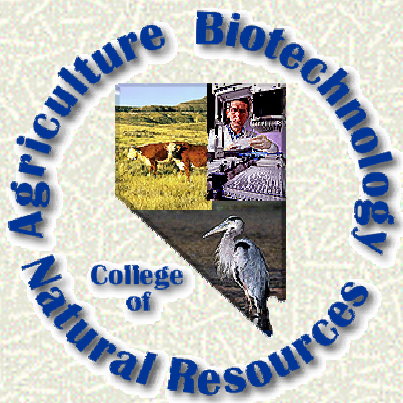


Biological Terrorism Against Animal Populations

Bill Kvasnicka, DVM
Extension Veterinarian
University of Nevada, Reno

kwas-nis-ka



Bioterrorism

- Use of microorganisms or toxins to produce death or disease in humans, **animals**, or plants
 - To create death or disability and **to disrupt economic stability**
 - To generate fear and intimidate governments or societies
 - Bioterrorism: Employed in the pursuit of political, religious, or ideological goals
-

Bioterrorism

■ Traditional thinking

- Terrorists will focus on humans as primary target
- Creates human illness, death, and panic

■ Current thinking

- Terrorists focus most likely to be on our economic and political weakness
 - Hence agricultural bioterrorism becomes more likely
-

US Agricultural Economy

- 13.3% of the US GDP from food & fiber
 - One Trillion dollars in economic activity
 - \$140 billion from export markets
 - 24.3 million work in some phase of agriculture (3.4 million in farming & ranching)
 - Livestock sales
 - Cattle \$40 billion
 - Swine \$3 billion
 - Poultry \$22 billion
-

Goals of Agricultural Bioterrorism

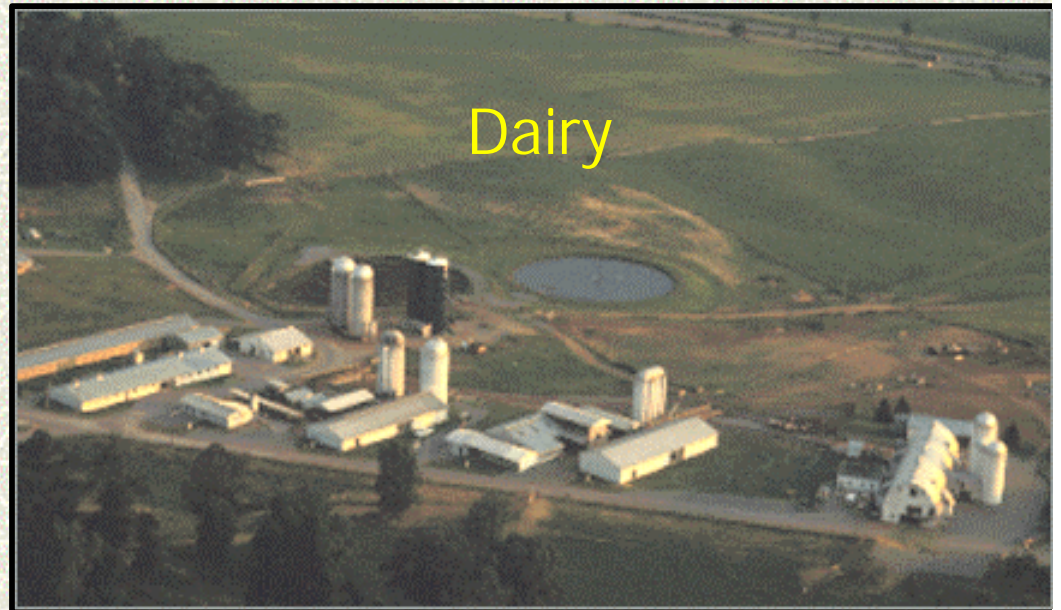
- Initiating food shortages
 - Disrupt Agri-business and related industries
 - Farm suppliers
 - Financial structure
 - Transportation
 - Grocery stores
 - Restaurants
 - Equipment distributors
 - Small town infrastructure
 - Several potential agents have zoonotic consequences
-

Why Is The Livestock Industry At Risk?

