Transboundary or Emerging Disease Event: We are Here to Help

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Goals

• Awareness that animal biosecurity is addressed at the national level for transboundary diseases
  – Who’s who during an outbreak

• Biosafety professionals have valuable resources that may be requested during an outbreak
Economic Impacts of Foot and Mouth Disease

- One of the most contagious diseases of livestock.
- Projected cumulative loses for 10 years--$199.8 Billion (Hayes, 2011)
  - Beef --71 billion
  - Pork --57 billion
  - Corn --44 billion
  - Soybeans --25 billion
  - Poultry --1 billion
  - Wheat --1.8 billion
Secure Food Supply Plans

- Highly Pathogenic Avian Influenza
  - Secure Egg Supply
  - Secure Turkey Supply
  - Secure Broiler Supply
- FMD
  - Secure Milk Supply
  - Secure Beef Supply
- FMD, Classical Swine Fever, African Swine Fever
  - Secure Pork Supply

Goal of Secure Food Supply Plans

- Detect, control, and contain foreign animal disease as quickly as possible
- Avoid interruptions in animal/animal product movement to commercial processing from farms with no evidence of infection during FAD event
- Provide continuous supply of safe and wholesome food to consumers
- Maintain business continuity
Control Area

- Established around each infected premises
- SFSP work toward enabling movement of animals or products from flocks/herds with no evidence of infection in a Control Area
  - yellow circle; radius 6.2 miles (10 K) or 120 sq miles (310 K)
  - center of red circle is an infected location

Partnership

Industry

- Provide **input** and allows them to know how they can continue to **provide** food for consumers

Academia

- **Draft** documents (Iowa State U, U Minnesota, Kansas State U, U California at Davis)

State & Federal

- **Review** the plans and **provide** input to help control foreign animal disease
Secure Food Supply Plans

• Only for guidance
• Pre-outbreak
• Responsible Regulatory Officials will make the decisions based on the events during the outbreak

10 Components of Secure Food Supply Plans

1. Biosecurity Manager & Written Plan
   – Does the site have a biosecurity manager & written plan?
2. Biosecurity Training
3. Protecting the Animals
   – Is the site entry restricted? Where is the perimeter buffer area? Where is the cleaning & disinfection area?
Components of Secure Food Supply Plans (continued)

4. Vehicles and Equipment
   – Are the vehicles and equipment clean before entering perimeter buffer areas?

5. Personnel
   – Everyone crossing access points has completed log book?

Components of Secure Food Supply Plans (continued)

6. Animal and Semen Movement
   – Animals and semen originate from sources with documented biosecurity practices?

7. Carcass Disposal (prevent attraction to wildlife)

8. Manure Management
   – Stored and removed in a manner that prevents exposure to susceptible animals?
Components of Secure Food Supply Plans (continued)

9. Rodent and Fly Control
   – Wildlife and other animals are prevented from entering facilities?

10. Feed
    – Grain and feed are delivered and stored in manner that minimizes contamination?

Biosecurity for Novel Diseases

• Producers implement level of biosecurity needed to protect from endemic diseases
  – There is herd immunity to most endemic diseases
  – Low levels of pathogen shedding and high levels of resistance

• For newly introduced highly contagious disease (FMD, CSF, ASF)
  – No herd immunity
  – High levels of pathogen shedding and low levels of resistance

Routine biosecurity practices for newly introduced diseases is not enough
2014-2015: Timeline

Where Bird Flu Has Arisen
There are 15 states with confirmed cases of highly pathogenic avian influenza in domesticated birds since December. The numbers below are the total number of birds, more than 33 million, in affected flocks.

- Washington: 6,710
- Oregon: 200
- Idaho: 30
- Montana: 40
- North Dakota: 111,500
- Minnesota*: 4,389,460
- Wisconsin*: 1,833,633
- Iowa: 34,816,500
- Nebraska: 1,000,000
- Kansas: 10
- Missouri: 29,470
- Arkansas: 40,020
- California: 247,300
- South Dakota: 426,500
- TBD

*Number of birds affected not available for some outbreaks.
† Cases confirmed in captive wild birds.

Source: United States Department of Agriculture

THE NEW YORK TIMES / LNP

TIMELINE OF EVENTS IN THE U.S.

DEC 2014
- USDA/APHIS first reported the presence of highly pathogenic avian influenza (HPAI) H5N2 and H7N9 in wild birds in a few states.

JAN 2015
- USDA/APHIS first reported the presence of highly pathogenic avian influenza (HPAI) H7N9 in a wild turkey in Idaho.

FEB 2015
- Minnesota declared a state of emergency.

MAR 2015
- North Dakota: 8/16
- Kansas: 3/15
- Minnesota: 3/27
- Montana: 3/31
- Wisconsin declared a state of emergency.

APR 2015
- 21 APR 2015: Wisconsin declared a state of emergency.

MAY 2015
- 01 MAY 2015: Iowa declared a state of emergency.

JUN 2015
- 14 MAY 2015: Nebraska declared a state of emergency.

Sources: The United States Department of Agriculture/Animal and Plant Health Inspection Service (USDA/APHIS)

First detection of avian flu
Iowa State University helps

College of Veterinary Medicine

596 DVM students

Center for Food Security and Public Health

Respirator training

- Normal
  - 2 trainings a month: Initial and Refresher
  - Researchers, facilities staff
  - Ames Fire and Police Departments

- 2015 Avian influenza outbreak created additional trainings
  - 4 in April
  - 7 in May
  - 7 in June
  - 1 in September

9
Additional Respirator training

- 16.5 hrs dedicated to training
- 66 individuals were trained
- ~ 30 more than 2014

Source: https://pixnio.com/science/biology-pictures/scientists-working-on-avian-influenza-surveillance-program
2014-2015 High Path Avian Influenza

• Loss of > 50 million chickens and turkeys due to HPAI (highest ever; 1924-1983 loss of 17 million birds)
  – 12% of U.S. table-egg laying population
  – 8% turkeys used for meat


Conclusions

• Be aware of agricultural commodities in your geographic area
  – These diseases may not be zoonotic but they will challenge our public health system

• Know that biosecurity does not occur only at the laboratory/animal room level

• Partner with Extension Service or industries that may need your assistance during an outbreak

• Look for opportunities and be available to assist
Thank you!

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