Animal Health Emergencies

Animal Issues in Disasters: Unit 3

Unit Objectives

Understand:

1. Basics of disease response
2. Potential impact
   - Importance of animal agriculture
   - Risk factors
3. Why response differs
   - Many factors dictate different response
4. Local support to response

Disease Monitoring

Reportable Diseases
- Required to be reported to BOAH by state law

Foreign Animal Diseases
- Not found in United States

Emerging Diseases
- New, previously undiagnosed disease, or
- New emergence of old disease

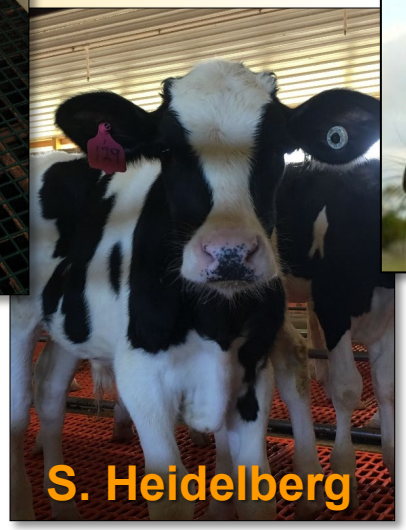
Zoonotic Diseases
- Transmissible between humans and animals

Zoonotic Diseases

- Approximately 1400 known human pathogens
  - 62% are zoonotic
- 75% of new pathogens predicted to derive from animals
- *Examples:*
  - SARS, AIDS, Lyme disease, West Nile virus, Nipah virus, some Influenza, Ebola, Rabies, Monkey pox

BOAH

Zoonotic Investigations in Indiana



Animal Health Emergency

A disease situation (real or threatened) as determined by the Board of Animal Health that affects the economy, food safety, public health, or animal health of the state of Indiana and its citizens.

Animal Health Emergencies, Unit 3

Potential Impact

Risk: Never Greater

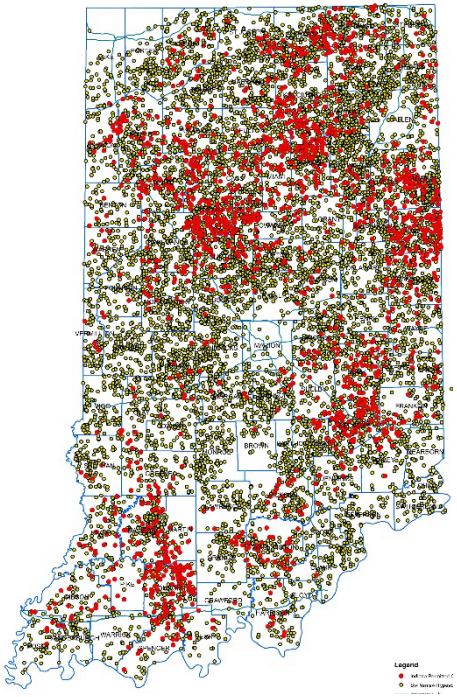
Indiana ranks #8 in farm exports: $6.6 billion

- 38th in land area

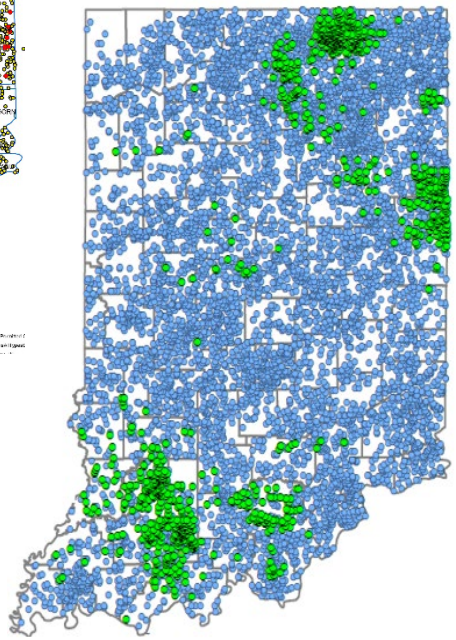
(Source: United States Department of Agriculture, National Agriculture Statistics Service)

