

# Framework for Interstate and Intrastate Movement Decisions During an FMD Outbreak in the United States

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## Framework for Movement Decisions During an FMD Outbreak in the U.S.

*(Funded by USDA NADPRP)*

### Framework Project Goals

- Manage risks of interstate and intrastate movement of animals and products in Free Areas
- Help SAHOs determine their state's approach to managing risk of FMD introduction and spread while maintaining animal welfare, food security and business continuity
- Help reduce uncertainty around animal movements in the event of an FMD outbreak in the US
- Provide useful recommendations for movement decisions for producers and packers

***Recommendations in this document are guidelines only. Responsible Regulatory Officials will make decisions based on available information at the time of the outbreak***

# Project Timeline

- Collaborative effort with State Animal Health Officials (SAHOs), Producer groups, Packers, and USDA APHIS
  - March 2022 – May 2023: Working group assembled. Reviewed initial drafts, webinar discussions and input, revised drafts
  - June 2023: Three virtual workshops each covering a section of the Framework
  - August 2023: TableTop Exercise held Manhattan, Kansas
  - December 2023: Webinar; opportunity to comment on revised Framework
  - January 2024: Final version of Framework sent out for comment
  - March 2024: Project completed. Final version posted:  
<https://www.cfsph.iastate.edu/emergency-response/fmd-framework-for-interstate-movement/>

# Framework Topics

Background on Foot and Mouth Disease and  
Animal Movement

Recommendations for Movement Decisions  
During an FMD Outbreak

Proposed State Statuses During an FMD Outbreak

# Clinical Signs Compatible with FMD in Livestock

**All of these clinical signs can be related to diseases and factors other than FMDV infection**

- Abortion and/or sudden death in neonates
- Anorexia
- Depression
- Fever
- Lameness and lesions in interdigital space
- Reduced milk production
- Increased salivation and mouth lesions
- Vesicles and lesions on teats

Herds must be observed for an **unusual incidence of these clinical signs**

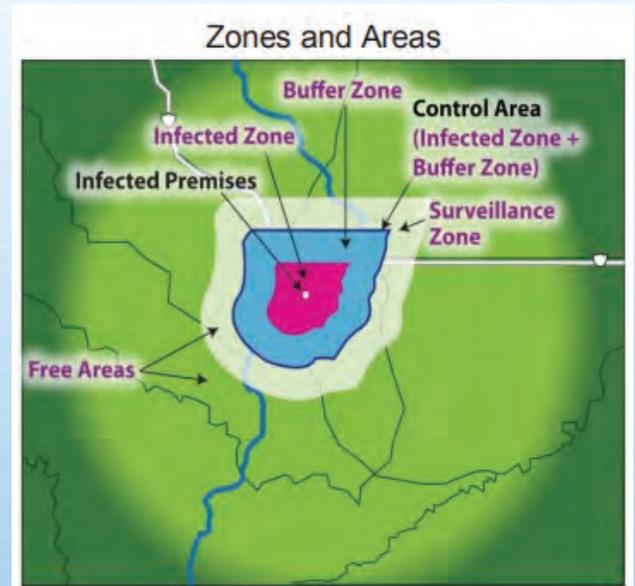
**Any presence of vesicles or erosions should be reported**

# Incubation Period for FMD

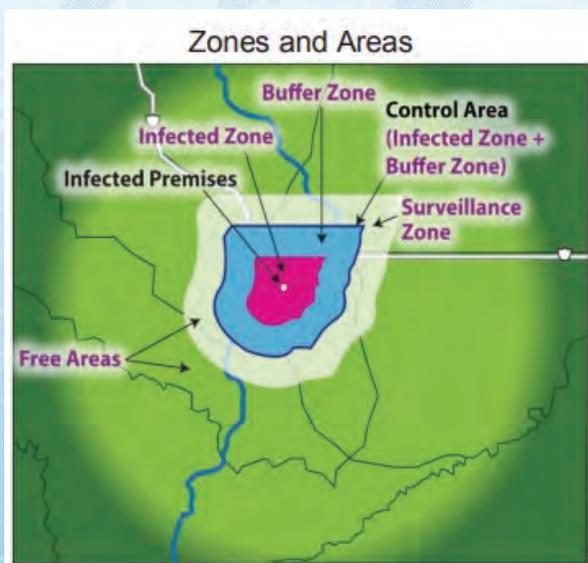
- At the beginning of an FMD outbreak, detection of FMD infection will depend on clinical signs, followed by laboratory testing
- Animals can be infected with FMDV for a few days before showing clinical signs
  - Healthy-appearing animals may be incubating FMDV when moved
- The maximum incubation period for FMD is 14 days as defined in the World Organization for Animal Health Terrestrial Animal Health Code

# Control Areas and Zones (USDA FMD Red Book)

- Control Areas established around each infected premises
- A permit from the UIC is required to move animals into or out of a Control Area
  - Control Area = Infected + Buffer Zones
  - For FMD the minimum is 10 km (6.2 miles) radius = 121 square miles
- Free Areas = free to move after the 72-hour standstill



## Control Areas are Established Due to the Potential for Local Spread of FMD Virus



- The Control Area concept and stamping out were very effective in controlling nine outbreaks of FMD in the U.S. between 1870 and 1929
- Long-distance movement of animals, people, and other materials on livestock premises is much more common now
- FMDV may spread long distances before detected

# Long Distance Spread of FMD Occurs Due to Human Activity

## Animal Movement in the U.S.

- ~1,000,000 swine in transit daily
- ~50,000 to 83,000 feedlot placements per day
- ~100,000 – 120,000 commercial cattle slaughter per day
- Dairy calves and replacement heifers?
- Auction markets, fairs, exhibitions?
- Sheep, goats, others?
- Wildlife (feral swine, deer)



