms with no evidence of infection in a Hoof-and-Mouth Disease (HMD) outbreak and to provide a continuous supply of wholesome milk and milk products for consumers
- **Partnership**
  - Industry, State, Federal, Academia
- **Continuity of Business Planning**
SMS Plan Components

- Biosecurity performance standards for raw milk collection, transport
  - Dairy premises, milk haulers, processors
- Pre-event risk assessments
  - Mitigation steps to minimize HMD virus spread
- Milk movement decision support tools
  - Guidance documents for early in an outbreak and a prolonged outbreak
  - Herd monitoring/surveillance
  - Handling of milk from HMD infected farms

Biosecurity Practices during FMD Outbreak

- Goal is to mitigate, not eliminate, the risk of HMD:
  - Entering a dairy operation,
  - Being transmitted off infected, undetected farms, and
  - Contaminating processing prior to pasteurization

Biosecurity Performance Standards (BPS) Evolution

- National group initial release in 2012
- Risk assessments completed
- M-A States worked with industry on implementation, challenges identified
  - Transfer hose, cold weather C&D, water shortages
- Lessons learned from disease outbreaks
  - PEDV: Line of Separation (LOS) concept
  - Ebola: Challenges with proper PPE

National SMS BPS

- BPS for Raw Milk Collection and Transport
  - Final draft posted on SMS website
  - Developing online training materials for these concepts (English)
    - Pilot and improve content
- Goal: Mitigate the spread of HMD virus by milk trucks, haulers/drivers

Pre-event Risk Assessments

- Evaluate the risk of raw milk transported from an HMD infected, but undetected, dairy farm to processing
  1. Current Grade A milk production practices
     - Baseline Risk Assessment
  2. Effect of proposed mitigations (Biosecurity Performance Standards) on risk of virus spread through identified pathways
     - Biosecurity Performance Standards (BPS) Risk Assessment

Herd Monitoring (Active Observational Surveillance)

- Earliest possible detection of HMD
  - Routine, daily observations by trained Herd Health Monitors
  - Abnormal or increased occurrence of clinical signs
- Report signs to Incident Command
  - Further investigation, lab-based testing
- Supplements periodic inspection by animal health officials
Mid-Atlantic States

• 2011: First cooperative agreement with 5 states (VA, MD, TN, NC, SC)
• 2012: Audits and development of plan; Addition of new states
• 2013: Pilot introduced draft plan concepts to producers, milk haulers, processors
  – Identified infrastructure, gaps, training needs

M-A SMS Plan Version 3.0

• Ability to restrict access on farm/plant
• Ability to control traffic (vehicles, people) while on premises
• Ability to clean/disinfect vehicles if required; obtain equipment, supplies, PPE
• Ability to implement Standard Operating Procedures (SOP), Biosecurity Performance Standards (BPS)
• Logs and documentation
• Training
Implementing Biosecurity

Line of Separation Concept

Line of Separation (LOS)

- A clearly identified boundary around or within a dairy premises to separate off-farm traffic from on-farm movements of vehicles, people and animals
- Purpose: Prevent movement of HMDv onto or off of a premises
- Only cross LOS through a controlled access point following appropriate biosecurity measures

Controlled Access Point(s)

- Designated areas where vehicles, people, equipment or supplies cross LOS
- Movement through controlled access point in either direction requires instituting appropriate biosecurity measures
- Movement of **vehicles, equipment and supplies** across the LOS requires an operational C&D station at the controlled access point
- Movement of **people** through the controlled access point(s) requires specific personal protective gear

LOS Around Entire Dairy

Milk House OUTSIDE LOS

- Critical Control Point(s): Doors leading from milk house

Milk House OUTSIDE LOS

- Hauler wears gloves, protective footwear
- Farm staff C&D milk house surfaces after collection
Hose or Tanker Crosses LOS...

- Milk house not on public road
- Tanker passes near susceptible animals

Transfer Hose Crosses LOS

- Critical control point: Transfer hose
- Hauler does not cross LOS
  - Wears gloves, footwear
- Farm staff meet licensed weigher/sampler requirements

Milk Tanker Crosses LOS

Guidance Documents

Pre-Event Certification

- Voluntary
- Meet agreed upon list of biosecurity performance standards, standard operating procedures and objectives
- Training for producers, haulers, processing plant employees
- Active Observational Surveillance in place
- Those who are pre-certified have first priority to move milk in an HMD outbreak, if not in an infected zone

Standard Operating Procedures

1. Set up temporary barriers indicating LOS and hang sign on gate (Cross Only at Biosecure Entry Point)
2. Establish Vehicle/Equipment Controlled Access Point
   a. Prevent off-farm vehicles from driving in that area
   b. Allow sufficient room for farm-dedicated vehicles/personnel to access
   c. Set up fence post and signs guiding employees and traffic to designated entrance
   d. Hang sign (Cross only at Biosecure Entry Point)
3. Set up C&D wash station for vehicles entering farm (see section below)
4. Establish Employee Controlled Access Point (Cross Only at Biosecure Entry Point)
   a. Set up fence post and signs guiding employees to designated entrance and post sign: NOTICE Biosecure Entry Ahead (English and Spanish)
   b. Designate an entry area (building, gated area, etc.) and post sign: STOP Biosecure Entry Point; Clean Boots & Clothing Required (English and Spanish)
Animal Surveillance to Permit Milk Movement
- Document no evidence of HMDv in herd
  - Herd monitoring and reporting by producers (AOS)
  - Farm inspections by ICS Animal Health Officials
- Laboratory testing
  - Bulk tank PCR tests

Permit to Move Raw Milk
- Passed inspection check-list
- Reported to State Vet’s Office
- Permit issued by State Vet’s Office
- Information shared with:
  - State Vet of receiving state
  - Milk hauler/dispatcher
  - Milk processing plant

Live Animal Movement
- Day of outbreak
  - “Land the planes” concept broadened
  - Contingency plans for dairies that move newborns off-site
- Restarting movement
  - Heifer growers do not have capacity to calve/milk lactating cows
  - Establishing BPS for live animal movement, surveillance requirements

SMS Plan Next Steps
Live Animal Movement
Remaining Challenges

Continuity of Business for Infected Dairies
- Large or prolonged outbreak
  - Depopulation no longer an option
- Acceptable options for milk from infected farms
  - Infected, suspect, contact premises
  - Not a public health or food safety concern
  - Working with processors, communications
- Options for grocery store returns
  - Disposal options, treat for animal consumption

Remaining Challenges
- Pre-certification process
  - Farms, processors, haulers
- Information management and timely, scalable permitting
- HMD vaccine surge capacity
- Consumer outreach and education
- Mitigation of risk to rapidly growing dairy export market
Take Home Messages

• Cattle have not had an economically devastating FAD in recent history
• Dairy industry does not demand biosecurity on dairy farms
  – Risk is tolerated
• Important to take a holistic farm approach – understand farm movement
  – Feed, people, animals, milk

Veterinarian’s Role

• Provide an invaluable service to producers, industry
• Part of the team working with consultants and the State Vet Office
  – Help implement the SMS plan
  – Help producers develop biosecurity plans and SOPs
  – Help train producers to recognize clinical signs of HMD
    • Active Observational Surveillance

Questions?

www.securemilksupply.org

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