Secretary's Advisory Committee on Animal Health – November 2011

Emergency Response to the Changing Landscape of Foreign Animal Diseases – Emphasis on Foot and Mouth Disease

Darrel K. Styles, DVM, PhD
Senior Staff Veterinarian
U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Veterinary Services
National Center for Animal Health Emergency Management

Safeguarding Animal Health

VS' Emergency Response

- Disease monitoring & surveillance
- Disease control & eradication
- Emergency response management
- Adequate vaccine stores

The Expanding Threat of Foreign Animal Diseases (FADs)

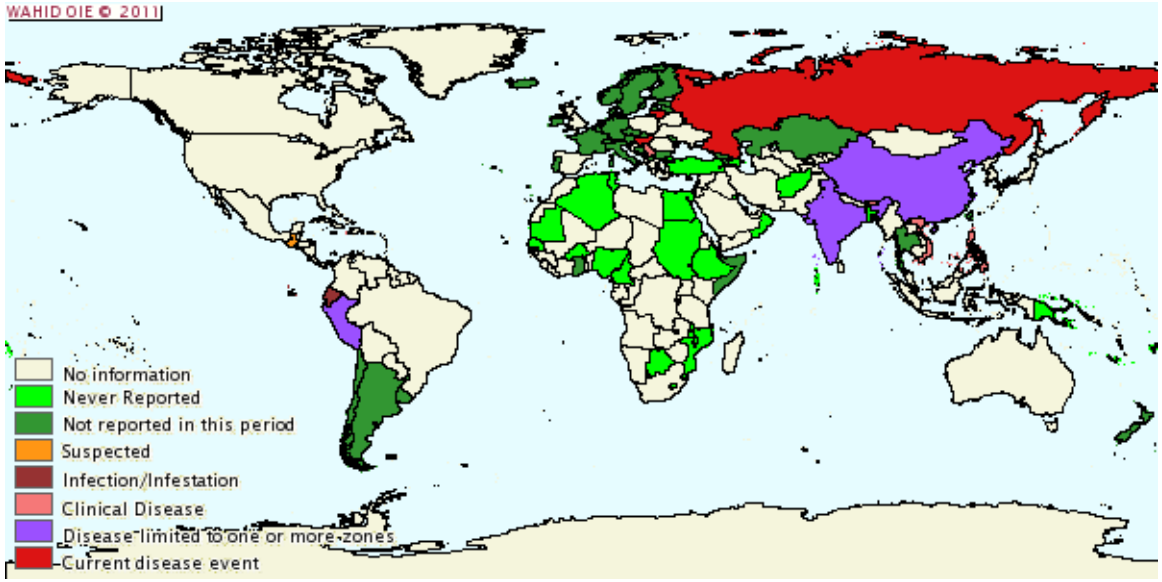
- The persistent threat of Classical Swine Fever (CSF)
- The emerging threat of African Swine Fever (ASF)
- The expanding threat of Foot and Mouth Disease (FMD)
- The unpredictable threat of Highly Pathogenic Avian Influenza (HPAI)
- The insidious threat of Virulent Newcastle Disease (END)

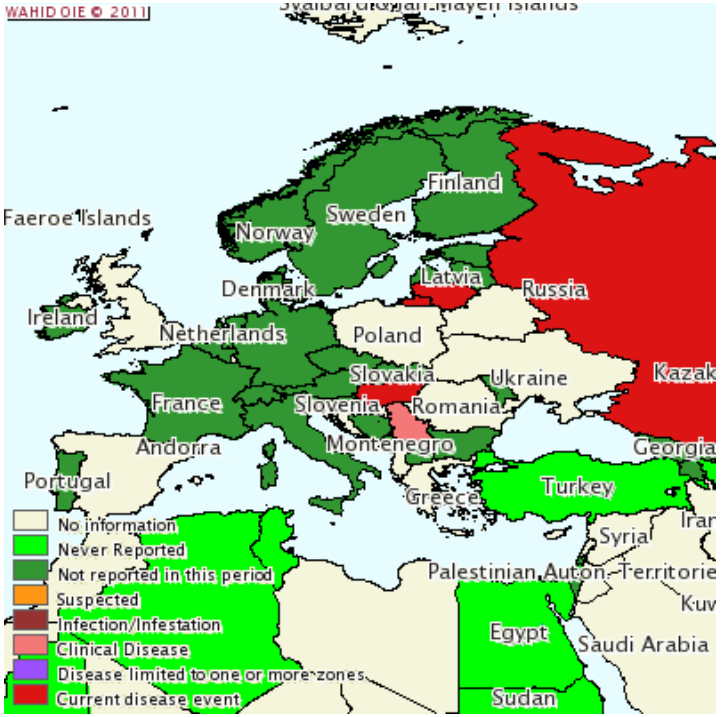
Consequences of FAD Outbreaks

- Disruptions to commerce
- Collateral markets impacted (poultry, grains)
- Stakeholder impacts: emotional & economic loss
- Public fears: commodity price drops
- Strained State & Federal resources
- Length of recovery depends on extent