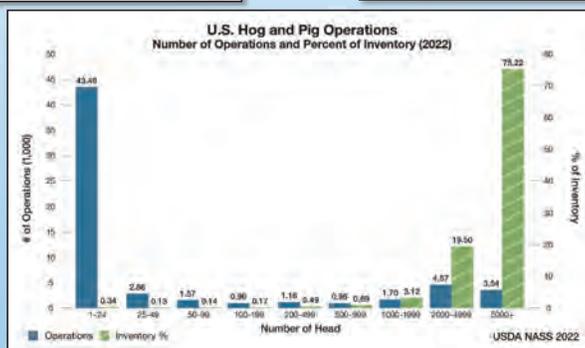
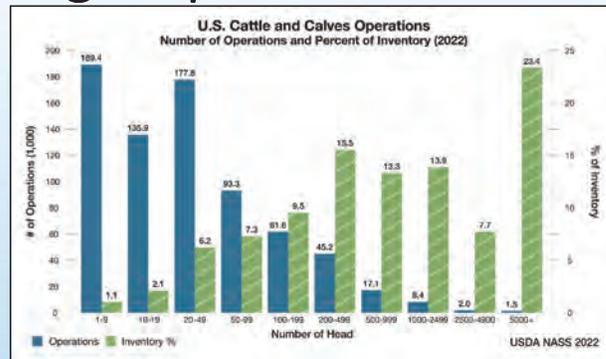
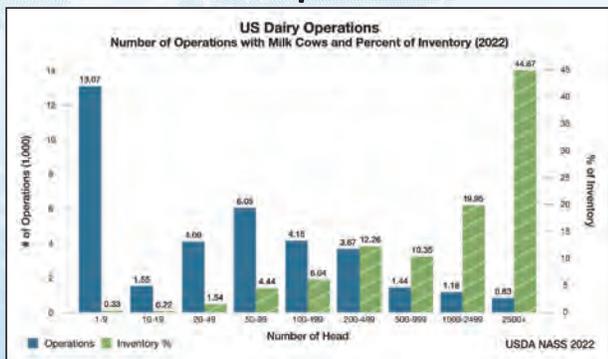
## Associated Movements

- Feed and other deliveries
- Shared work crews, repair personnel, and equipment
- Employees
- Veterinarian and nutritionist visits
- Salespeople
- Milk trucks and other vehicles



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# The U.S. has Many More Small Livestock Operations than Large Operations



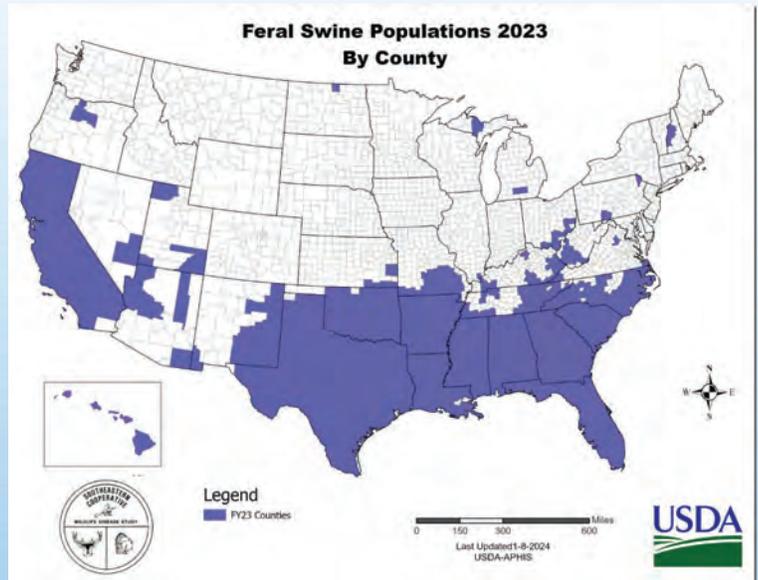
USDA NASS 2022

# Role of Wildlife in FMD Outbreak?

U.S. Estimate:

~ 30 million deer

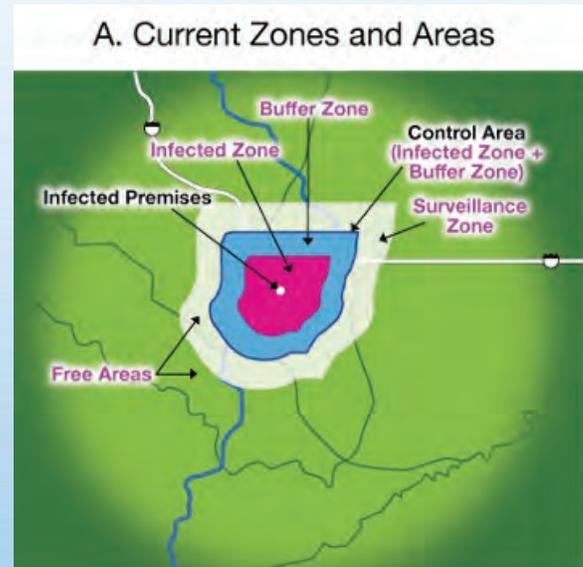
~ 6 million feral swine



## Recommendations for Interstate and Intrastate Movement Decisions During an FMD Outbreak

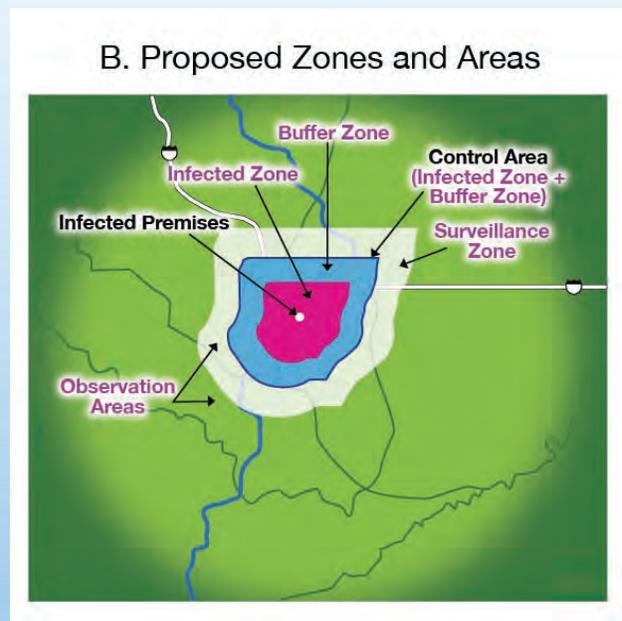
# Status of Animals in Free Area

- It is unknown if the animals in the Free Area are free of FMDV infection at the beginning of an FMD outbreak
- After the first U.S. case is confirmed, tracebacks, trace forward, and epidemiologic investigation are just starting
- It is likely that the first confirmed case is not the first U.S. case
- **Animals are free to move without a permit but may not be free of FMD**