IN: Animal Agriculture

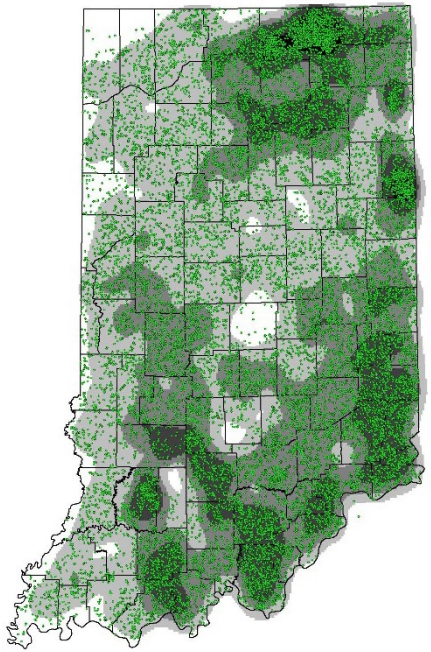
Distribution of major animal ag species:



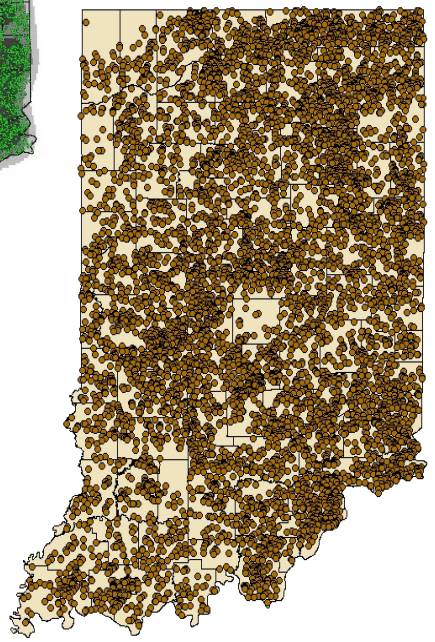
Swine



Poultry



Cattle

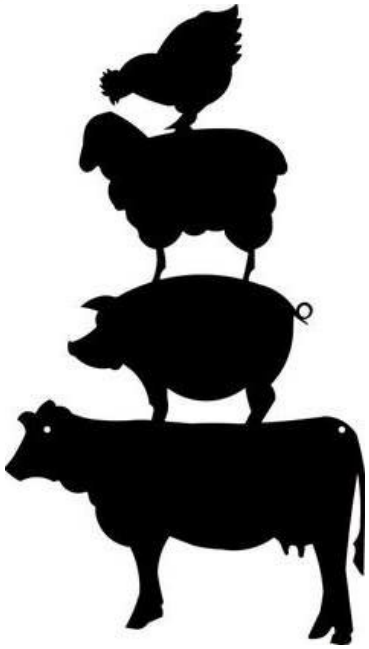


Goats

IN: Animal Agriculture

Top ranking in U.S. for:

- 1st in Ducks
- 1st in Veal
- 2nd in Laying Hens & Eggs
- 3rd in Pounds of Turkey
- 5th in Hogs



Still growing!

