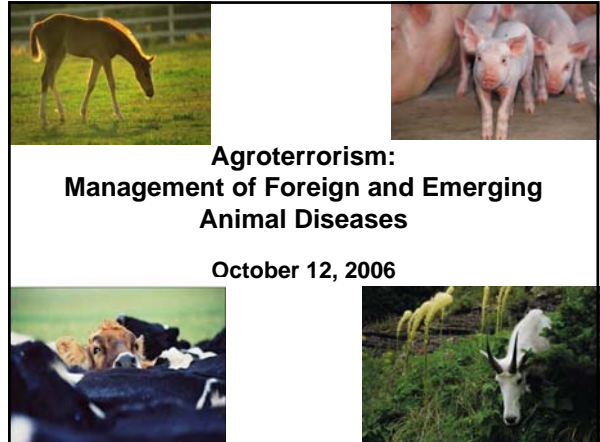




**University at Albany Center for  
Public Health Preparedness  
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This program is co-sponsored by the Center for Rural  
Public Health Preparedness at  
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University System-Health  
Science Center



**Agroterrorism:  
Management of Foreign and Emerging  
Animal Diseases**

**October 12, 2006**

**Speaker**

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for Veterinary Medicine

Texas Cooperative Extension  
National Center for Foreign Animal  
and Zoonotic Disease Defense

Texas A&M University System

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[http://www.asph.org/cphp/CPHP\\_Home.cfm](http://www.asph.org/cphp/CPHP_Home.cfm)

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**Evaluation**

**[UAlbanyCPHP.org/evals](http://UAlbanyCPHP.org/evals)**

**Nursing Contact Hours,  
CME & CHES Credits Available**

<b>Importance of Agriculture</b>
<ul style="list-style-type: none"> <li>• Largest economic sector in US               <ul style="list-style-type: none"> <li>• 2002 US Census of Agriculture                   <ul style="list-style-type: none"> <li>• Total value of livestock, poultry and their products sold = \$105,494,401,000</li> </ul> </li> </ul> </li> <li>• Principle source of food</li> <li>• Vulnerable to animal disease outbreaks</li> <li>• Potential target of bioterrorist</li> </ul>

<b>US Threatened by Potential Occurrences of FEADs</b>
<ul style="list-style-type: none"> <li>• Foreign animal diseases               <ul style="list-style-type: none"> <li>• Not currently present in US</li> <li>• Accidental and intentional risks for entry                   <ul style="list-style-type: none"> <li>• Travelers</li> <li>• Meat products</li> <li>• Garbage</li> <li>• Bioterrorists</li> </ul> </li> </ul> </li> </ul>

<b>US Threatened by Potential Occurrences of FEADs</b>
<p>Cont.</p> <ul style="list-style-type: none"> <li>• Emerging animal diseases               <ul style="list-style-type: none"> <li>• Currently present in US</li> <li>• A new disease or a new form of an old endemic disease</li> <li>• Natural, accidental and intentional risks of emergence</li> </ul> </li> </ul>

<b>US Threatened by Potential Occurrences of FEADs</b>
<ul style="list-style-type: none"> <li>• Zoonotic diseases               <ul style="list-style-type: none"> <li>• Diseases shared by animals and people</li> <li>• Various FEADs</li> <li>• ~200 diseases</li> <li>• ~67% infectious diseases</li> </ul> </li> </ul> <p style="text-align: right;">Cont.</p>

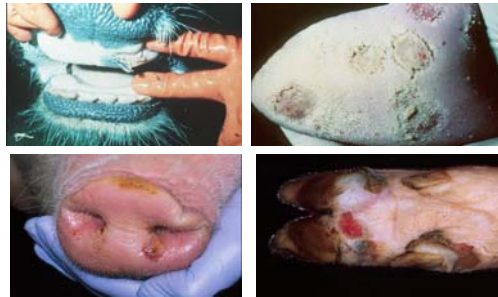
<b>Types of Occurrences of FEADs</b>
<ul style="list-style-type: none"> <li>• Natural</li> <li>• Accidental</li> <li>• Intentional (agroterrorism)</li> </ul>

<b>Devastating Impacts of Animal Disease Outbreaks</b>
<ul style="list-style-type: none"> <li>• Economic impacts</li> <li>• Sociologic impacts</li> <li>• Emotional impacts</li> <li>• Political impacts</li> </ul>