- Trend toward intensive production systems and vertical integration
 - Livestock concentration
 - Homogenous populations
 - US livestock lack resistance to potential agents
 - Livestock marketing concentration points
 - Rapid livestock transportation system
 - Lack of biosecurity programs
-



Swine



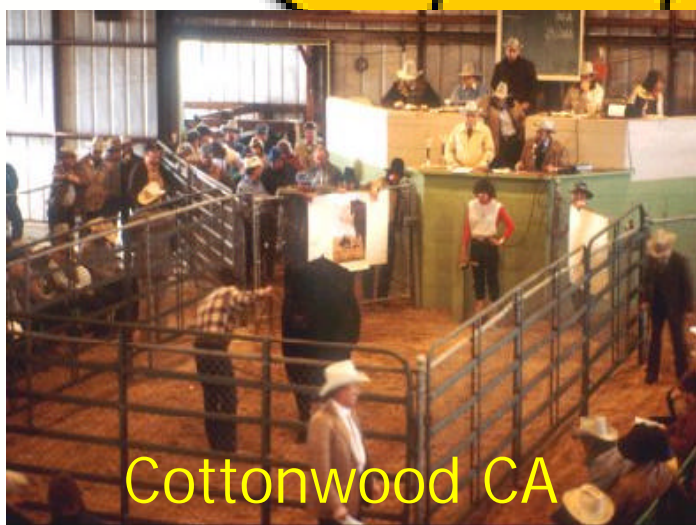
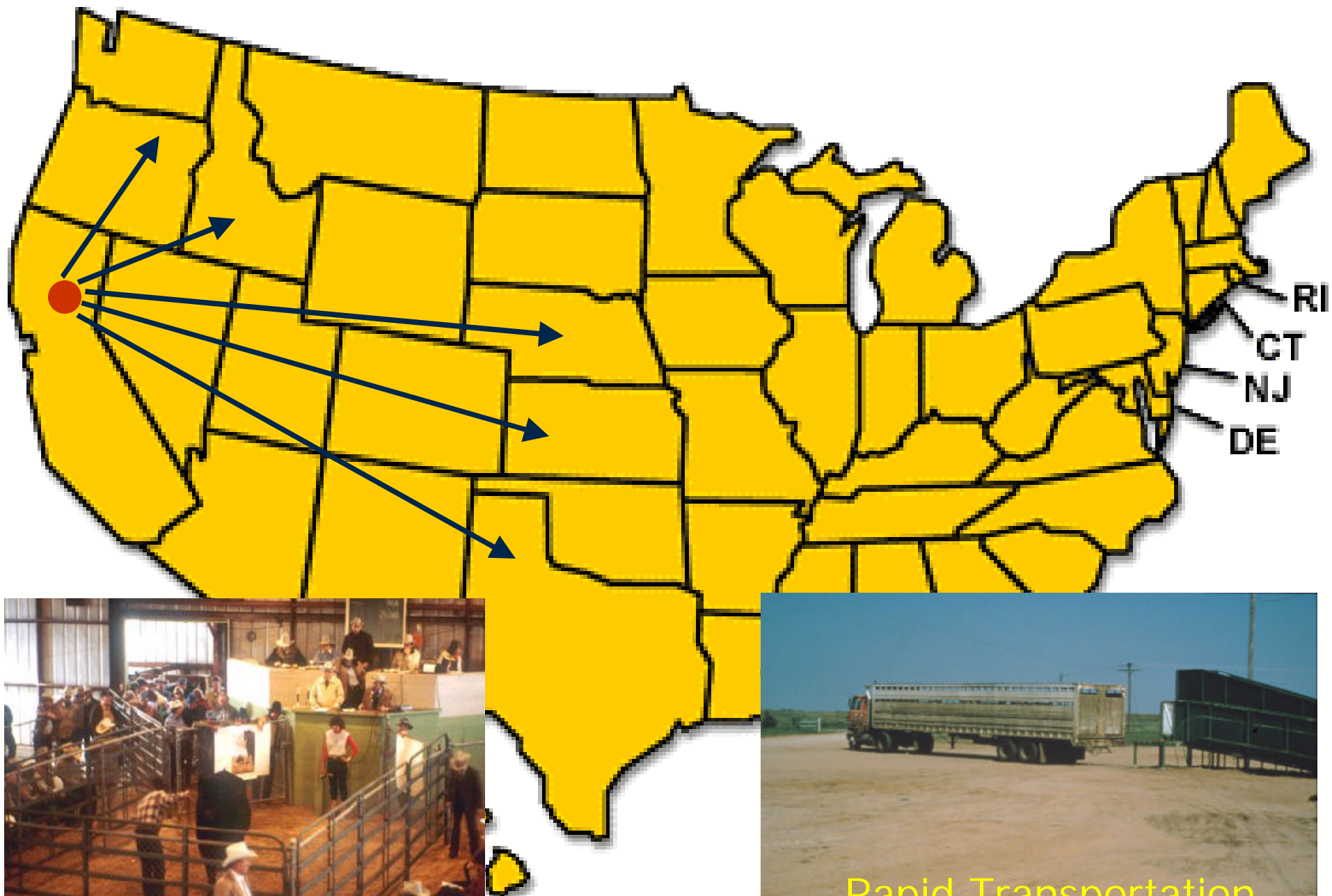
Dairy



