Biosecurity Overview

- Series of management practices
  - Prevent introduction
    - Keep disease agents out of animal populations where they are not present
  - Prevent further spread
    - From infected to uninfected groups
    - By animals, personnel, equipment
    - To other animals, premises, responders

ICS: Biosecurity Group

- Biosecurity Group Supervisor
  - Ensure appropriate biosecurity measures
  - Develops site-specific biosecurity plan
    - With the Safety Officer and Incident Commander
- Biosecurity Team Members
  - Front line assistance in containing and controlling disease outbreak

Basic Biosecurity Elements

- Awareness of importance
- Understand disease transmission
- Biosecurity measures
  - Movement control or restriction
    - People, animals, vehicles, equipment
  - Personal protective equipment
  - Isolation of infected and suspected animals
  - Proper C&D procedures

Routes of Transmission

- Direct
  - Physical contact
  - Biting, nose-to-nose, open wounds
- Fomites
  - Inanimate object
  - Equipment, clothing, boots, vehicles
- Aerosol
  - Inhalation of droplets with pathogens

- Oral/Ingestion
  - Pathogens consumed
  - Contaminated feed or water, licking/chewing on contaminated object
- Vectors
  - Insects transmit pathogens
    - Mosquitoes, fleas, ticks
- Zoonotic
  - Pathogens spread from animals to humans
Biosecurity and Routes

<table>
<thead>
<tr>
<th>Route of Transmission</th>
<th>Possible Biosecurity Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Contact</td>
<td>Isolation of infected animals; personal protective equipment</td>
</tr>
<tr>
<td>Fomites</td>
<td>Cleaning and disinfection procedures; personal protective equipment</td>
</tr>
<tr>
<td>Aerosol</td>
<td>Isolation of infected animals; personal protective equipment</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Cleaning and disinfection procedures</td>
</tr>
<tr>
<td>Vectors (e.g., insects)</td>
<td>Pest management procedures</td>
</tr>
</tbody>
</table>

BIOSECURITY MEASURES

- Movement control and restriction
- Personal protective equipment
- Cleaning and disinfection
- Isolation
- Vector control

Movement Control: Animals

- Stop movements
- Movement restrictions
- Animals should not be moved if:
  - From a confirmed or suspected premises
  - Contact with infected or suspect animal
  - Susceptible animal near infected or suspected premises
  - Transport vehicles do not meet biosecurity standards

Movement Control: Personnel

- Restrict access
- Control movement on and off premises
- Log book for those allowed to access
- Post signs at premises boundary

Movement Control: Vehicles

- Potential fomite transfer
- Park in designated areas away from animal locations
- Clean and disinfect before entering and exiting premises

Biosecurity Work Zones
Personal Protective Equipment

- Two functions
  - Prevent further spread
  - Protect responders
- Don PPE prior to entry into area
  - Disposable Outerwear
    - Tyvek® coveralls, gloves, boot covers, masks
  - Reusable Outerwear
    - Cloth coveralls, rubber boots, goggles

Personnel Biosecurity

- Once on infected premises, do not return to Cold Zone until
  - PPE doffed
  - Disposable items left on premises or placed in designated area
  - Clean/disinfect reusable items on site
- WASH HANDS!

Cleaning and Disinfection Procedure

- Cleaning
  - Remove all organic matter
    - Manure, dirt, feed
  - Wash and rinse
- Disinfection
  - Use proper concentration
  - Allow proper contact time
  - Read safety precautions
  - Wear appropriate PPE

Isolation

- Infected or exposed animals should be housed in separate areas
- Proper carcass disposal of euthanized or dead animals

Wildlife Control

- Wildlife can carry diseases on and off the property
- Keep animals isolated from wildlife contact
- Ensure boundary measures are checked regularly and maintained
- Store food in a way that does not attract wildlife

Vector Control

- Source reduction
  - Prevent egg laying
  - Minimizing long vegetation (e.g., mowing)
- Control adults
  - Insecticides
  - Spraying, fogging, baiting
- Minimize animal interaction
  - Screens on buildings
  - Animal treatment

Multi-State Partnership for Security in Agriculture;
Center of Food Security and Public Health

June 2010
Resources

- USDA Foreign Animal Disease Preparedness (FAD PReP) Guidelines: Biosecurity

Acknowledgments

Development of this presentation was by the Center for Food Security and Public Health at Iowa State University through funding from the Multi-State Partnership for Security in Agriculture

Authors: Sarah Viera, MPH; Glenda Dvorak, DVM, MPH, DACVPM