



# Foot and Mouth Disease

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How DHS S&T is Fighting Back



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# What is Foot and Mouth Disease (FMD)?

## A severe, highly contagious viral disease

- The FMD virus causes illness in cows, pigs, sheep, goats, deer, and other animals with divided hooves

## Symptoms:

- Weight loss due to painful tongue and mouth blisters
- Lameness
- Abortion
- Low milk production in dairy cows (80% reduction)
- Heart disease and death (especially in newborns)



## Recovery:

- Takes many months to recover and regain back lost weight
- Animals that recover never produce the same amount of milk as before and have lower conception rates



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# Impact and Consequences of FMD



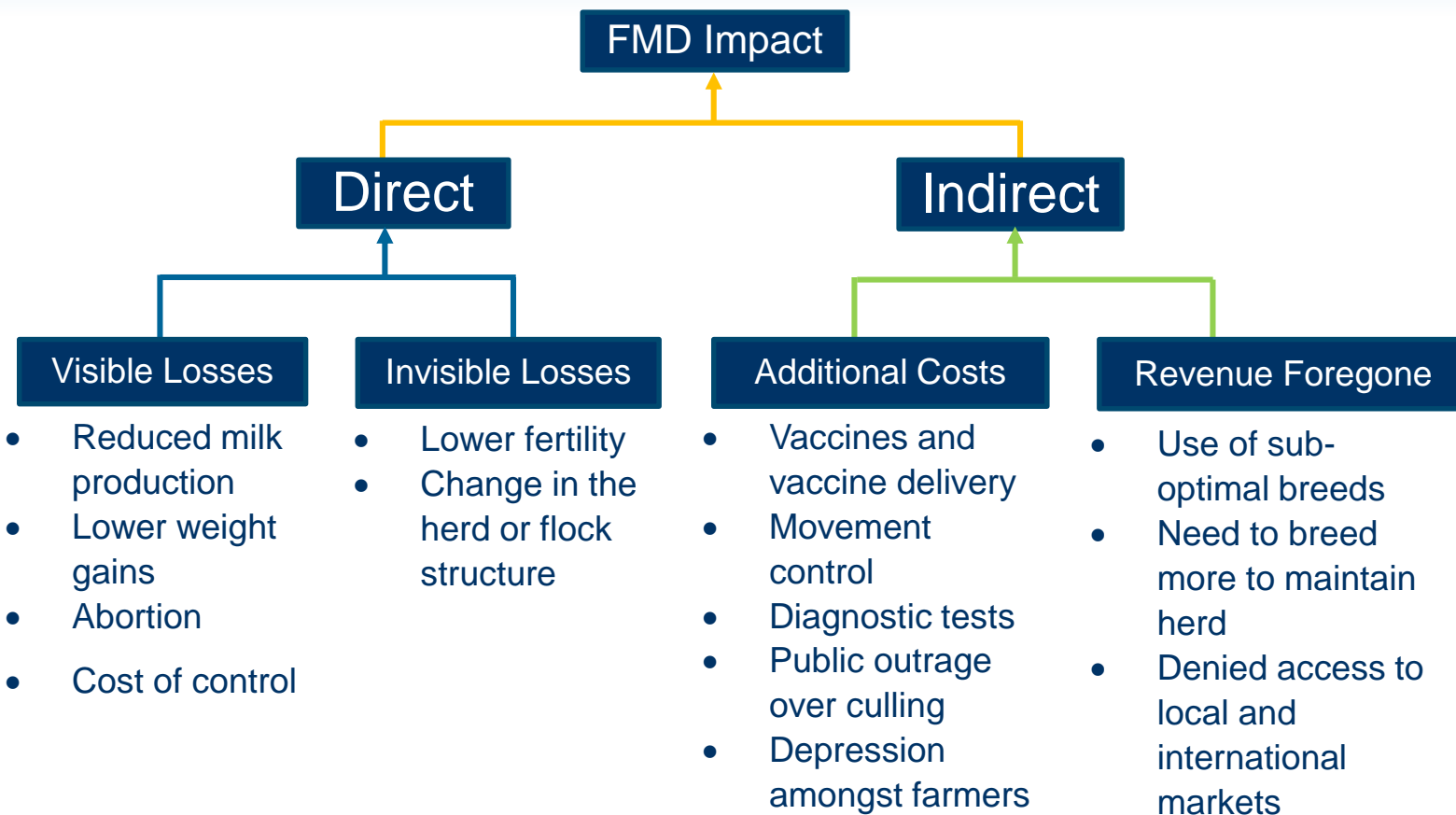
- Foreign animal disease (transboundary disease)
- 24 epidemics that occurred between 1992 and 2003 worldwide
- U.S. agricultural industry worth \$835 billion
  - FMD would severely affect dairy and livestock farmers as well as other affiliated agricultural sectors