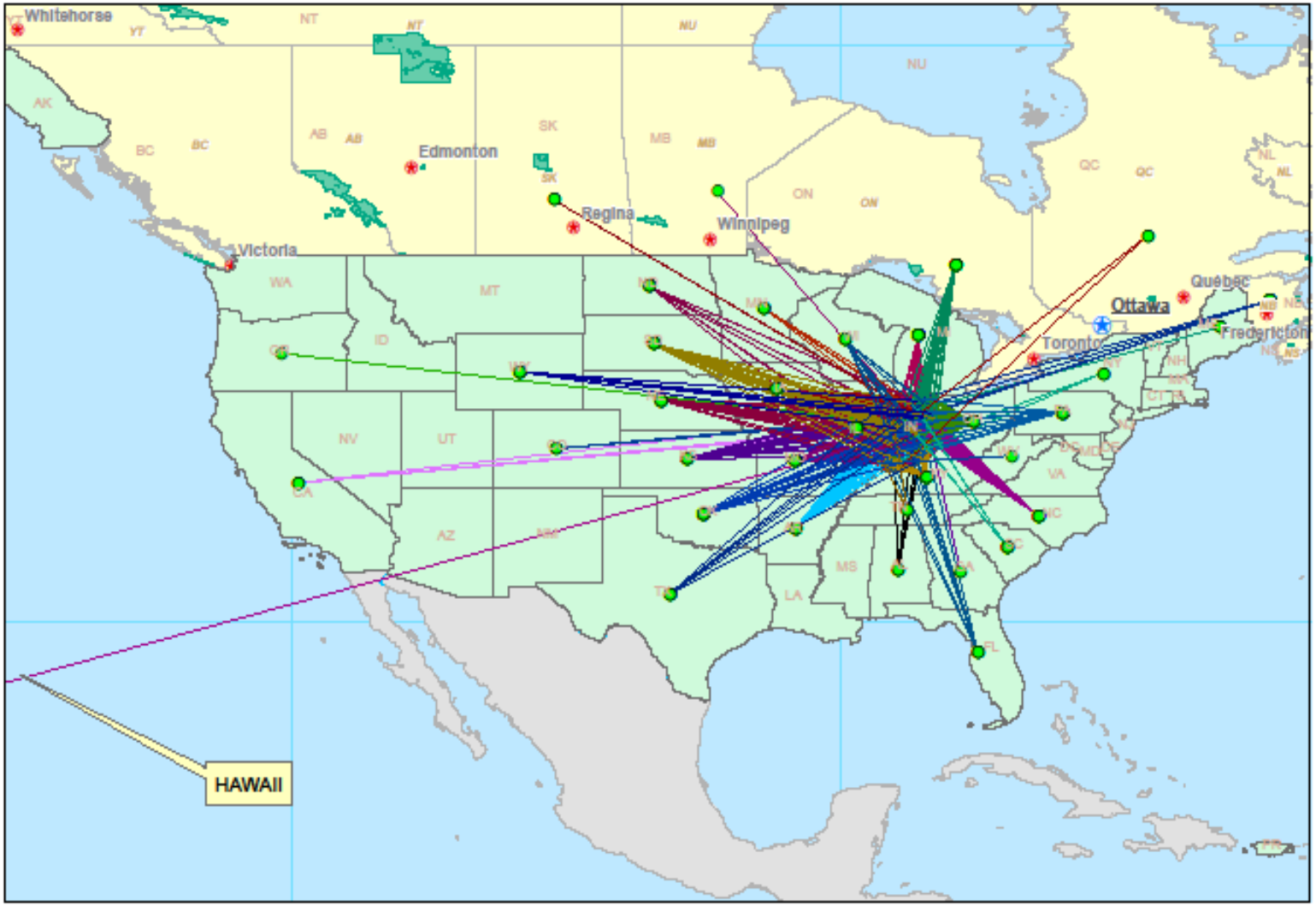
- Continued expansion: hogs, dairy, poultry

(Source: United States Department of Agriculture, National Agriculture Statistics Service)

IN: Animal Agriculture

2011 Indiana Swine Imports

2,806,600 Swine from 30 States and 5 Canadian Provinces



Animal Health Emergencies, Unit 3

Unlike Other Disasters

Animal Health Emergencies

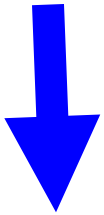
Traditional Response

State

Local

Animal Health Emergencies

State



Local

Factors Important to Response

- Disease specifics
- Protective measures
- Time between infection and diagnosis
- Susceptible populations
- Animal density
- Source of disease

Disease Specifics

- Type of agent
  - Virus, bacteria, etc.
- Mode of transmission
  - Direct contact, Airborne, Other?
  - Vectors
- Consequences
  - Treatable or deadly?
  - Food safety threat?

Protective Measures Needed

Pathogen elimination

- How contagious?
- Survivability in environment, climate
- Cleaning & disinfection (C&D)

Personal protective equipment

Disposal

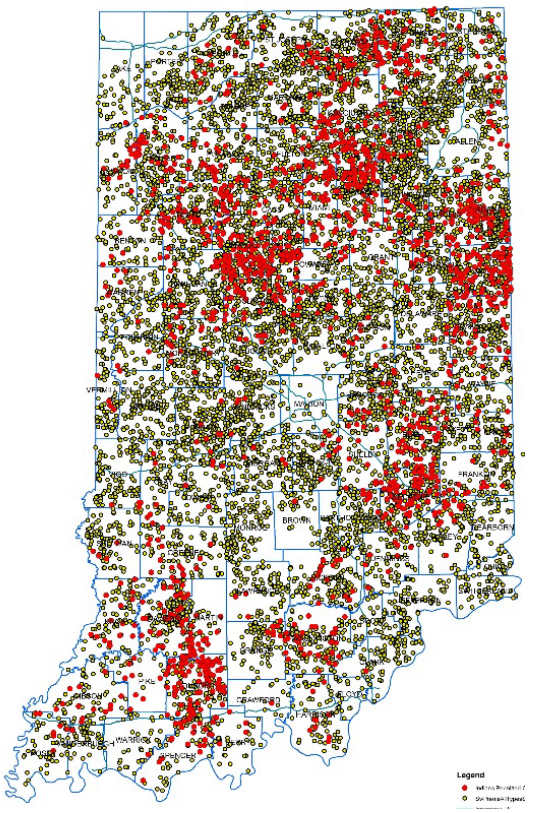
- Carcasses, products
- Byproducts (feed, bedding, etc)

