Optimizing dairy industry COB during a FAD outbreak requires pre-planning:

• Establish a common understanding of dairy COB goals
• Develop a mutual understanding of stakeholder perspectives and expectations regarding a FAD response

The benefit of this process goes well beyond FAD response planning.

FAD = foreign animal disease

National Foot-and-Mouth Disease Preparedness Overview

NIAA Animal Health Emergency Management Council

Tuesday March 27, 2012

Pam Hullinger DVM, MPVM, DACVPM
Department of Veterinary Medicine and Epidemiology
University of California, Davis
phullinger@ucdavis.edu
Overview

• National Secure Milk Supply Plan
• Vaccination contingency planning
  – Nationally
  – California
• FMD Bulk Milk Tank PCR
• CA Bulk Milk Tank Sampling Logistics
• 2012 DMI Crisis Drills
• US DEC funded literature review for FMD inactivation in processed product
COMMON OPERATING PICTURE: FOOT-AND-MOUTH DISEASE (FMD) VACCINATION

USDA APHIS Veterinary Services • National Center for Animal Health Emergency Management (NCAHEM)
4700 River Road Unit 41 • Riverdale, MD 20737 • (301) 851-3595
USDA FMD Vaccination Key Points
NCBA Feb 2012

• Will consider using animal-sparing modalities such as vaccination early in the process
  – Whether vaccine is used will depend on the magnitude of the outbreak

• There are four potential vaccination strategies

• Each strategy exerts a different effect on domestic and export markets

• APHIS will continue working with stakeholders in the development of this new response strategy
National FMD vaccination planning....
One size does not fit all

Figure 4-11. Example of Stamping-Out Modified with Emergency Vaccination to Live

FMD Outbreak Type 3:
Large Regional FMD Outbreak

Legend
- Infected Zone (IZ)
- Buffer Zone (BZ)
- Protection Vaccination Zone (PVZ) (typically outside Control Area)
  Control Area (CA) is IZ+BZ

Vaccination to Live
Stamping-Out Infected Premises with Vaccination to Live
USDA vaccination related reference documents

• FAD Prep FMD response plan
• FMD Emergency Vaccination Ready Reference Guide Sept2011
• Common Operating Picture FMD Vaccination Jan 2012
<table>
<thead>
<tr>
<th>Strategy or Strategies</th>
<th>Definition of Strategy</th>
<th>Likelihood of Use</th>
<th>Example of Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stamping-Out (no *emergency vaccination)</td>
<td>Depopulation of clinically affected and in-contact susceptible animals.</td>
<td>Likely (if outbreak is contained in jurisdictional areas in which FMD can be readily contained and further dissemination of the virus is unlikely.).</td>
<td>Stamping-out Infected Premises.</td>
</tr>
<tr>
<td>Stamping-Out Modified with Emergency Vaccination to Slaughter</td>
<td>Depopulation of clinically affected and in-contact susceptible animals and vaccination of at-risk animals, with subsequent slaughter of vaccinated animals.</td>
<td>Highly likely (depending on the type of the FMD outbreak).</td>
<td>Stamping-out Infected Premises; emergency vaccination to slaughter within the Control Area in Containment Vaccination Zones.</td>
</tr>
<tr>
<td>Stamping-Out Modified with Emergency Vaccination to Live</td>
<td>Depopulation of clinically affected and in-contact susceptible animals and vaccination of at-risk animals, without subsequent slaughter of vaccinated animals.</td>
<td>Highly likely (depending on the type of the FMD outbreak).</td>
<td>Stamping-out Infected Premises; emergency vaccination to live outside of the Control Area in Protection Vaccination Zones.</td>
</tr>
<tr>
<td>Stamping-Out Modified with Emergency Vaccination to Slaughter and Emergency Vaccination to Live</td>
<td>Combination of emergency vaccination to slaughter and emergency vaccination to live (previous two rows).</td>
<td>Highly likely (depending on the type of the FMD outbreak).</td>
<td>Stamping-out Infected Premises; emergency vaccination to slaughter within the Control Area in Containment Vaccination Zones and emergency vaccination to live outside of the Control Area in Protection Vaccination Zones.</td>
</tr>
<tr>
<td>Vaccination to Live (without Stamping-Out)</td>
<td>Vaccination used without depopulation of infected animals or subsequent slaughter of vaccinated animals.</td>
<td>Less likely (unlikely to be implemented at start of outbreak).</td>
<td>No stamping-out of Infected Premises; Vaccination to live outside of the Control Area in Protection Vaccination Zones.</td>
</tr>
<tr>
<td>No Action</td>
<td>FMD would take its course in the affected population; measures may be implemented to stop spread.</td>
<td>Highly unlikely.</td>
<td>Quarantine and movement control measures; biosecurity measures; cleaning and disinfection measures implemented. No stamping-out and no vaccination.</td>
</tr>
</tbody>
</table>
Resources Needed Based on Response Strategy and Outbreak Type