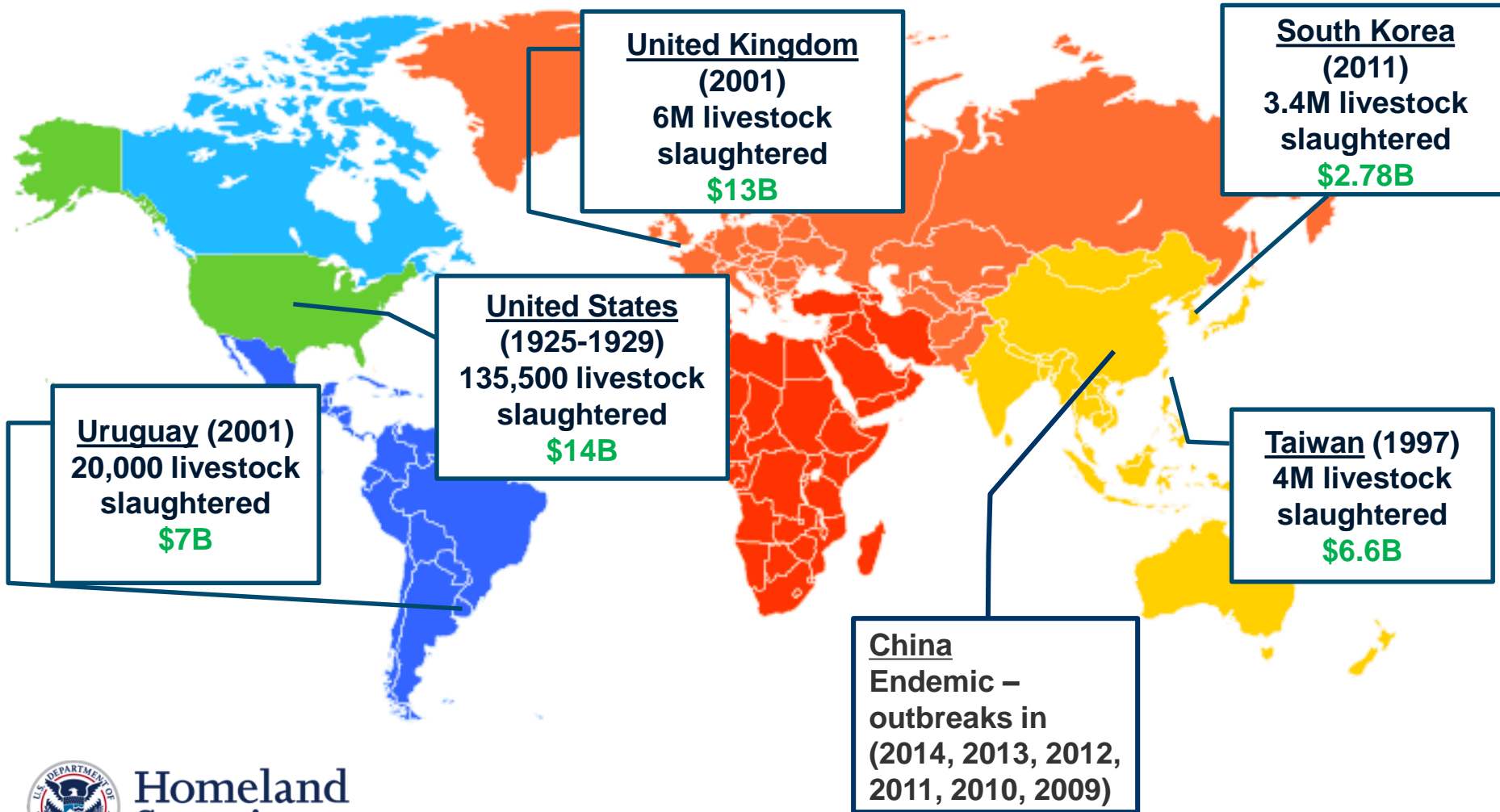
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# Direct and Indirect Impacts