Time: Between Infection and Diagnosis

- Inapparent carriers
- Clinical look-alikes
- Time for test results
  - Type of test
  - Laboratory access
  - Sample collection
- Animal movements

Susceptible Species & Density

- Range of species
  - Zoonotic Potential
  - Wildlife
- On-farm population
  - Hobby or commercial?
- Location of affected site(s)
  - Density of area farms



Swine Farms

Source of Disease

- Natural introduction
- Accidental
- Bioterrorism/agro-terrorism
  - Intentional
  - Criminal act
- Frequently unknown

Diseases of High Potential Impact

Disease Reporting

Disease Reporting Cycle

Sick/Dead Animal

Disease Reporting Cycle

Sick/Dead Animal

Farmer Calls →

Local Veterinarian

Disease Reporting Cycle

Sick/Dead Animal

Farmer Calls →

Local Veterinarian →

USDA (IN) or BOAH

Disease Reporting Cycle

Sick/Dead Animal

Farmer Calls → Local Veterinarian → USDA (IN) or BOAH

FADD Dispatched

On farm Investigation

Disease Reporting Cycle

Sick/Dead Animal

Farmer Calls → Local Veterinarian → USDA (IN) or BOAH

FADD Dispatched

On farm Investigation

or

No Action Required

Disease Reporting Cycle

Sick/Dead Animal

Farmer Calls

Local Veterinarian

USDA (IN) or BOAH

FADD Dispatched

On farm Investigation

or

No Action Required

Hold on Animals

Samples to Network Lab

Disease Reporting Cycle

Sick/Dead Animal

Farmer Calls

Local Veterinarian

USDA (IN) or BOAH

FADD Dispatched

On farm Investigation

or

No Action Required

Hold on Animals

Samples to Network Lab

Report Results

Disease Reporting Cycle

Sick/Dead Animal

Farmer Calls

Local Veterinarian

USDA (IN) or BOAH

FADD Dispatched

On farm Investigation

No Action Required

or

Hold on Animals

Samples to Network Lab

Report Results

USDA (IN)