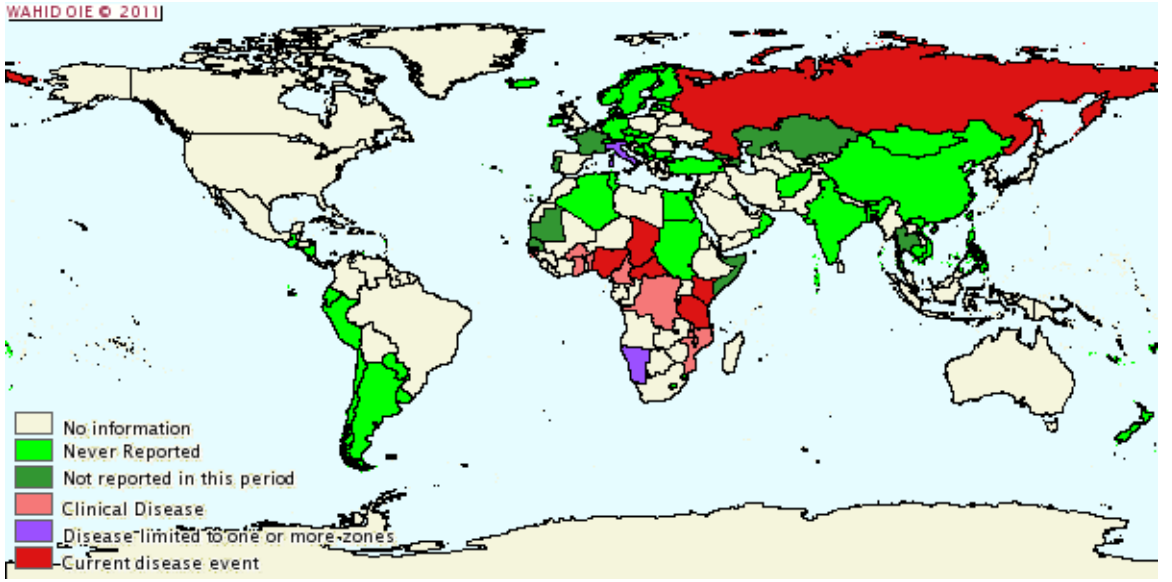
FADs: are infectious <u>and</u> economic diseases