## Recommendation: Change the Terminology: Free Areas Become Observation Areas

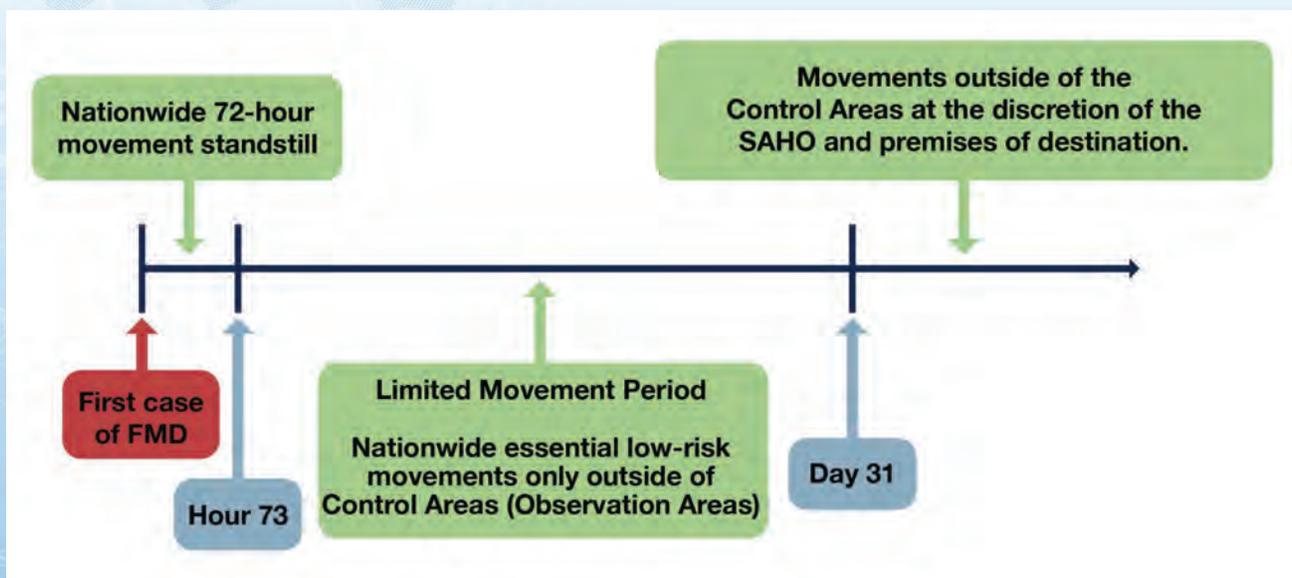
- Reduces confusion about disease status
- These areas are monitored for FMD by producers, farm workers, veterinarians, and federal and state inspectors at harvest facilities



# Animal Movement During an FMD Outbreak

- 72-hour nationwide standstill of susceptible livestock
- SAHOs are responsible for managing animal movement within, into, and out of their state
- A permit from the SAHO or the Unified Incident Command is required to move animals and some materials into or out of a Control Area

Recommendation: Following a Nationwide 72-hour Movement Standstill, Implement a 28-day Limited Movement Period for Essential Low-Risk Movements Only



**Table 1: Essential Low-Risk Movements**

The following movements (either intrastate or interstate) could be considered essential low-risk movements at the end of the 72-hour standstill and should be allowed without the need for an FMD-related permit:

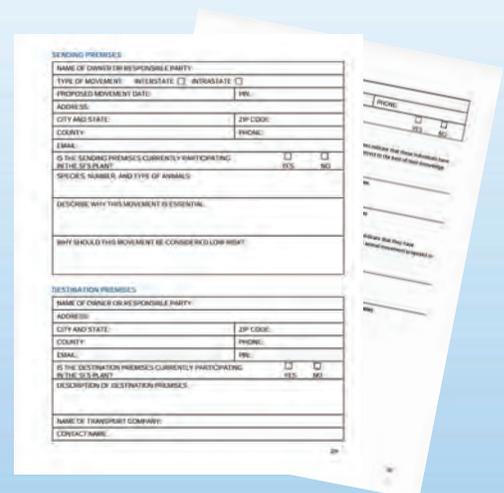
- Movement of animals outside of a Control Area to a meat harvest facility
- Movement of animals in a biosecure building to another biosecure building (according to the Secure Food Supply plans) if it is essential to move the animals for welfare purposes.
- Movement of animals from an isolated location (e.g., pasture, lot, or building) to another location without exposure to new animals if it is essential for welfare purposes.

Permission for other intrastate or interstate movements during the Limited Movement Period should be requested from the SAHO by providing documentation that the movement is essential and is low-risk (See [Appendix A](#)).

## Request for Approval of an Essential Low-Risk Interstate or Intrastate Movement (Not listed in Table 1) During the Limited Movement Period in an FMD Outbreak

A draft form to request an essential intrastate or interstate low-risk movement (not listed in Table 1) of susceptible animals within the Observation Area **during the Limited Movement Period** can be found in **Appendix A**

- Provide contact information and the Premises Identification Number (PIN) for the proposed sending and receiving premises
- Explain why this movement is essential
- Explain why this movement should be considered low-risk
- If required, complete and attach an epidemiology questionnaire



### **Table 2: High-Risk Movements that Should Not Occur Until the Extent of the FMD Outbreak is Known**

The following movements should be considered high-risk movements and should be avoided during the Limited Movement Period, and perhaps longer depending on the epidemiology of the outbreak:

- Any movements of animals to animal aggregation sites such as markets, fairs, exhibitions, shows, etc.
- Any movements of animals that are not immune due to vaccination, or in a biosecure environment to premises where they will be exposed to other FMD-susceptible animals (e.g., Feedlot, backgrounder, dairy, breeding operation, etc.).

## **Compliance with the Limited Movement Period**

- Help producers understand:
  - Accepting animals onto their premises during this period may introduce FMD and endanger their operation
  - Restricting animal movements to essential low-risk movements only until the extent of the outbreak is known provides the best chance of stopping the outbreak and recovering FMD-Free status for the U.S.
- The price of livestock and animal products is expected to fall for the first few days to weeks of an outbreak. It will be difficult to establish a fair market value until prices stabilize
- How to manage contracts for animal delivery?