State Veterinarian

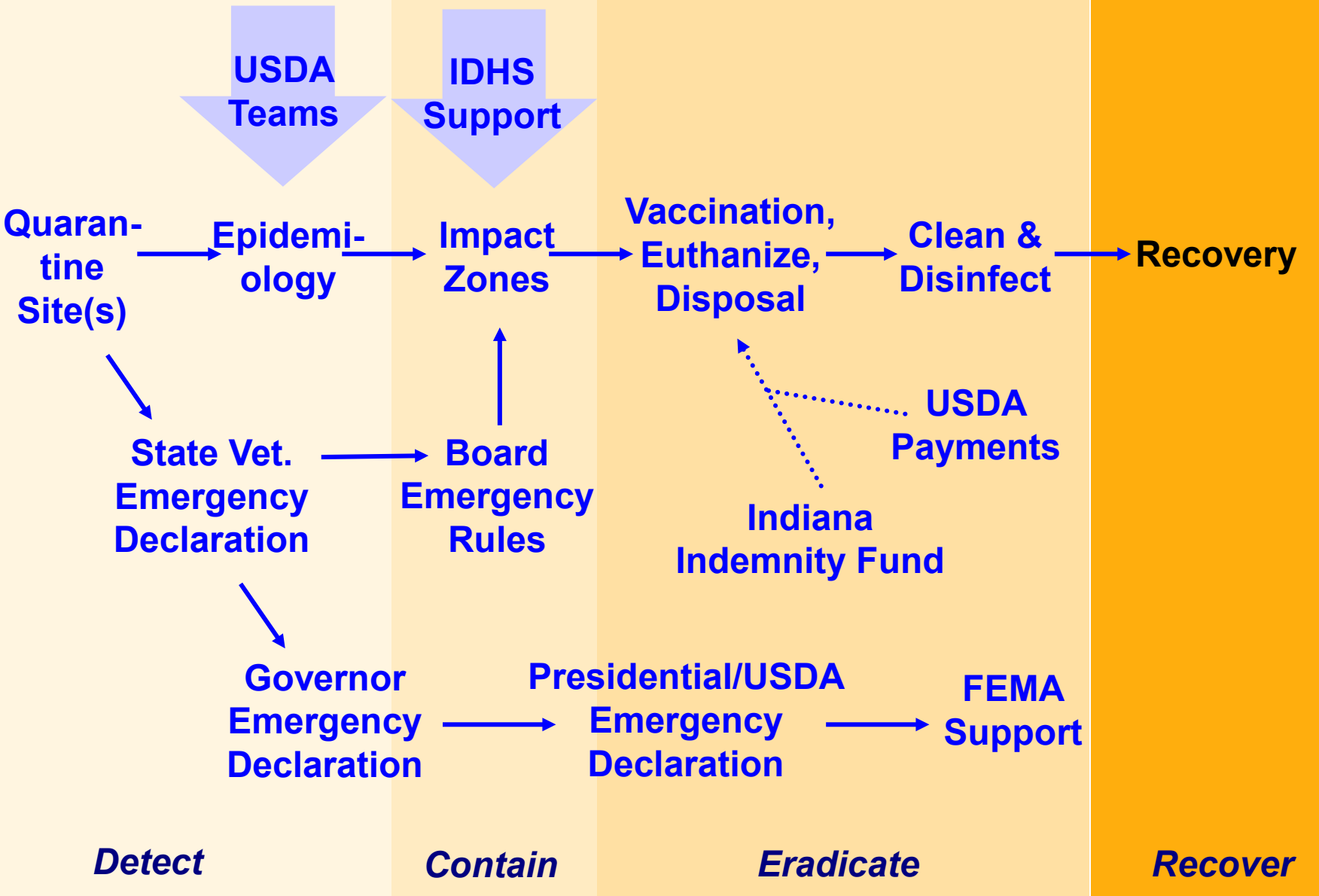
FADD

USDA Emergency Programs

Incident Objectives

1. Identify exposures
2. Detect the disease
3. Contain its spread
4. Eradicate
5. Recover from the event

FAD Response: Confirmed FAD



Local Involvement

- Will vary depending on the disease
  - Highly Pathogenic Avian Influenza
  - Foot and Mouth Disease
  - African Swine Fever

Detect

- Local EMAs/ assistance is unlikely to be involved at this point.

Contain

- Indiana Department of Homeland Security may be called upon to assist with support in the areas of logistics and planning
- May trigger a request for local assistance with some duties, such as:
  - Security
  - Incident Management Assistance Team
  - Movement/ traffic control

Eradicate

This phase of operations could involve support from local responders, with activities such as:

- Vaccination (if a vaccine is available)
- Humane euthanasia
- Proper disposal of dead animals
- Cleaning and disinfection (C&D) of the sites affected by the disease

Recovery

This phase may involve local support:

- Recovery happens only after the disease is eradicated, the site is verified to be disease-free, and business can resume.