Current Distribution of Classical Swine Fever

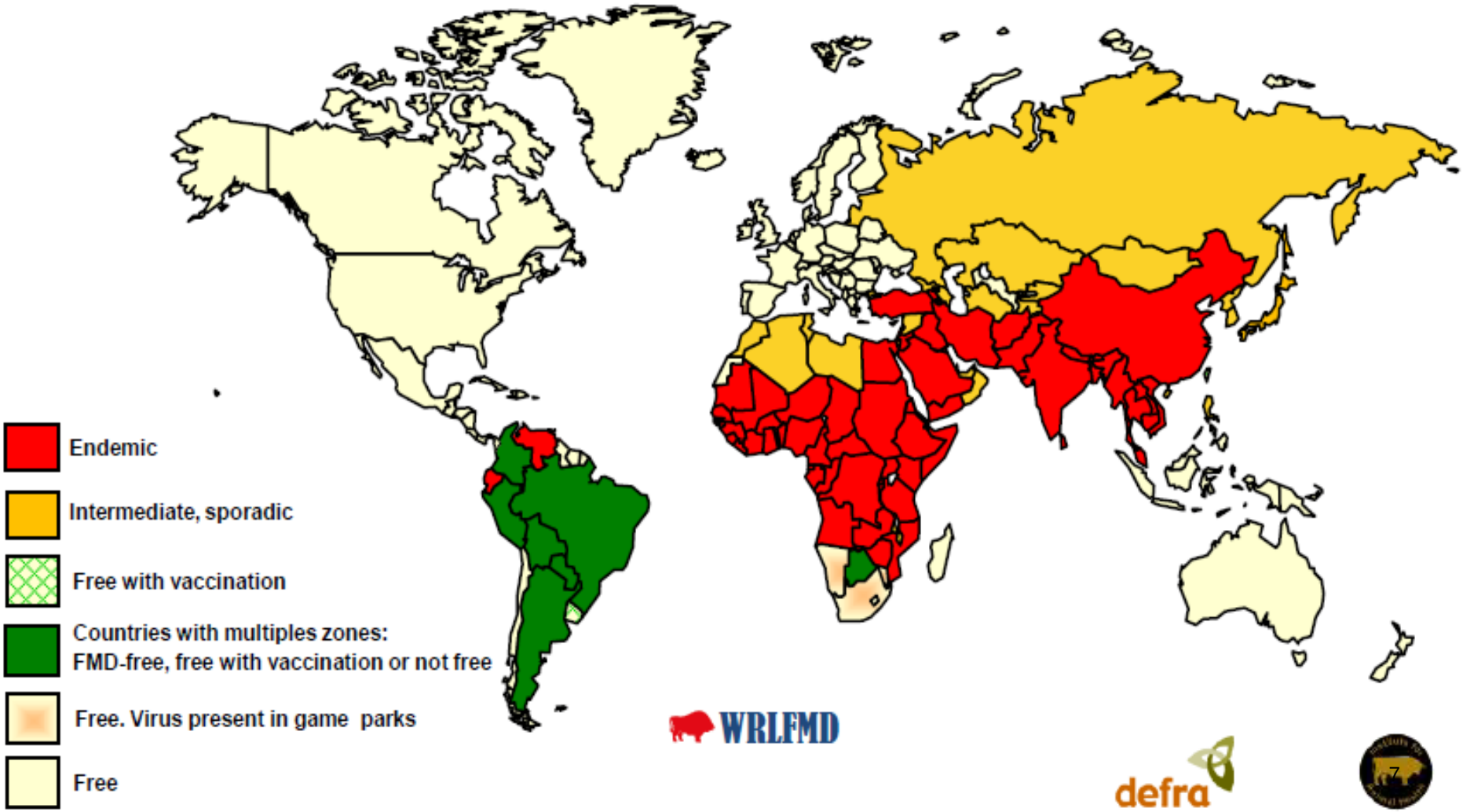




Current Distribution of African Swine Fever



Presumptive FMD Prevalence



The Expanding FMD Threat

- Last U.S. FMD case: 1929
- Today: livestock numbers greatly increased
- Concentrated operations may increase risk
- Mobile animals, products, & humans
- Increased global trade (including contraband)
- Worldwide increase in FMD
- Bioterrorism threats

FMD Response Regulations

Stamping Out and Disposal

- Federal: infected animals must be killed & disposed of promptly
- State: Animals must be buried within 24 hours
- We cannot meet these schedules today

Traditional Response Goals

Focus: Eradication with no vaccination

1. Detect, control, & contain FMD quickly.
2. Stamp out FMD while stabilizing agriculture, the food supply, the economy, & protecting public health.
3. Provide science, risk-based approaches, & systems that allow commerce to continue.

Modern challenges require a new approach.

Challenges to Traditional Response Strategies

Mobility of animals

625,000 pigs in transit every day

Huge herds, highly concentrated

Depopulation & Disposal Challenges

Captive bolting

- Labor intensive
- Slow

Rendering

- Preferred
- Capacity issues
- Logistics issues

Swine Mobile Electro Units

- Expensive
- Few available

Unlined Burial

- Polluting
- Long-term environmental impact

Implications for the U.S.

- Stamping out generates more mortalities than we can handle
- Vaccination may be needed
- Minimizing depop & disposal protects the environment, ensures uninterrupted food supply

Best	Intermediate	Worst
Rendering Controlled incineration	Composting Permitted landfill Air curtain incin.	Open burning Unlined burial