Feedlots



Poultry
Industry



Livestock Biological Terrorism

Major losses

- Directly from effects of disease
 - Related losses are catastrophic
 - Cost & effort to contain and clean up
 - Prevention of further spread
 - Biosecurity, vaccination?
 - Efforts needed to establish previous level of disease control
 - Eradication
 - Loss of export market
-

Livestock Biological Terrorism

Secondary Considerations

- Political, social, and economic repercussions
- Cost of diagnosis and surveillance
- Cost of depopulation and indemnity
- Cost of cleaning and disinfection
- Cost of lost wages to livestock industry and allied industries
- Zoonotic disease impact on human population*

****See Zoonotic Disease Handout***

Livestock Biological Terrorism

Livestock Bioterrorism is about
killing animals but more
importantly it is about crippling
an economy

Effective Agents

- Easy to acquire
 - Highly contagious
 - Dissemination not difficult
 - Virulent but extended incubation period
 - Survive well in the environment
 - Target free of the disease causing agent
-

Special Features of Livestock Attack

- Agents not hazardous to terrorists
 - Lower moral barrier
 - Few technical obstacles to weaponization
 - Low biosecurity level of targets
 - Maximum effect may not require many cases
 - Point source to mimic natural introduction
 - Multiple point source outbreaks possible without entering country
-

Agents That Fulfill Criteria*

Animal Disease Agents Lacking Zoonotic Potential	Animal Disease Agents With Zoonotic Potential
<ul style="list-style-type: none">■Foot and Mouth Disease■Classical Hog Cholera■African Swine Fever■Rinderpest■Newcastle■Fowl Plague■Avian Influenza	<ul style="list-style-type: none">■Anthrax■Brucellosis■Plague■Q Fever■Glanders■Psittacosis■Tularemia■EE, WE, VE, Encephalitis■Escherichia coli 0157:H7■Cryptosporidiosis■Hantaviruses

**See handout for epidemiological details of each disease*





US Livestock Biosecurity

- Primary goal: **Prevent entry of pathogen**
 - When prevention fails
 - Early detection
 - Rapid and accurate diagnosis
 - Effective epidemiological investigation
 - Intervention
 - Prevent spread
 - Control infection
 - Initiate recovery phase
-

Livestock Bioterrorism Response

- USDA lead agency
 - Quarantine and port inspection stations
 - Diagnostic laboratories
 - FSIS and ARS
 - Foreign Animal Disease Diagnosticians
 - Regional Emergency Animal Disease Eradication Organization
 - State Department of Agriculture
 - Law enforcement
 - Fire departments
 - Cooperative Extension
-