Potential Local Partners/Roles

EMA: local insight, resource support

Law Enforcement: traffic control, security, sample transport

Animal Control: messaging, backyard birds

Fire Dept.: water, foamer support

Extension: communication support, composting expertise

Local veterinarians: assistance with animals

Local Health Dept.: human health monitoring

Offenders: 3D assistance

Highly Pathogenic Avian Influenza, 2016

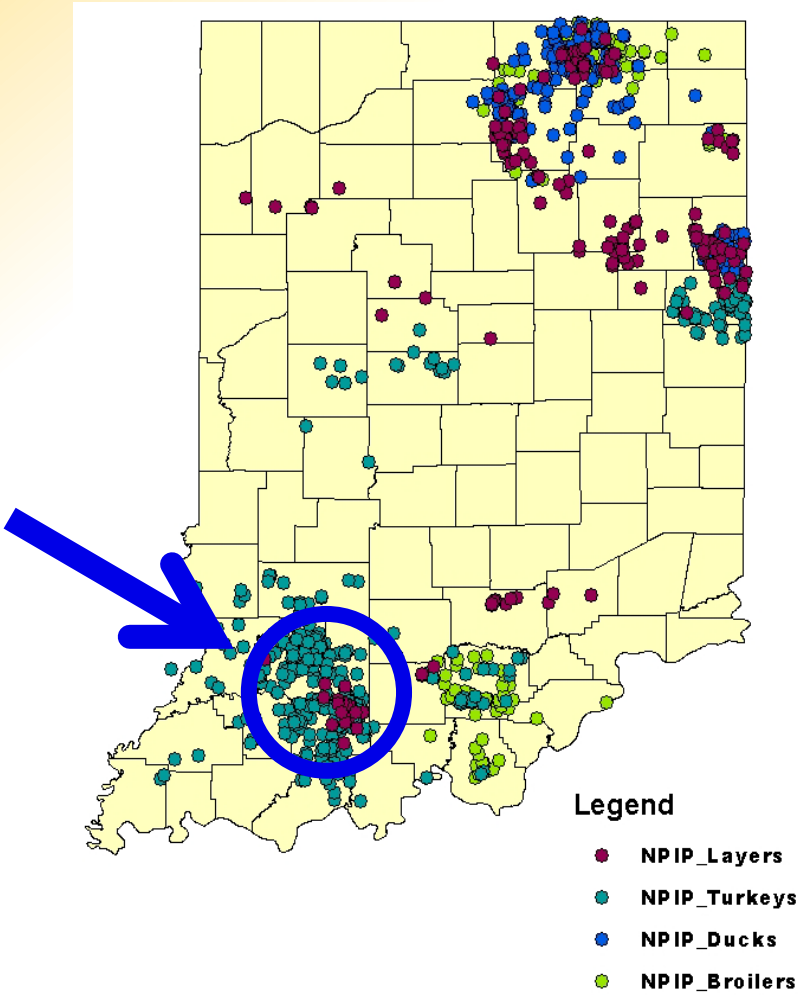
Response Case Study

Highly Pathogenic Avian Influenza, 2016

Dubois County, IN

– #1 turkey producing-county

– >1.4M birds annually



Who, What, Where, When, Why, How:

- Detection
- Diagnostics
- Surveillance
- Sampling
- Traceability
- Mapping
- Quarantines
- Permitted Movement
- Appraisals
- Flock Plans
- Compliance Agreements
- Communications
- Public Awareness
- Resource Requests
- Animal Welfare
- Biosecurity
- Vaccination
- Wildlife Management
- Depopulation
- Disposal
- Cleaning and Disinfection
- Human Health and Safety
- Information Management
- Incident Command Structure
- Situation Reports
- Epidemiology
- Restocking
- Continuity of Business

HPAI: Clinical Signs

- Sudden death without signs
- Lack of energy, appetite
- Reduced egg production
- Swollen head, eyelids, comb, wattles
- Discolored purple wattles, comb, legs
- Nasal discharge, coughing, sneezing