Sustainable Response

REDUCE

Minimize Stamping Out

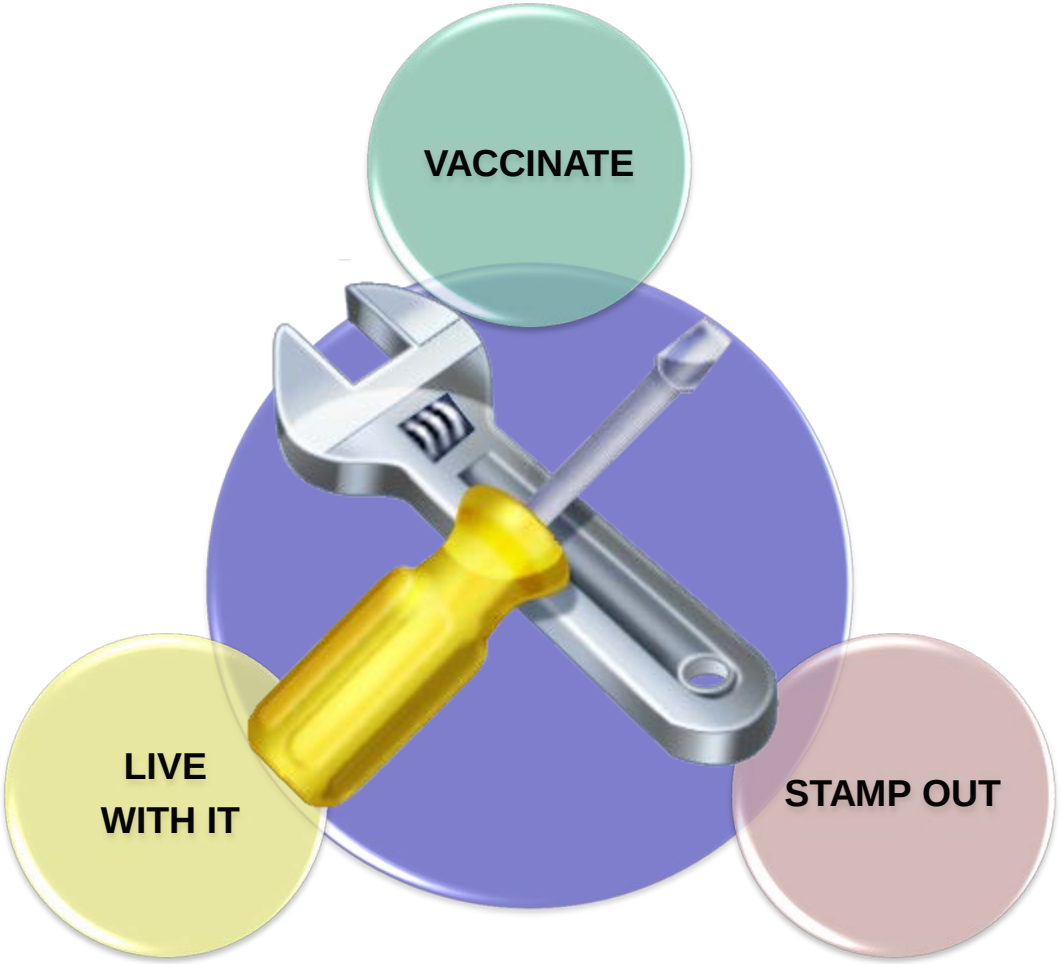
REUSE

Vaccinate for Food Chain

RECYCLE

Rendering, Landfilling, or Composting

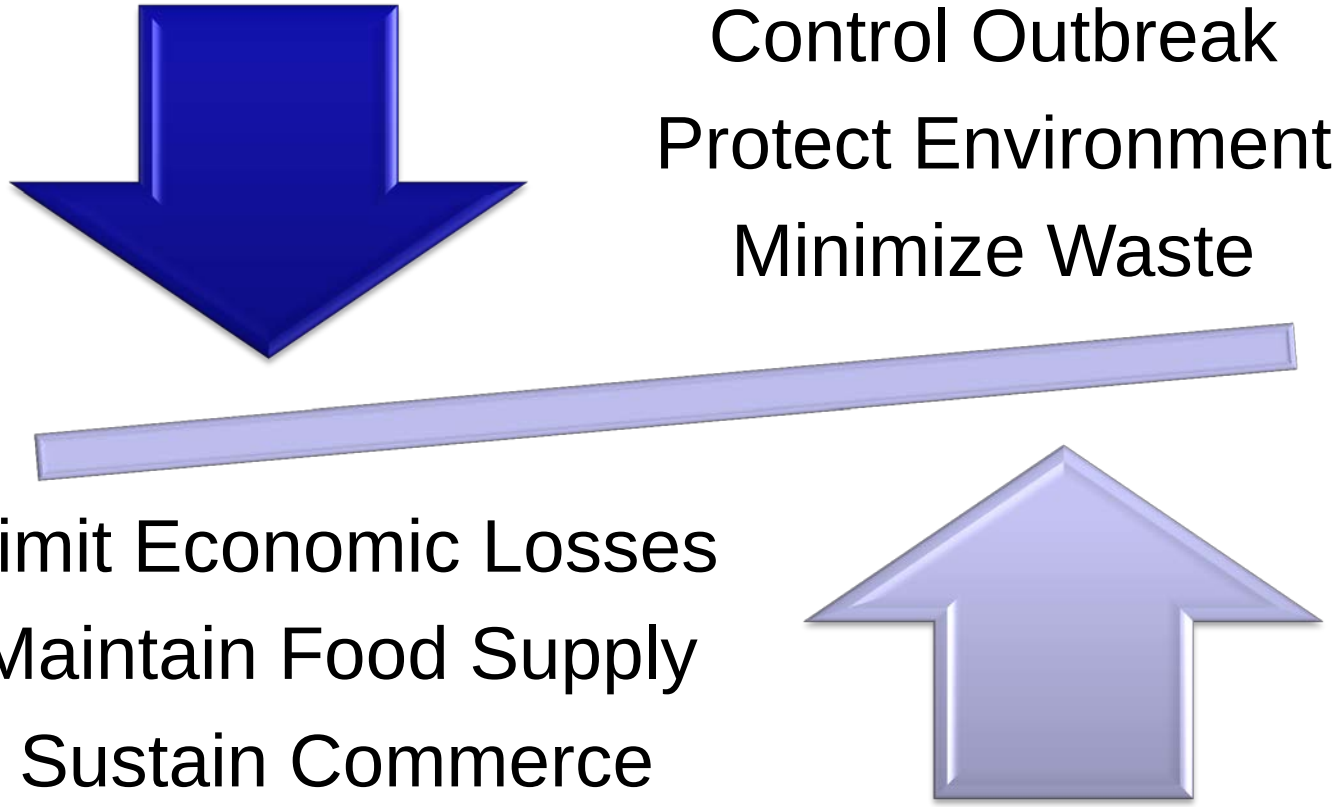
Consider All Tools



Possible FMD Response Strategies

- Four possible strategies:
  1. Stamping-out, no vaccination
  2. Stamping-out, vaccination to kill/slaughter
  3. Stamping-out, vaccination to live
  4. Vaccination to live, no stamping-out (+/- endemic status)
- FMD vaccination--a tool:
  - To augment eradication
  - As a long-term control strategy
- Each strategy has a different effect on markets
- Time for FMD-free status (3 mos.) same for options 1 & 2

Balanced Response Strategy



Stakeholder Engagement Crucial

- APHIS needs input from States, industry, Tribes
- Stakeholder meetings in 2011:
  - May 2: FMD vaccination
  - Nov 3-4: Continuity of Business & Movement Control

- May 2 meeting: Vaccination
  - Viable response tool
  - Rational strategies in development with trigger points

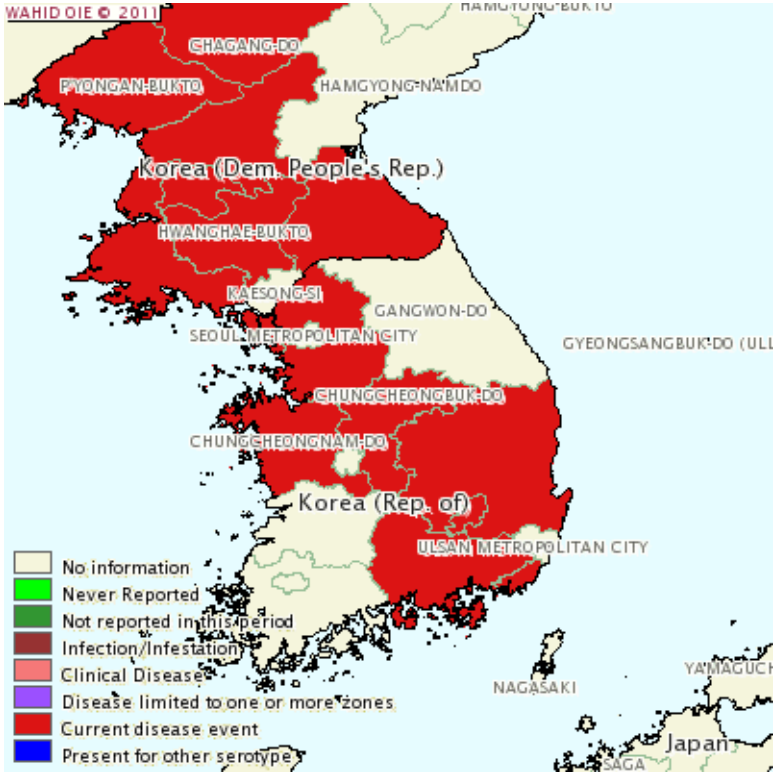
Continuity of Business & Commodity Movement Control

- Commodities must move
- Continuity plans allow safe movement
  - Secure Milk Supply Plan (in development)
  - Secure Pork Supply Plan (starting development)
- Need plans for all commodities (e.g., beef, grains)
- Need movement/permit plan w/State enforcement
- APHIS needs cooperation & input

Modified FMD Response Goals

- Flexible response strategies
- Detect, control, contain FMD quickly
- Eradicate FMD, stabilize animal agriculture, the food supply, the economy, & protect public health
- If eradication impractical, control & mitigate through:
  - Vaccine
  - Enhanced biosecurity
  - Regionalization and zoning
  - Continuity of business plans
  - Animal commodity movement controls
- Use science & risk-based approaches for continuity of business

Comparison of FMD Vaccine Needs



- South Korea ≈ size of one medium US State
- South Korea needed 20 million doses to contain
- 2007 Animal Census numbers of select States
  - Vaccine eligible hoof-stock
  - CA – 6.4 million
  - CO – 4.1 million
  - IA – 23 million
  - KS – 8.7 million
  - MN – 10 million
  - NE – 10 million
  - NC – 11 million
  - MO – 7.5 million
  - OK – 8 million
  - TX - 17 million
  - WI – 4 million
  - Total all US States – 173 million