Type of FMD Outbreak

Type 6
(Catastrophic North American)

Type 5
(Catastrophic U.S.)

Type 4
(Widespread National)

Type 3
(Large Regional)

Type 2
(Moderate Regional)

Type 1
(Focal)

Predominant Response Strategy

Stamping-Out Only Strategy (No Vaccination)

Vaccination to Slaughter Strategy with Stamping-Out

Vaccination to Live Strategy with Stamping-Out (can also include Vaccination to Slaughter)

Vaccination to Live Only (No-Stamping Out)

More resources required for depopulation and disposal

More resources required for vaccination

It is unlikely this strategy would be considered in a catastrophic or widespread FMD outbreak.

It is unlikely this strategy would be considered in a focal outbreak.

*not linear scale
IOWA OUTBREAK: NINE INFECTED COUNTIES AND VACCINATION ZONE

<table>
<thead>
<tr>
<th>Where</th>
<th>Bovine</th>
<th>Swine</th>
<th>Sheep/Goats</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infected Zone (pink)</td>
<td>181,106</td>
<td>1,567,560</td>
<td>18,690</td>
<td>3,108</td>
</tr>
<tr>
<td>Buffer Zone (blue)</td>
<td>1,927,955</td>
<td>11,423,618</td>
<td>133,979</td>
<td>23,723</td>
</tr>
<tr>
<td>Vaccination Zone (yellow)</td>
<td>1,873,283</td>
<td>6,225,637</td>
<td>101,501</td>
<td>19,698</td>
</tr>
<tr>
<td>Total</td>
<td>3,982,344</td>
<td>19,216,815</td>
<td>254,170</td>
<td>43,799</td>
</tr>
</tbody>
</table>

Total livestock affected: 23,453,329

Data: NASS, 2007
The “incident” must be prepared to receive, re-package, distribute and deliver the vaccination (ID and data capture required) while maintaining cold chain and chain-of-custody.
FMD Bulk Tank Milk PCR

- DHS S&T funded project to optimize existing FMD PCR assay for bulk tank milk
- Performers are FAZD and NVSL FADDL
- Timeline 24 months
- Assay optimized for milk
- Negative cohort study (US) planned to start soon at selected NAHLN laboratories
Rapid Bulk Tank Milk Sample (BTMS) Collection

- Dr. Stephanie Ostrowski, CAHFS resident
- Feasibility study
- Regulatory authorities, logistical options, sample transport, ID and reporting
- For animal health or food safety emergencies
- Table-top/Workshop planning in progress
  - May time frame
  - Industry participation will be critical
- Funded by CDRF
DMI Crisis Drills

• Highly successful drills in Baltimore, Kansas City and Denver in 2011
• 2012 drills in Minneapolis (Jan), Albany (April), Sacramento (Sept) and Phoenix (Nov)
• Focus is communications, not field operations
• Break-out sessions include;
  – Consumer perception of vaccination
  – SMS
  – Social media
US DEC funded literature review of FMD inactivation for processed dairy products

• Dairy exports are increasing and seen as a growth area
  – Select products; whey, non-fat dry milk powder, cheese

• Dairy industry has recognized the need to better understand the impact of an FMD outbreak on US dairy exports

• If science supports that exported products have no risk, pre-event planning may help to maintain or more quickly regain market access
Thank you!