## Foot and Mouth Disease

- Not currently present in the US
  - A reportable disease
- Viral disease
  - Domestic and wild cloven-hoofed livestock
    - Cattle, sheep, goats, swine, deer, llamas
  - Highly contagious, spreads rapidly
  - Blisters and sores in mouth and on feet

## Foot and Mouth Disease



## Foot and Mouth Disease

- Impact on human health
  - People not usually infected
    - Rare cases of mild human disease in persons with direct contact to heavily infected animals
  - People affected economically, emotionally and sociologically
- Reduced risks of entry and spread
  - USDA bans
    - Import bans
    - Meat garbage feeding to swine

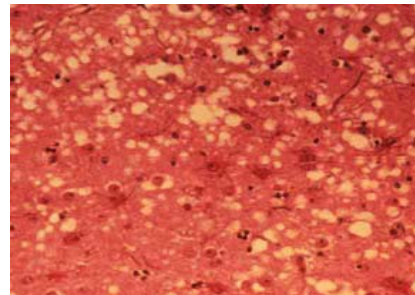
## 'Mad Cow Disease' Bovine Spongiform Encephalopathy (BSE)

- Not currently present in the US
  - A reportable disease
- Prion disease
  - Cattle
  - Brain disease
    - Rabies-like symptom
- Zoonotic disease (Variant Creutzfeldt-Jakob Disease)

## Mad Cow Disease



## Mad Cow: Spongy Holes in Brain Tissue



## Mad Cow Disease

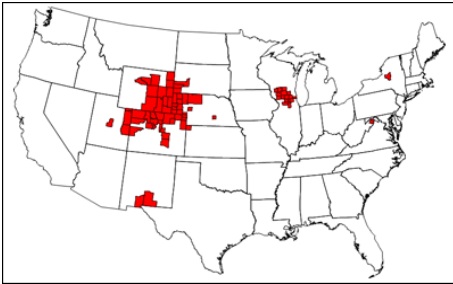
- Not contagious
  - Feeding of contaminated meat and bone meal
- Reduced risks of entry and spread
  - USDA bans
    - Import bans
    - Feed bans
    - Slaughter bans

## Chronic Wasting Disease (CWD) Cervid Spongiform Encephalopathy

- A reportable disease in the US
- Prion disease
  - Deer, elk, moose
  - Brain disease
    - Rabies-like symptoms
    - Chronic emaciation disease
- Management
  - Restricted importation into States
  - Voluntary CWD Monitoring Program
  - Hunter-Killed Testing Program

## Chronic Wasting Disease Among Free-Ranging Cervids by County

United States, July 2006



## Deer and Elk with CWD



## Anthrax

- A reportable disease in the US
- Bacterial disease
  - Domestic and wild livestock
  - Sudden death
- Transmission
  - Ingestion (soil-borne)
- Zoonotic disease
  - Direct contact with infected carcass



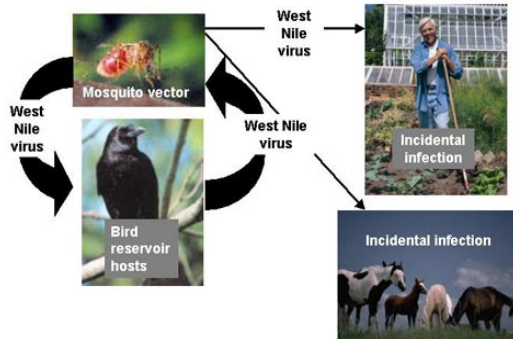
## West Nile Encephalitis

- Reportable disease in the US
- Viral bird disease – >100 species
  - Blue jays, crows, hawks
  - Encephalitis death
- Zoonotic disease

## West Nile Encephalitis

- Transmission
  - Virus in bird blood
  - Mosquito (>75 species) bite bird
  - Mosquito bite mammal – virus not in blood (dead end)
    - Horse – rabies symptoms
    - People – zoonotic disease

### West Nile Virus Transmission Cycle



## Bovine Tuberculosis (TB)

- A reportable disease in the US
- Bacterial disease
  - Cattle and buffalo
  - Chronic emaciation, respiratory distress
  - Tumor abscesses of lungs and lymph nodes
- Zoonotic disease
  - Direct contact with infected cattle

## Johne's Disease Bovine Paratuberculosis

- A reportable disease in the US
- Bacterial disease
  - Ruminants
    - Most commonly seen in cattle
  - Chronic emaciation (diarrhea, weight loss)
- Zoonotic Disease??
  - 3 – 75% of patients with Crohn's disease test positive for the same bacteria that causes Johne's Disease
    - No definitive epidemiological link

### Johne's Disease



### Agroterrorism

“The use of biological (to include toxins), chemical, or radiological agents against some component of agriculture in such a way as to adversely impact the agriculture industry or any component thereof, the economy, or the consuming public.”