# Economic Impact of FMD



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Values adjusted for 2013 Knight-Jones, T.J.D., and J. Rushton. "The Economic Impacts of Foot and Mouth Disease – What Are They, How Big Are They and Where Do They Occur?" *Preventive Veterinary Medicine* 112.3-4 (2013): 161–173. PMC. Web. 25 July 2016.

ASIA, EUROPE AND SOUTH AMERICA

# EMERGING RISK FACTORS



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# ASIA: INCREASING AGRICULTURAL TRADE

## China

1<sup>st</sup> largest trading partner



Processed fruits and vegetables



Spices

## South Korea

6<sup>th</sup> largest trading partner



Beef and beef products



Chocolate

## Taiwan

10<sup>th</sup> largest trading partner



Nursery plants and cut flowers



Soybeans



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# EUROPE: BREXIT IMPLICATIONS



- United Kingdom is the United States 7<sup>th</sup> largest trading partner
- Increased European risk for Introducing FMD to the United States:
  - In 2011, the European Commission expanded the European Union FMD vaccine bank and the United Kingdom discontinued their domestic vaccine bank
  - EU vaccine bank is located in the United Kingdom
  - What does this mean for Europe and the United States?



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# SOUTH AMERICA: OLD LAWS, FRESH MEAT

- Historically, processed beef, veal, pork and lamb imported from South America
- Recent allowance of fresh beef from Brazil and Argentina
  - USDA – APHIS has current list of countries considered FMD-free
  - FMD is endemic in certain areas in these countries
  - Must meet U.S. import certification requirements. USDA will assess their equivalence with U.S. standards
- Worry and opposition from domestic cattle producers



