

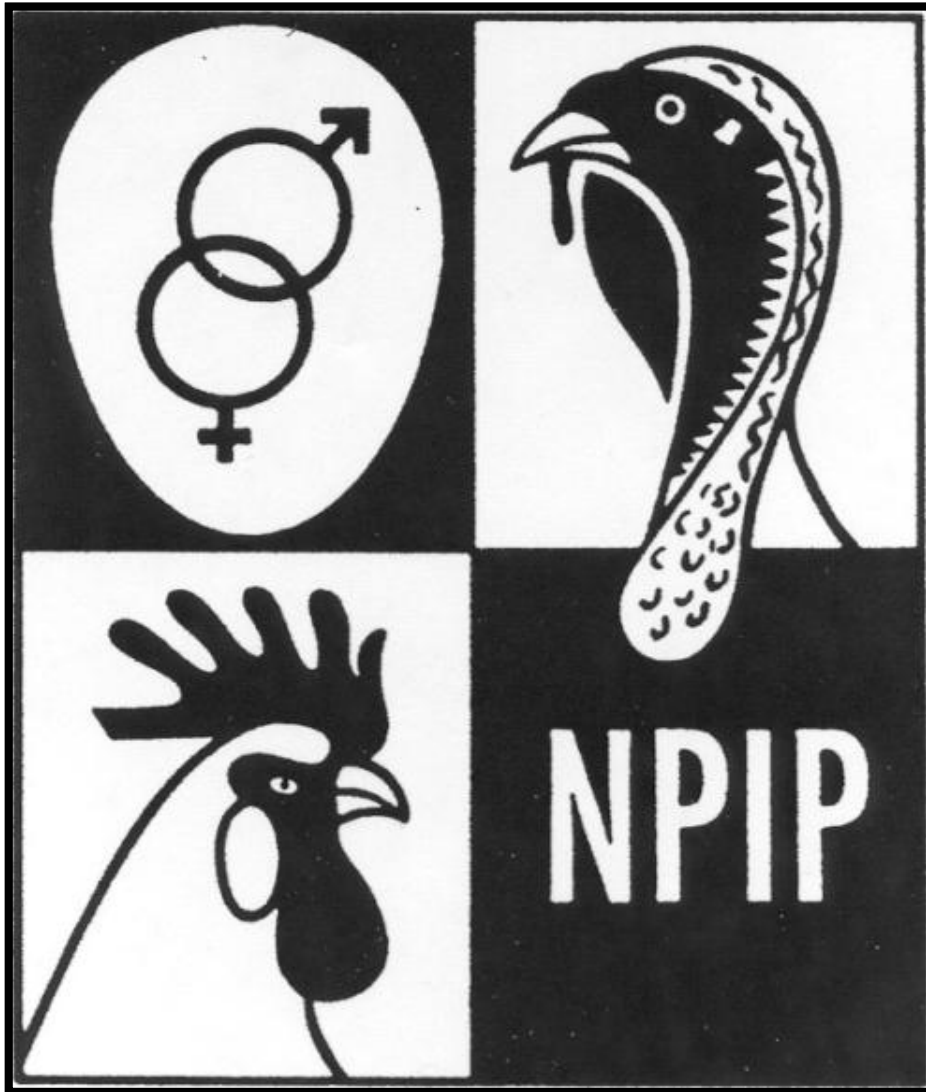
NPIP, Avian Influenza and Biosecurity, How Does it Fit Together?

2016 McFarlane Pheasant Seminar
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Outline

- National Poultry Improvement Plan (NPIP)
- H5/H7 LPAI Programs
 - Surveillance
 - Response
 - Biosecurity
- Biosecurity Concepts
 - Structural / Operational Biosecurity
 - Biosecurity Principles



National Poultry Improvement Plan (NPIP)

NPIP – Cooperating Roles

- U.S. Department of Agriculture (USDA)
 - Plan coordination
 - Laboratory materials
 - Other services
- State (**MBAH**)
 - Supervise program
 - Official State Agency (OSA)
- **Industry Participants**
 - Voluntary participation
 - Must agree to meet standards



NPIP Objectives/Testing

- Disease Control
- Public Health
- Business Continuity
 - Hatchery Certification
 - Processing Plant Certification
 - International Trade/Exports
- TRADE / COMMERCE



MINNESOTA BOARD
of
ANIMAL HEALTH

NPIP – National Plan Standards

- Cooperative hatchery disease control programs
 - Salmonella, Mycoplasma
- Avian Influenza (AI) Programs
 - H5/H7 LPAI Clean breeder flocks
 - H5/H7 LPAI Monitored commercial plants/flocks
- Apply new technology



H5/H7 LPAI Response Plan (Minnesota Plan)