FMD Response Details

- Modified response: flexible, nimble, tailored
- States should have their own plans
- Response is a complex process
- Stamping-out not cost effective? Consider alternatives
- Depopulation still required to remove infected livestock for humane and disease reasons

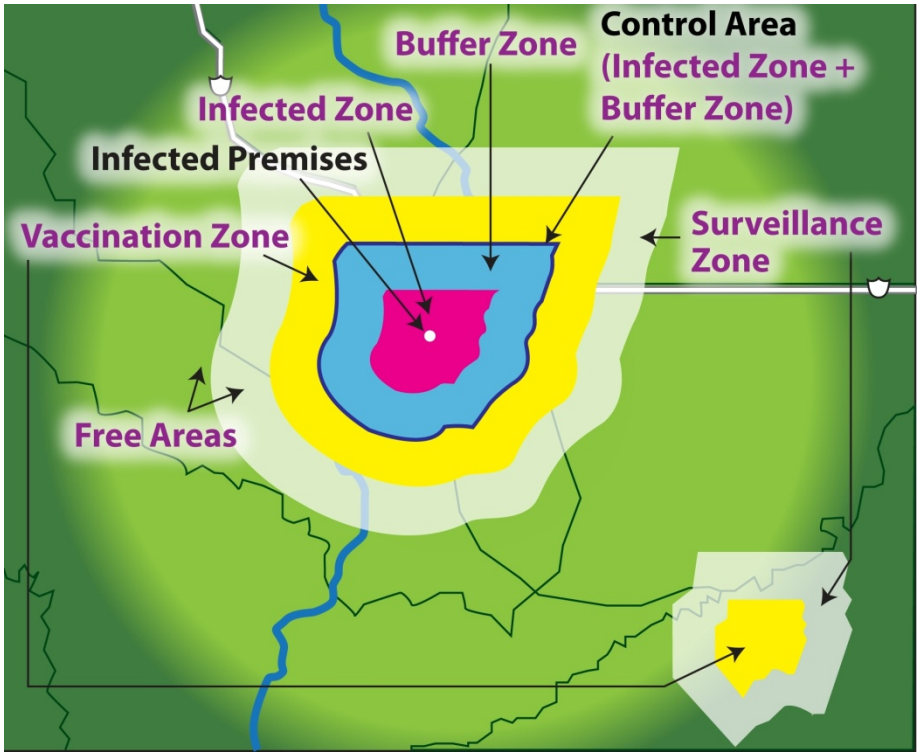
National Response

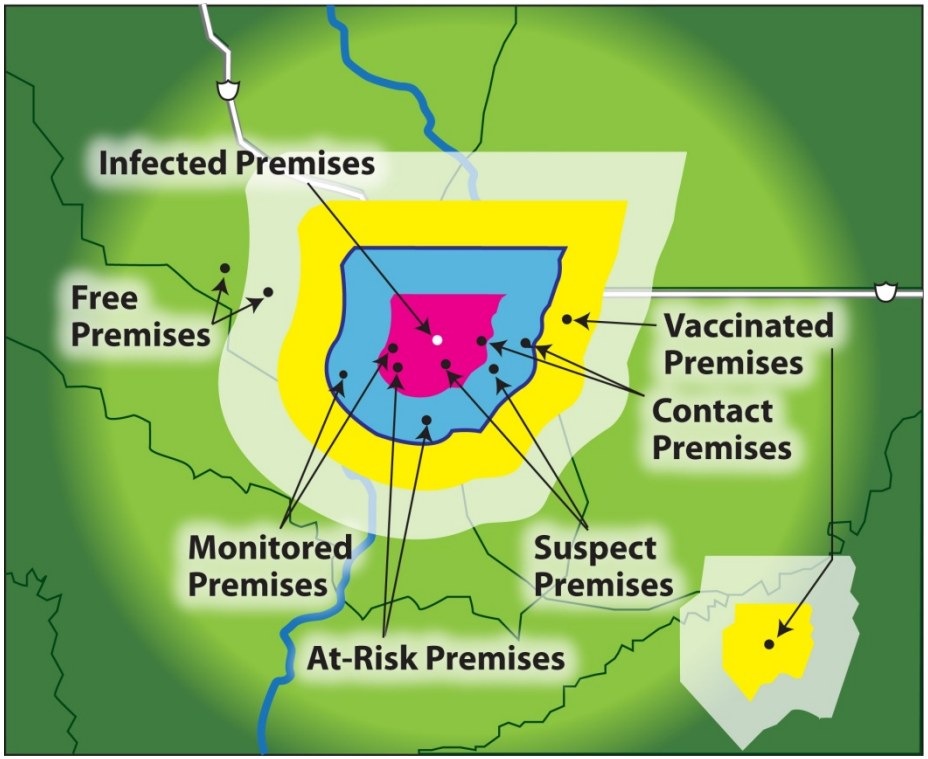
- APHIS notifies State animal health & Tribal officials
- APHIS notifies Canada & Mexico CVOs
- North American FMD Vaccine Bank activated
- OIE notified
- Interagency notification/coordination (DHS, HHS)
- Trading partners notified
- Establish multiagency coordination group
- Publish unified public health messages