# How to Provide Some Assurance that Animals in the Observation Areas are FMD Negative

- There are limited resources for checking the FMD status of animals in the Observation Areas
- Business continuity and food security require that livestock are eventually allowed to move between premises and between states for further production and processing
- There may be limited confidence that animals in the Observation Areas are negative for FMDV, especially at the beginning of an outbreak
- Accepting animals that are infected with FMDV but undetected will have severe consequences for production sites

## Secure Food Supply Plans

Designed to minimize interruptions in animal and animal product movement from operations in a Control Area with no evidence of infection

- **Guidelines only**
- **Voluntary** pre-outbreak preparedness
- Biosecurity
- Surveillance
- Epidemiology questionnaires
- Movement permit guidance

The SFS plans may also be useful to demonstrate that operations in the Observation Areas are not likely to be affected by FMDV and can safely move animals



## Recommendation: The “FMD-Checked” Designation May be Used to Reduce the Risk of Movement of Animals in the Observation Area

- An “FMD-Checked” herd is not likely to be infected with FMDV, **but it is not a guarantee**
- Request that a herd be FMD-Checked before movement can be made by:
  - SAHOs of the states of origin and destination (if applicable)
  - Owners of the premises of destination
- Each SAHO and receiving premises can decide which FMD-Checked statements they will accept for movements

### Methods for Designating Livestock Outside of a Control Area as “FMD-Checked” (All statements documenting FMD-Checked status must be in writing and signed)

#### **Herd owner/manager signed statement**

- The premises has met the requirements of the relevant secure food supply plan for at least two incubation periods (28 days) before animals are moved to another production site
- OR**
- Active observational surveillance has been conducted daily for at least two incubation periods (28 days) before movement with no unusual incidence of clinical signs consistent with FMDV infection
- OR**
- The animals have been housed in a biosecure environment or in an isolated location away from other livestock for at least two incubation periods (28 days) and do not have an unusual incidence of clinical signs associated with FMDV

Methods for Designating Livestock Outside of a Control Area as “FMD-Checked” (All statements documenting FMD-Checked status must be in writing and signed)

**Category 2 accredited veterinarian signed statement**

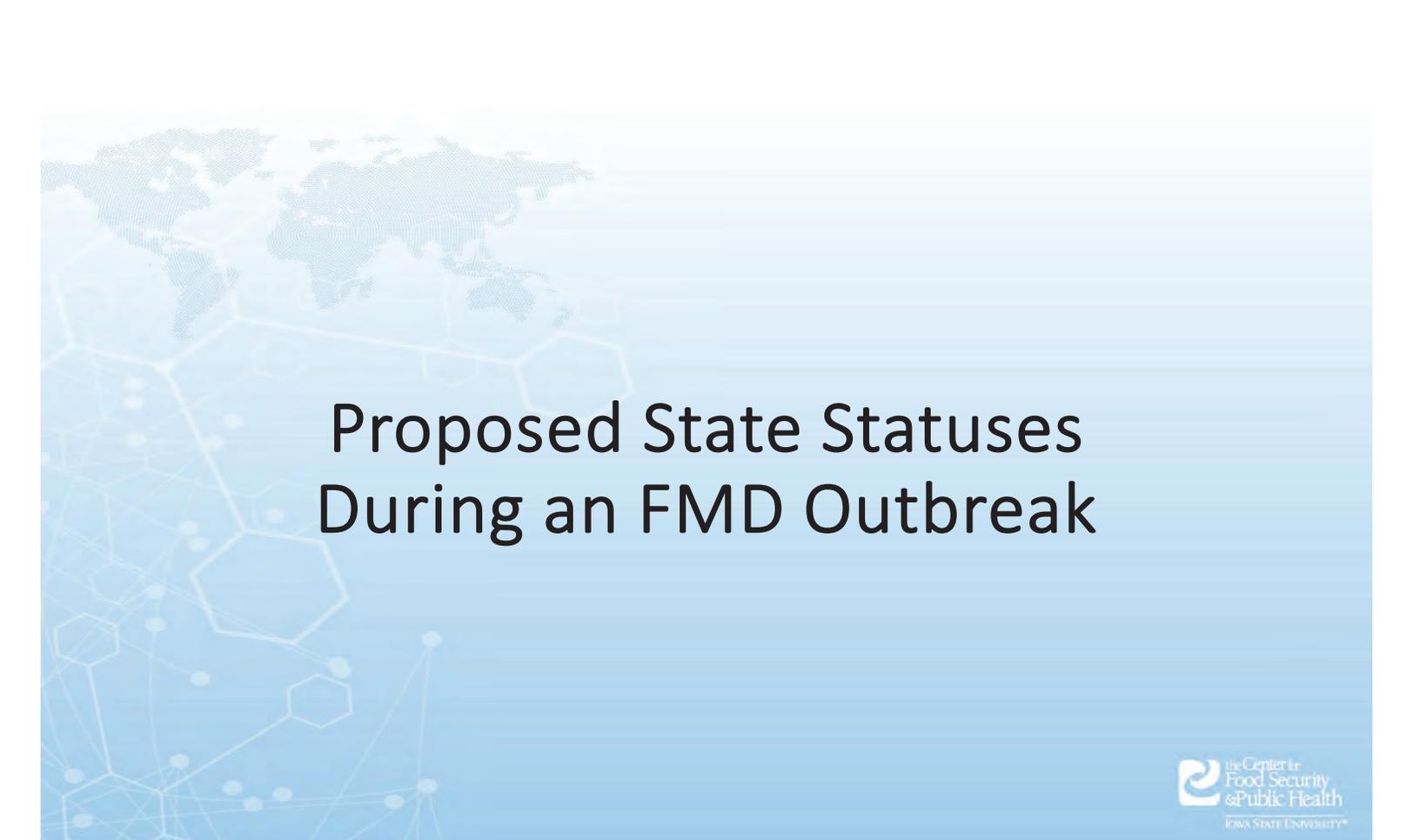
- Livestock have been observed by an accredited veterinarian within two days of movement and have not been observed to have an unusual incidence of clinical signs consistent with FMDV infection