Livestock Bioterrorism Response

Reaction depends on rapid detection

- Private veterinarians

- They are at the farm level-first line of defense

- Talk to owners

- See the animals

- Collect and submit samples

- Sale barn animal health inspectors

- Issue health certificates

- Corporate and private enterprise livestock owners

Livestock Bioterrorism Response

University Obligations

- Research
 - Teaching
 - Extension
 - Faculty development (emergency preparedness training)
 - Continuing education
 - Veterinarians
 - Ranchers
 - Commodity organizations
 - Consumer education
 - Fact sheets
 - Web based education
-

Web Page (weekly posting)

<http://www.ag.unr.edu/AHB/>



Home



Articles



Archives



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Discussion



General



Comments

Animal Health Beat



School of Veterinary Medicine

University of Nevada

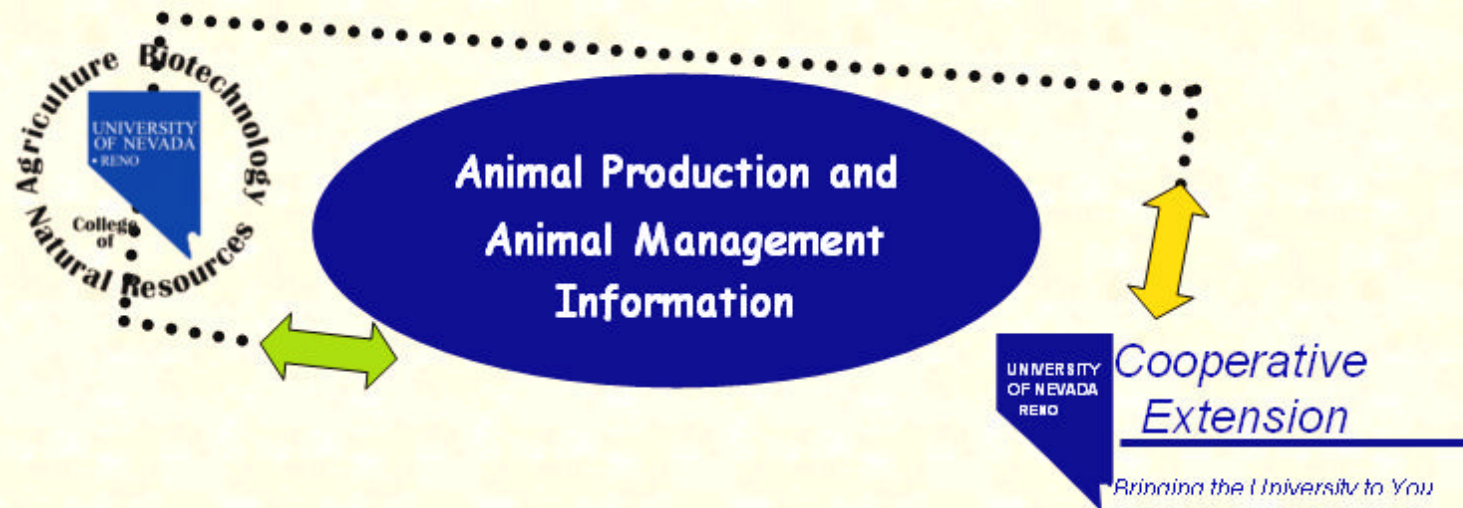
ANIMAL HEALTH BEAT is an outreach service of the University of Nevada, Reno, College of Agriculture, Biotechnology, and Natural Resources.

PURPOSE:

Providing abstracts of current veterinary literature for veterinary practitioners, veterinary technicians, Cooperative Extension faculty, and people concerned about the care and welfare of animals.

WEB FORMAT

Faculty Development



Faculty Development News

Food Safety

Perceptions of Foodborne Illness Do you know the common causes of foodborne disease?

Water Quality

Pets Are Prime Suspects In Urban Water Pollution Pet owners can contribute to the quality of water in their community.

Livestock Bioterrorism Response

University Obstacles

- Overwhelming nature of the threat
 - Planning for an event that has not occurred before
 - Prioritizing of programs
 - Research
 - Teaching
 - Extension (Extension should take lead role)
 - Vacant extension veterinary positions
-

We must accept the
reality that we will not be
able to prevent every act
of livestock biological
terrorism

*We can, however, learn
to minimize the damage*