Regional & Field Level Response

- Establish a Unified Incident Command
- Deploy State or Federal Incident Management Team
- Deploy Nat'l Veterinary Stockpile countermeasures
- Institute movement control plans
- Implement continuity of business plans
- Initiate trace-out investigations
- Establish a local/State/Federal communication plan

Movement Control





Infected Zone | Buffer Zone | Vaccination Zone | Surveillance Zone

Foreign Animal Disease Preparedness & Response Documents – FAD PReP

Strategic Plans—
Concept of Operations

NAHEMS Guidelines

Disease Response Plans

Continuity of Business

State/Tribal Planning

APHIS Emergency Management

Industry Manuals

Critical Activity SOPs and Checklists

Outbreak Response Tools

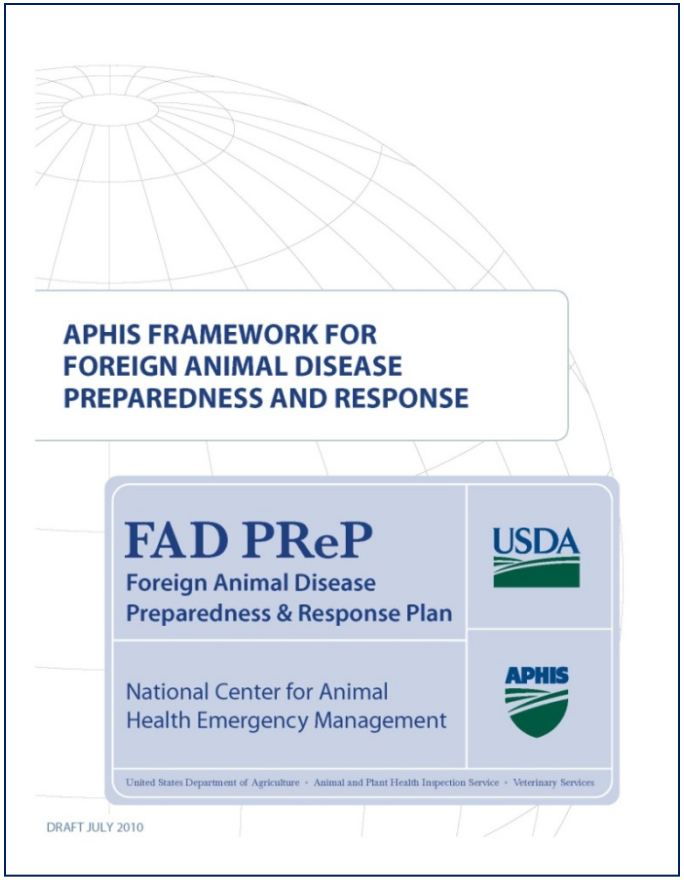
Industry, Academic and Extension Planning

Additional Resources

Supporting FAD PReP Materials

Strategic Plans-Concept of Operations Documents

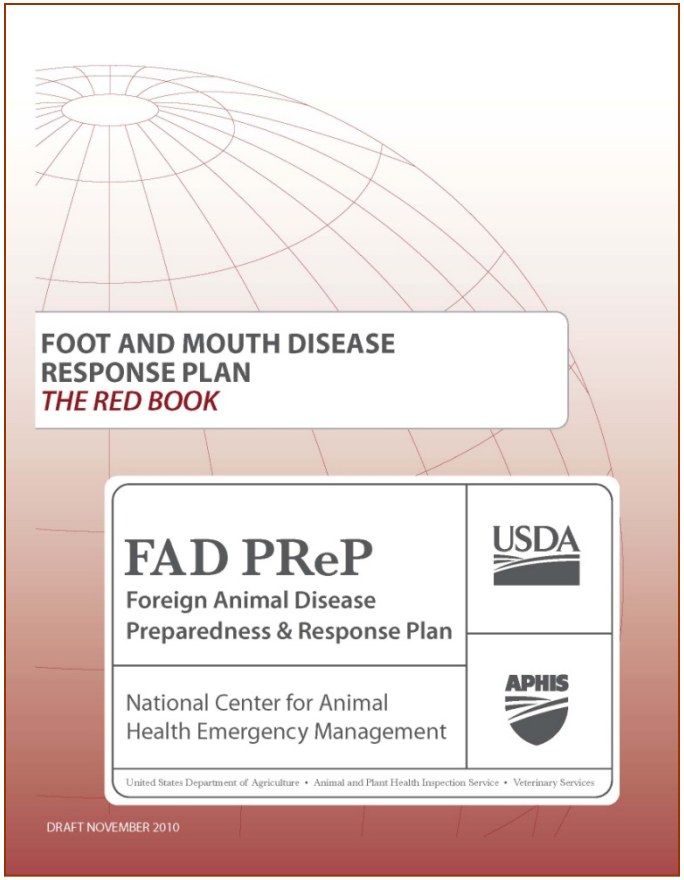
- APHIS' framework for preparedness & response
- Incident coordination group plan
- Stakeholder coordination & collaboration plans & resource guides