-The Center for Food Security and Public Health, Iowa State University

### Agroterrorism?

- Does not require sophisticated boundaries
- Highly contagious
- Easily spread on own
- Local outbreak can have national and international consequences

### National Center for Foreign Animal and Zoonotic Disease Defense (FAZD Center)

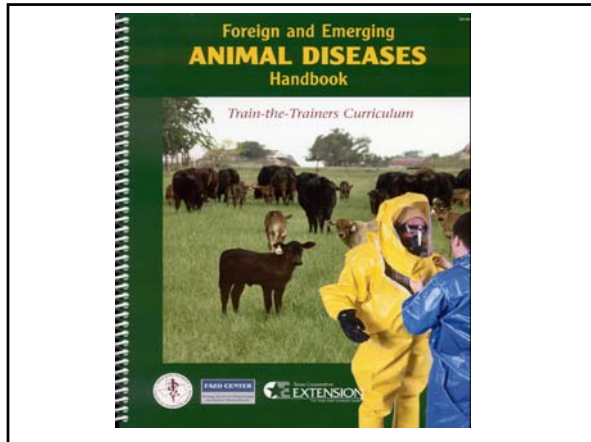
- US Department of Homeland Security Center of Excellence
- Collaborating partners
  - Texas A&M University System
  - University of California, Davis
  - University of Texas Medical Branch
  - University of Southern California

### National Center for Foreign and Zoonotic Disease Defense

- USDHS priority areas
  - Prevention
  - Detection
  - Response
  - Recovery
  - Risk communication/education

### National Center for Foreign Animal and Zoonotic Disease Defense

- FAZD CENTER components
  - Biological systems
  - Information modeling and management
  - Education
  - Outreach (training and communication)



### First Line of Defense in Emergency Management of FEADs

- Education of first defenders
  - Animal owners
  - County Extension agents
  - Private veterinarians

### Key Aspects to Emergency Management of FEADs

- Biosecurity measures
- Early detection
  - Unusual signs
- Rapid reporting
- Rapid response
  - Prompt quarantine
  - Quick diagnosis
  - Depopulation
- Surveillance
  - National Animal Identification System (NAIS)

### Key Aspects to Emergency Management of FEADs

- Regulatory agencies and animal industries must work together
  - Federal (USDA, DHS, DOI, HHS)
  - State
    - Department of Animal Health
    - Department of Health
  - Local
    - Animal owners
    - Veterinarians
    - Extension agents
    - General public
    - County Department of Health
    - County Emergency Management Offices

### Biosecurity Measures

- Wash hands
- Wash/disinfect boots, trailers, tires, equipment
- Proper garbage disposal
- Lock gates
- Stranger alert
- International visitor – >48 hours wait
- Purchased livestock – >2 weeks isolation, tests (preferably 6-8 wks)
- Routine observations

### Summary

- Understand the difference between foreign and emerging animal diseases.
- Understand the potential threats of these diseases to the health and welfare of animal and human populations.
- Understand the roles of agencies and public in minimizing the threats of these diseases.

## Available Resources

- Texas Cooperative Extension – Texas A&M University  
<http://extensionvetmed.tamu.edu>
- National Center for Foreign Animal and Zoonotic Disease Defense  
<http://fazd.tamu.edu>
- USDA Animal and Plant Health Inspection Service  
<http://www.aphis.usda.gov/>
- NYS Department of Agriculture & Markets  
<http://www.agmkt.state.ny.us/AI/AIHome.html>
- The Center for Food Security and Public Health  
<http://www.cfsph.iastate.edu/>

## Contact Information

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## Evaluation

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**November 9, 2006**

### **Mass Evacuations to Rural Communities**

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**Donald W. Rowe, PhD, Public Health Liason,**  
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