AND

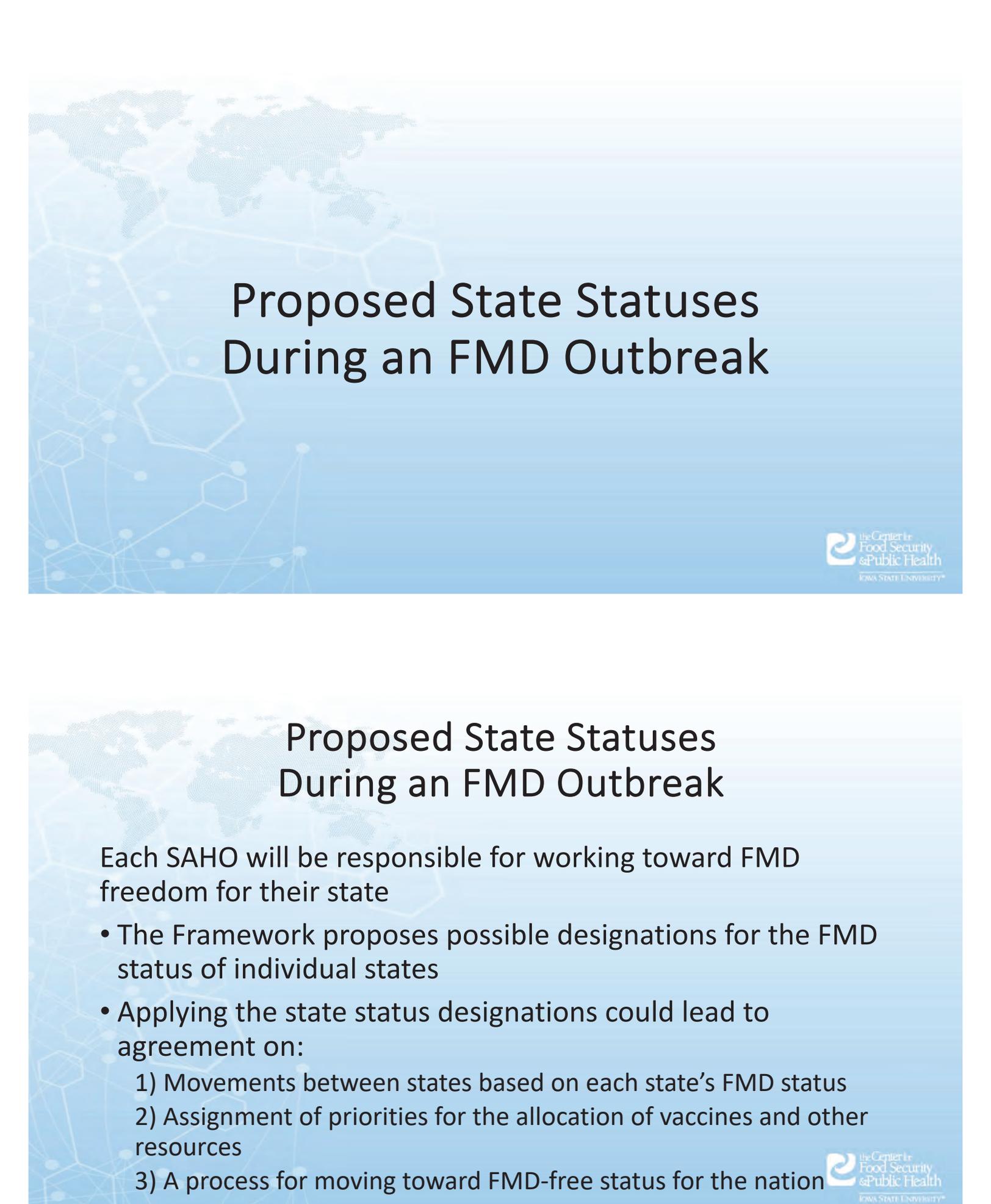
- Active observational surveillance has been conducted daily since the accredited veterinarian observed the animals.

## Recommendation: Rapid Surveillance Testing

- Animals exhibiting clinical signs compatible with FMD should be reported to the SAHO. The SAHO may order sampling and testing at a NAHLN laboratory for FMDV by PCR
- Sampling may be conducted under the authority of a trained, accredited veterinarian, with the SAHO’s permission
- The premises is quarantined until a negative result is returned
- Documentation of any testing and receipt of negative results must accompany any statements documenting an FMD-Checked designation



# Proposed State Statuses During an FMD Outbreak



## Proposed State Statuses During an FMD Outbreak

Each SAHO will be responsible for working toward FMD freedom for their state

- The Framework proposes possible designations for the FMD status of individual states
- Applying the state status designations could lead to agreement on:
  - 1) Movements between states based on each state's FMD status
  - 2) Assignment of priorities for the allocation of vaccines and other resources
  - 3) A process for moving toward FMD-free status for the nation

# Proposed State Statuses During FMD National Phases (USDA FMD Red Book)

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

- Goal is 4 days
- USDA will likely mandate a 72-hour stop movement of all susceptible livestock in the U.S.

**Phase 2:** Begins after the end of **Phase 1** and continues until **Phase 3 – Recovery phase**

## Phases of FMD Response

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

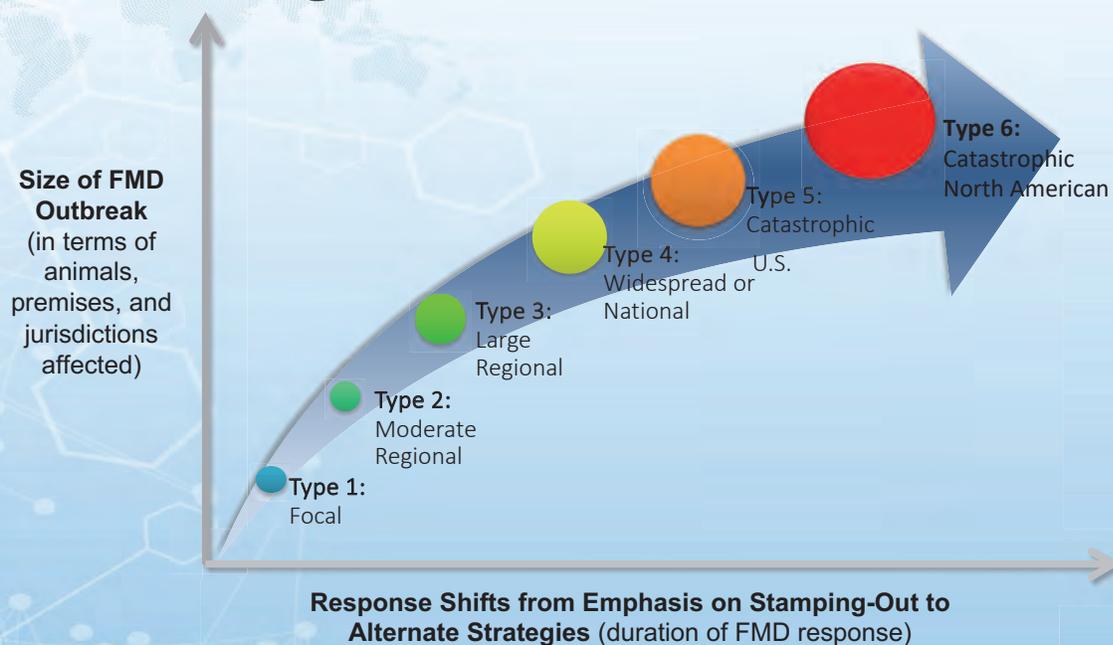
**Phase 1:** From confirmation of the first case of FMD in the U.S. until reasonable evidence to estimate outbreak extent.