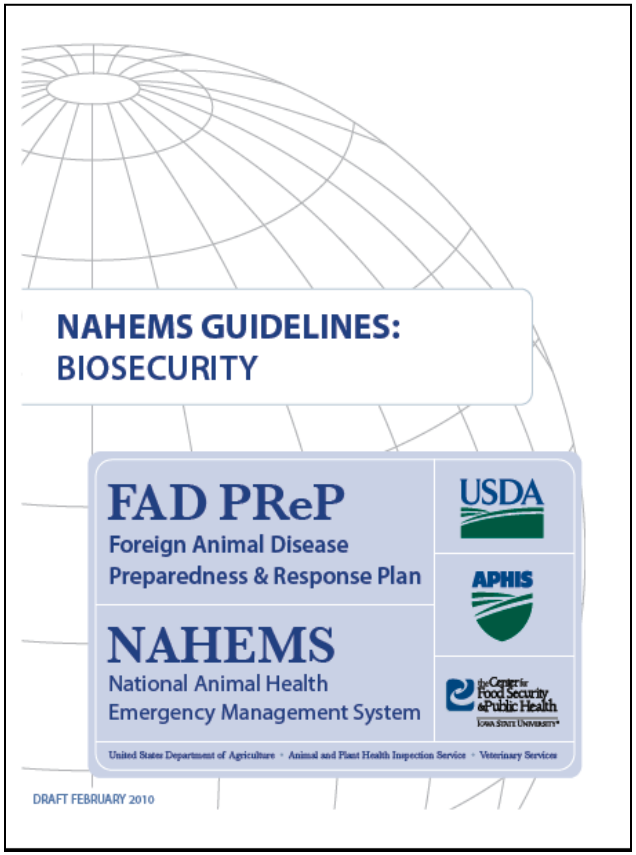
FMD Response Plan

FMD Response Plan – The Redbook

- FMD response goals, strategies, & activities
- Separate SOPs for critical activities



Additional FAD PReP Materials



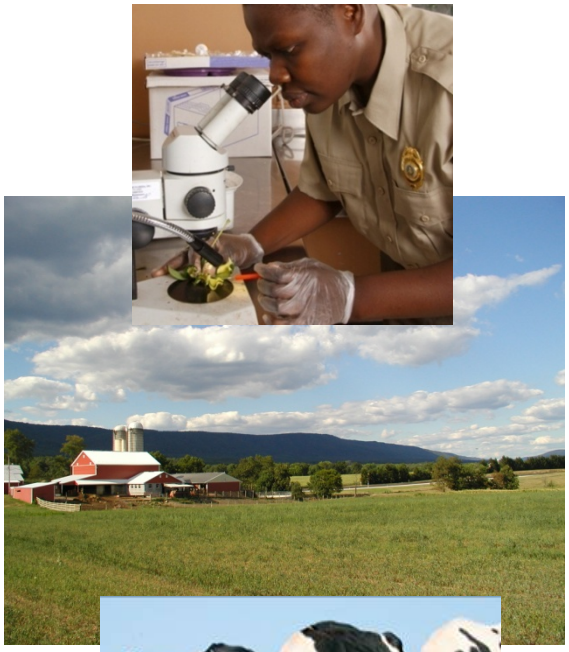
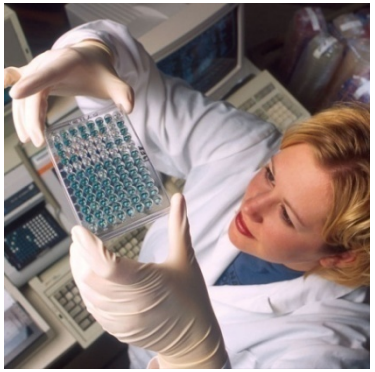
NAHEMS Guidelines

- 3-D
- Biosecurity
- PPE
- Health and Safety
- C&D
- Depopulation & euthanasia
- Vaccination

Additional FAD PReP Materials (cont'd)

Secure Milk Supply Plan
Under Development

SMS SECURE MILK SUPPLY

- Public/private/academic partnership
- Avoid interruptions in milk movement
- Provide a continuous supply of milk & products
- Maintain business continuity through planning
- Other plans in development (Secure Pork Supply Plan)

Questions?