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# FMD MITIGATION STRATEGIES

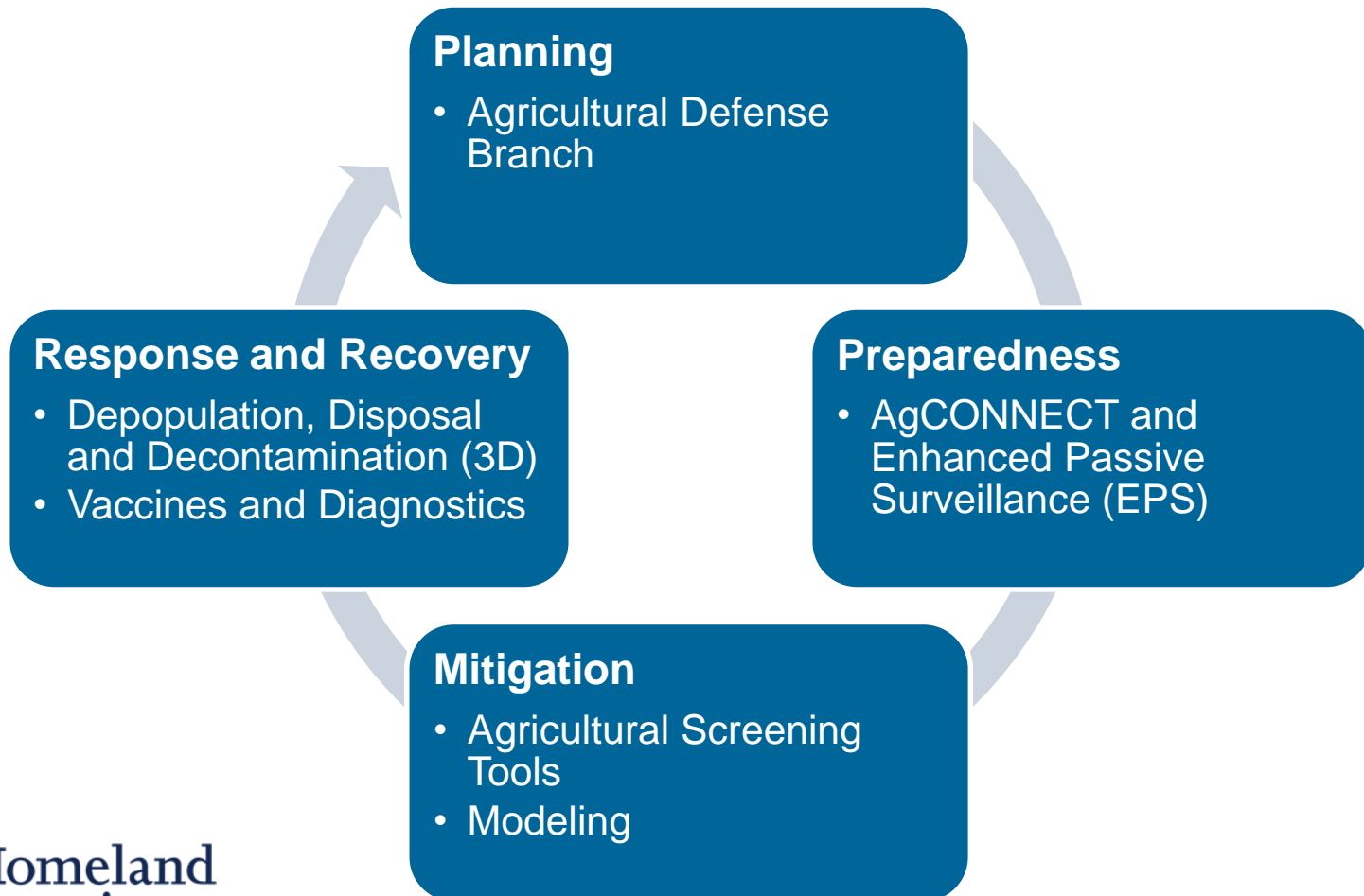


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## Emergency Preparedness Cycle



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# Case Studies

- **Liz Wagstrom** – Chief veterinarian for the National Pork Producers Council
- **Jane Jewett** – Small livestock farmer, member of Minnesota Institute for Sustainable Agriculture
- **Carol Jelinick** – Small goat and sheep farmer
- **Kathy Zeman** – Small, certified organic livestock farmer and leader of Minnesota Farmer’s Market association



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# Feedback on tools and technologies

## AgCONNECT

- Potential to be valuable tool
- Predictability is a problem
- Possibility of giving it livestock farmers as well
- Need more EPS

## 3D

- Ventilation shutdown, incineration, composting
- Wasteful – look for methods that do not require mass depopulation
- Start with science

## Modeling

- Must have mandatory animal identification and reporting of movement

## Vaccines & Diagnostics

- Possibility of stockpile in Europe
- Expensive to maintain
- Preventative measures better

## Agricultural Screening Tools

- Cost?
- Go through all scenarios (i.e. organic farms)



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# Gaps



Poor protocol for screening and determining risk of livestock associated products



Inability of small-scale farms to obtain antibiotics



Poor communication – all players not at the table



Unhealthy breeding environments



Lack of veterinarians



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# Overall Recommendations

## What we are doing

- Coordination between Animal Plant Health Inspection Services, Food Safety Inspection Services and DHS
- Early detection and quick response
- Letting the science lead

## What we could be doing

- Improving the resilience of livestock
- Increased communication efforts
- Prevention of FAD from entering U.S. borders
- Outreach and education for farmers
- More livestock veterinarians
- Constant vigilance



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# QUESTIONS?



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