**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.

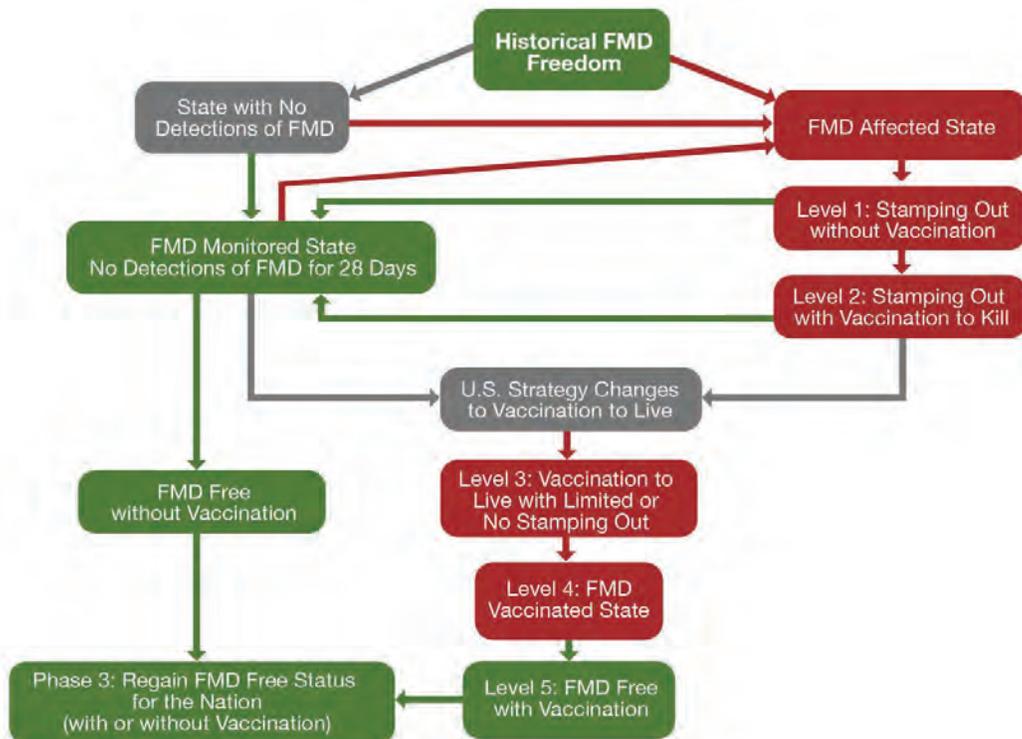
**Phase 4:** U.S. declared free of FMD, possibly with vaccination.

# Potential Types of an FMD Outbreak During Phase 2 on a National Scale



[https://www.aphis.usda.gov/animal\\_health/emergency\\_management/downloads/phases-and-types-of-an-fmd-outbreak\\_2013.pdf](https://www.aphis.usda.gov/animal_health/emergency_management/downloads/phases-and-types-of-an-fmd-outbreak_2013.pdf)

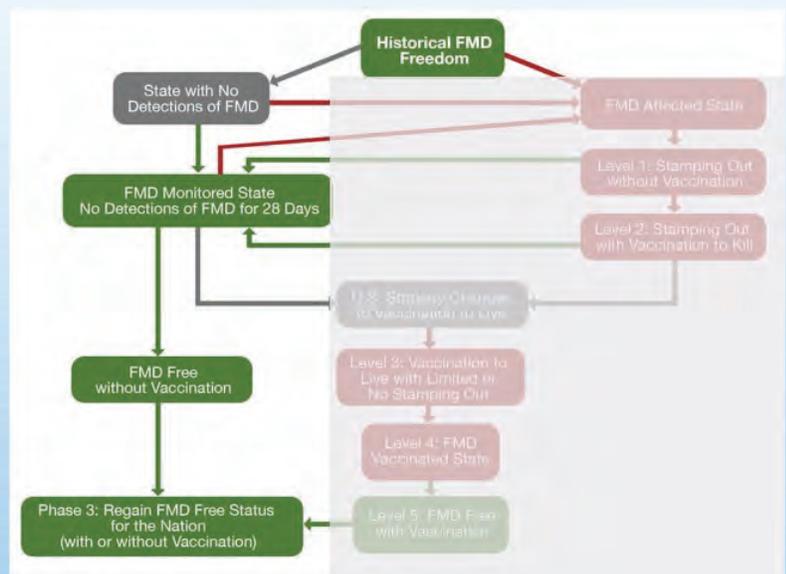
# Proposed State Statuses During FMD National Phase 2



# State Statuses During FMD National Phase 2

## State With No FMDV Detections

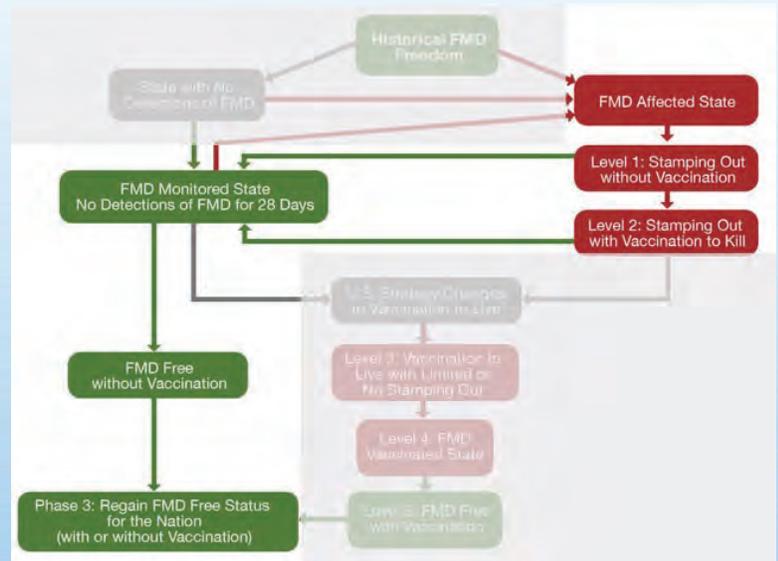
- FMD Monitored State
  - No detections of FMD for at least 28 days after the end of the movement standstill
- FMD Free Without Vaccination
  - Has implemented surveillance, biosecurity, and movement controls to convince regulatory officials and trading partners that there are no FMDV-infected animals in the state
- Phase 3: Regain FMD Free Status for the U.S. Without Vaccination
  - All states are FMD Free without vaccination