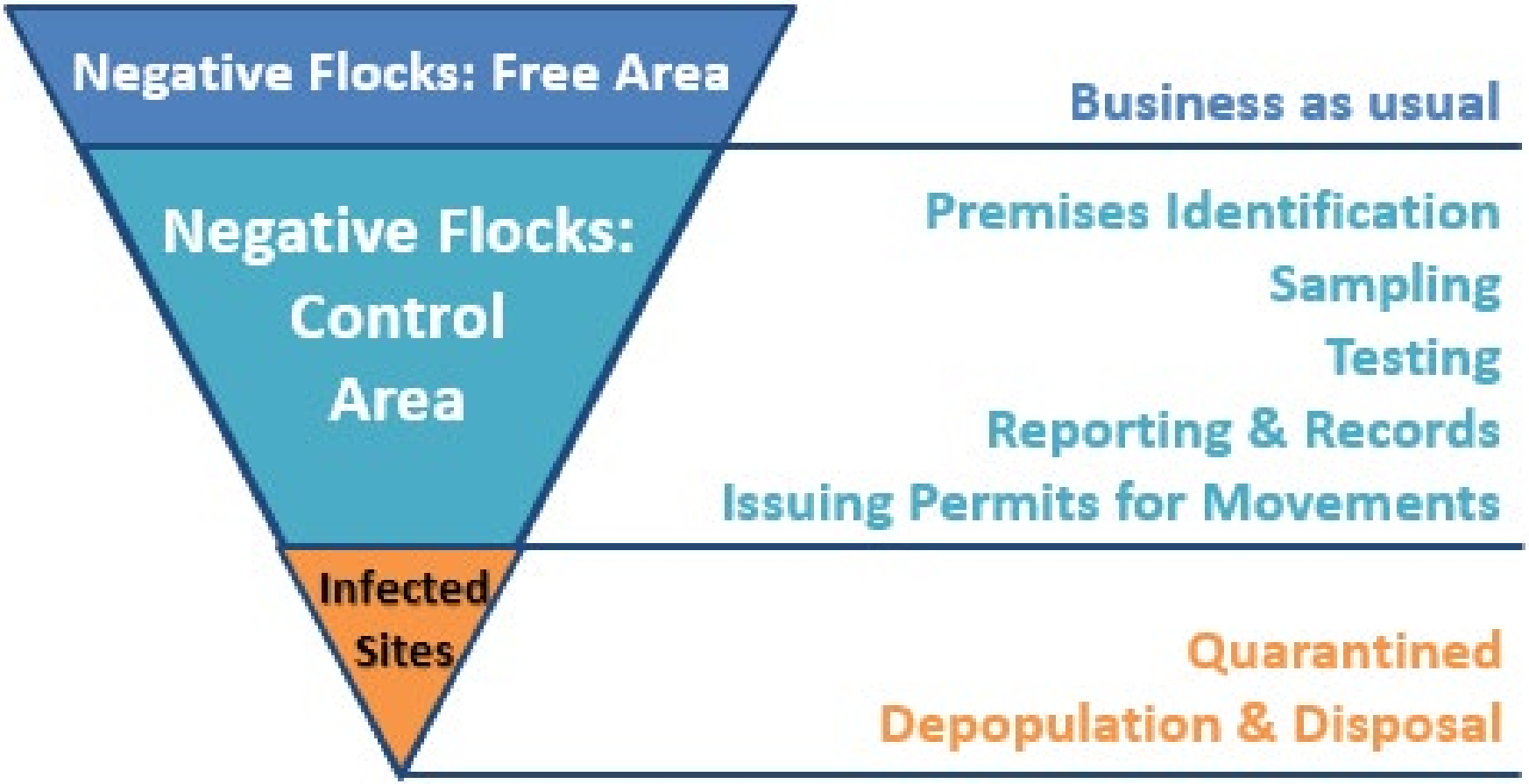

2015


just 2 hrs later

Response Teams, EMAs, IMATs


Buffer Zone
Control Area
(Infected Zone +
Buffer Zone)
Infected Zone
Infected Premises
Surveillance
Zone
Free Areas

HPAI Response

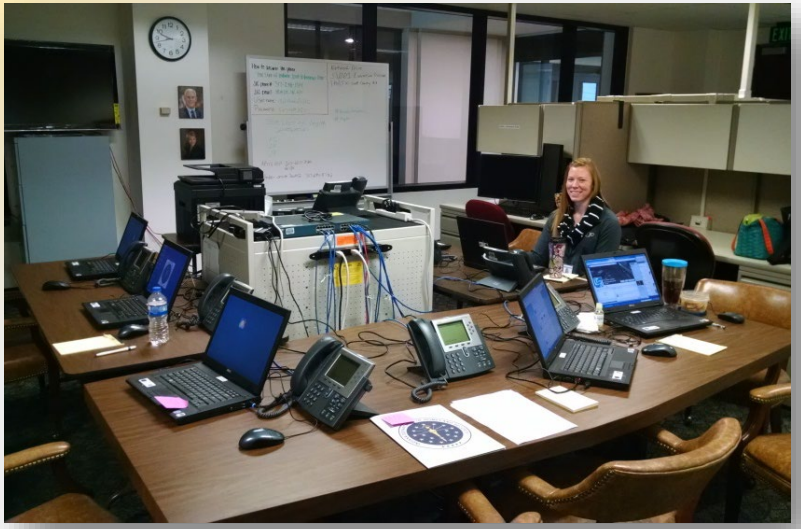


Surveillance & Testing

Biosecurity, PPE, Containment

Depopulation, Disposal & Disinfection

Engagement & Outreach



End of Unit 3