# State Statuses During FMD National Phase 2

## Level 1 or 2 FMD Affected States Can Become:

- FMD Monitored State
  - No detections of FMD for at least 28 days
- FMD Free State Without Vaccination
  - Has implemented surveillance, biosecurity, and movement controls to convince regulatory officials and trading partners that there are no FMDV-infected animals in the state
- Phase 3: Regain FMD Free Status for the U.S. Without Vaccination
  - All states are FMD Free without vaccination



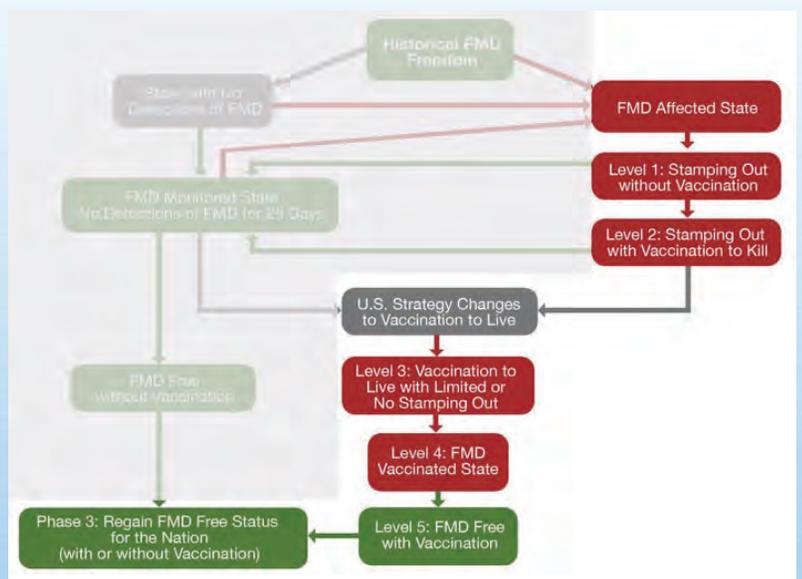
# State Statuses During FMD National Phase 2

## FMD Affected States:

- Level 1: Stamping Out
- Level 2: Stamping Out With Vaccination to Kill
- Level 3: Vaccination to Live With Limited or No Stamping Out
- Level 4: Vaccinated State
- Level 5: FMD Free With Vaccination

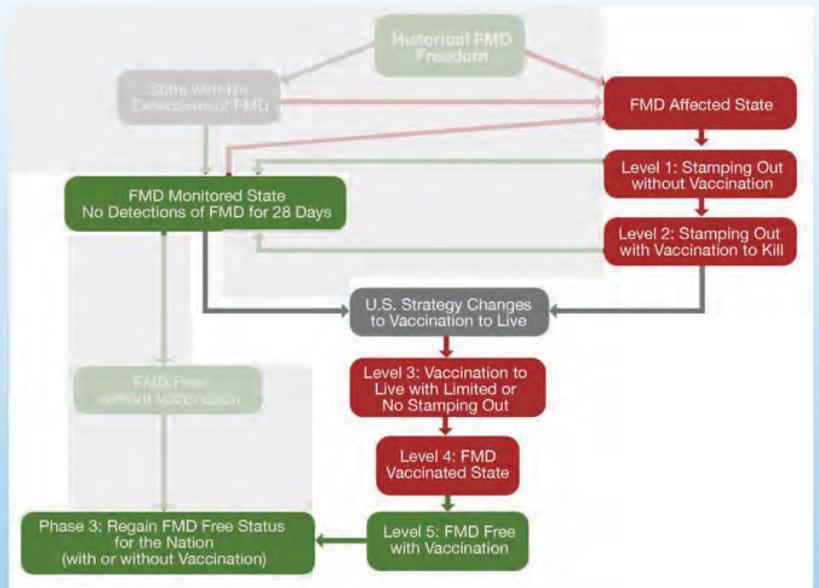
## Phase 3: Regain FMD Free Status for the U.S. with Vaccination

- All States are FMD Free With Vaccination

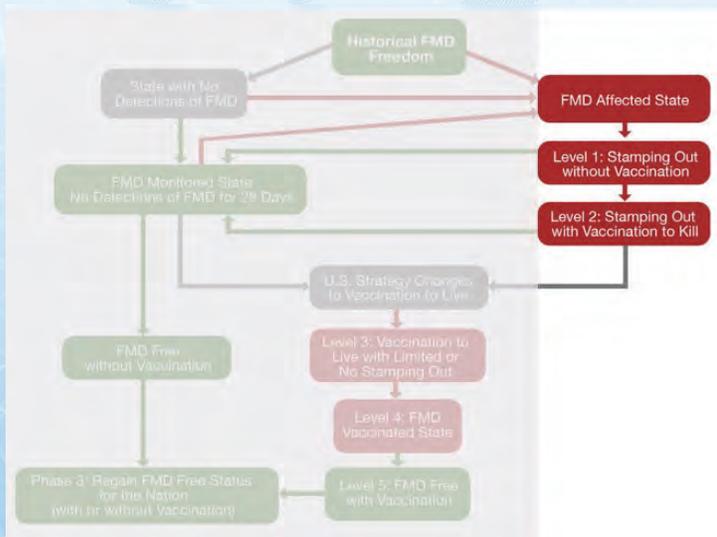


# State Statuses During FMD National Phase 2

If the U.S. Strategy changes to Vaccination to Live, it is likely that all states may be required to become FMD Vaccinated States



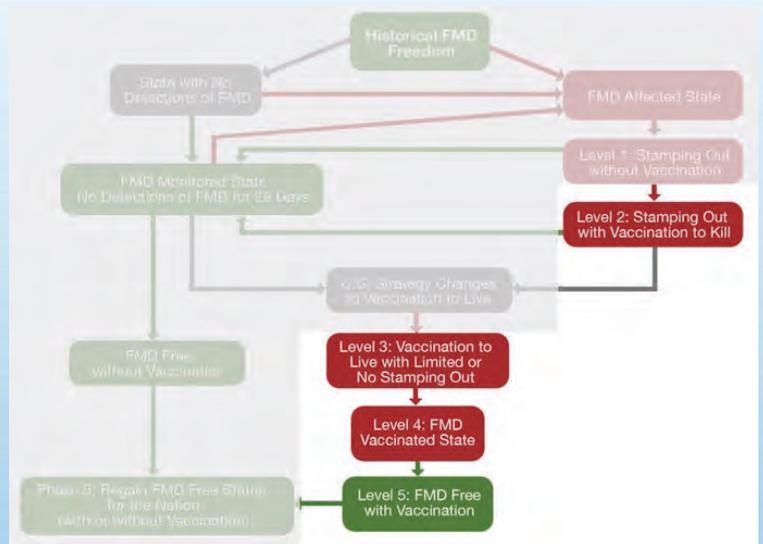
For Level 1 and Level 2 States, Decisions on Animal Movement Should be Based on the Status of the Area Where the Premises is Located (Control Area or Observation Area) Rather than the Status of the State



In this hypothetical example, Missouri is a level 1 FMD affected State. Kansas, Nebraska, and Iowa are states with no detections of FMD

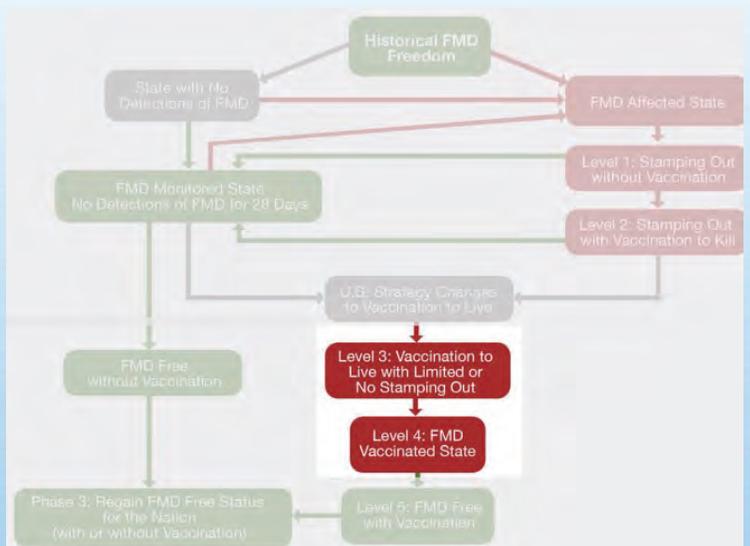
## Recommendation Regarding Movement of Animals from Vaccinated Herds Between FMD Affected States

Animals from herds that were vaccinated at least three weeks previously should be allowed to move **for slaughter** to any Level 2, 3, 4, or 5 FMD positive state



## Recommendation Regarding Movement of Animals from Vaccinated Herds Between FMD Affected States

Animals from herds that were vaccinated at least three weeks previously should be allowed to move **for further production** to any Level 3 or 4 FMD-affected state



## Recommendation: A Meat Harvest Facility in a State with No Detections of FMD that Receives FMD-Positive Animals from Out of State should Not Result in the State being Designated as an FMD-Affected State

- This is necessary to encourage SAHOs from states with no detections of FMD to accept animals for harvest from FMD Affected States
- A Control Area should be established at the perimeter of the meat harvest facility until it undergoes cleaning and disinfection for FMDV
- After cleaning and disinfection are completed, the Control Area around the facility could be lifted, and it could return to operation
  - This is consistent with the African Swine Fever (ASF) plans in the ASF Red Book

## Recommendation for Recovered Animals to be Considered Immune and Safe to Move to Further Production Without Spreading Infection

Animals that have recovered from FMD should not be sent **to another production site** unless:

- All animals on the receiving site are vaccinated

**AND**

- Recovered animals are also vaccinated to ensure uniform immunity

# State Statuses During FMD National Phase 3 - Recovery

## **Proposed Transition to National Phase 3, the Recovery Phase:**

Surveillance and Epidemiologic Evidence Indicates that the Outbreak is Coming Under Control and a Plan is Implemented to Regain FMD-Free Status for the Nation (Possibly with Vaccination)

- After a state is declared to be an FMD-Free without vaccination state or an FMD-Vaccinated state (Level 4), extensive serologic and virus testing is likely to be required to demonstrate that the state is free with or without vaccination
  - **This testing will be labor-intensive and expensive. It may be best not to initiate testing to demonstrate that the state is FMD-free until most states are designated as FMD-Free or FMD-Vaccinated States**
- Individual states are designated to be in the Recovery Phase after they file a plan acceptable to the USDA to recover FMD-Free status, perhaps with vaccination

## Appendices

- **Appendix A:** Form for Producers to Request Permission for an Essential Low-Risk Movement During the 28-Day Limited Movement Period
- **Appendix B:** Sample Collection and Submission for FMDV Testing by Accredited Veterinarians or their Designees
- **Appendix C:** Designation of State Status if FMD is Detected at a Meat Harvest Facility
- **Appendix D:** Proposed Criteria for Vaccinated and/or Recovered Animals to be Considered Immune and Safe to Move without Spreading Infection
- **Appendix E:** Priority for FMD Vaccine Use
- **Appendix F:** Approach to Nationally Standardized Identification of Livestock that are Vaccinated for and/or Recovered from FMD

# FMD Framework Materials Available

[www.cfsph.iastate.edu/emergency-response/fmd-framework-for-interstate-movement/](http://www.cfsph.iastate.edu/emergency-response/fmd-framework-for-interstate-movement/)

Available materials include:

- Entire Framework document available to download
- Summary document (much shorter overview)
- Recorded webinar

The screenshot shows the webpage for the FMD Framework. At the top, it features the logo for The Center for Food Security & Public Health and navigation links for ANIMAL DISEASES, PREVENTION, PREPAREDNESS & RESPONSE, COURSES, PRODUCTS, and ABOUT. The main heading is "Framework for Interstate and Intrastate Movement Decisions During a FMD Outbreak in the U.S." with subtext "CFSPH | Preparedness and Response" and "Framework for Interstate and Intrastate Movement Decisions During a FMD Outbreak in the U.S.". A descriptive paragraph states: "The Framework for Interstate and Intrastate Movement Decisions During a Foot and Mouth Disease Outbreak in the U.S. is the result of a two-year effort to build consensus and develop criteria for making animal movement decisions in the event of a Foot and Mouth Disease outbreak in the U.S. The document focuses on interstate and intrastate movement decisions by State Animal Health Officials; however, the recommendations may also be useful for movement decisions by producers and packers." A "Resources" box lists: "Framework for Movement Decisions During a FMD Outbreak (March 2024)", "Framework Overview Handout", and "Webinar Recording - Coming Soon!". A timeline diagram shows: "First case of FMD" (red box) at "Hour 73" (blue box), leading to a "Nationwide 72-hour movement standstill" (green box) and a "Limited Movement Period" (green box) for "Nationwide essential low-risk movements only outside of Control Areas (Observation Areas)". At "Day 31" (blue box), there is a "Movements outside of the Control Areas at the discretion of the SAHO and premises of destination." (green box).

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