- ISRCP (Initial State Response and Containment Plan)
 - Initial Response
 - EDMC (Emergency Disease Management Committee)
 - Quarantine suspect flocks
 - Surveillance zone testing
 - Board's role vs. USDA's role vs. Industry's role
 - Notification
 - Containment/Biosecurity
 - Premises Management and Repopulation

LPAI H7N9 in Minnesota (2007, 2009, 2011)





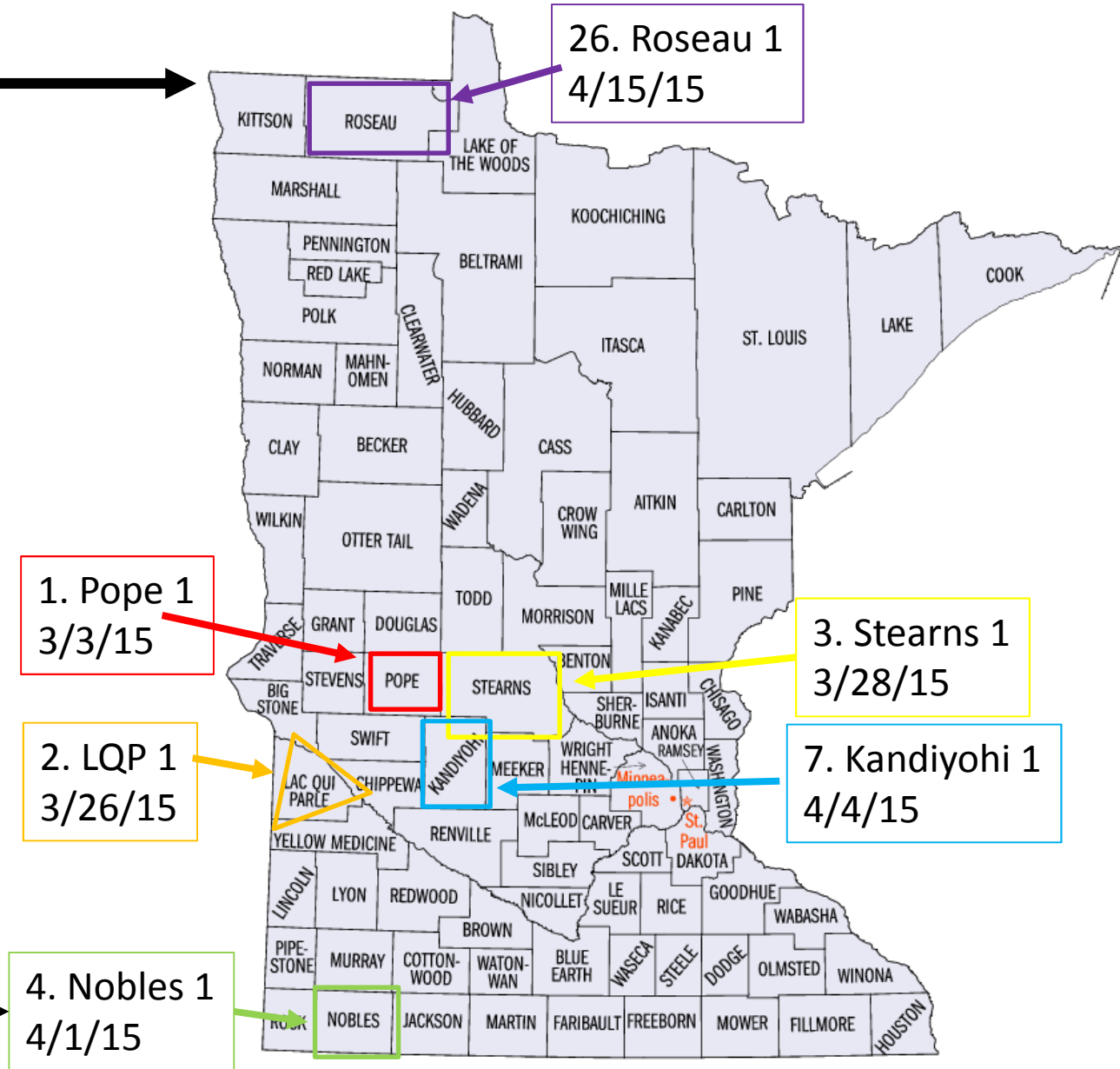
H5N2 HPAI
Pope County, MN – March 4, 2015

Minnesota Statistics

- Total number birds affected: 9,352,927
- Total number of premises affected: 110
 - 104 turkey
 - 75 commercial meat-type
 - 23 commercial breeding
 - 6 dangerous contacts
 - 4 chicken layers
 - 1 chicken pullets
 - 1 backyard
- Total number of counties: 23



~400 miles



HPAI Risk Assessment

- Risk to farms outside control zones
 - Initial introductions not related to geographic locations of premises or company affiliations



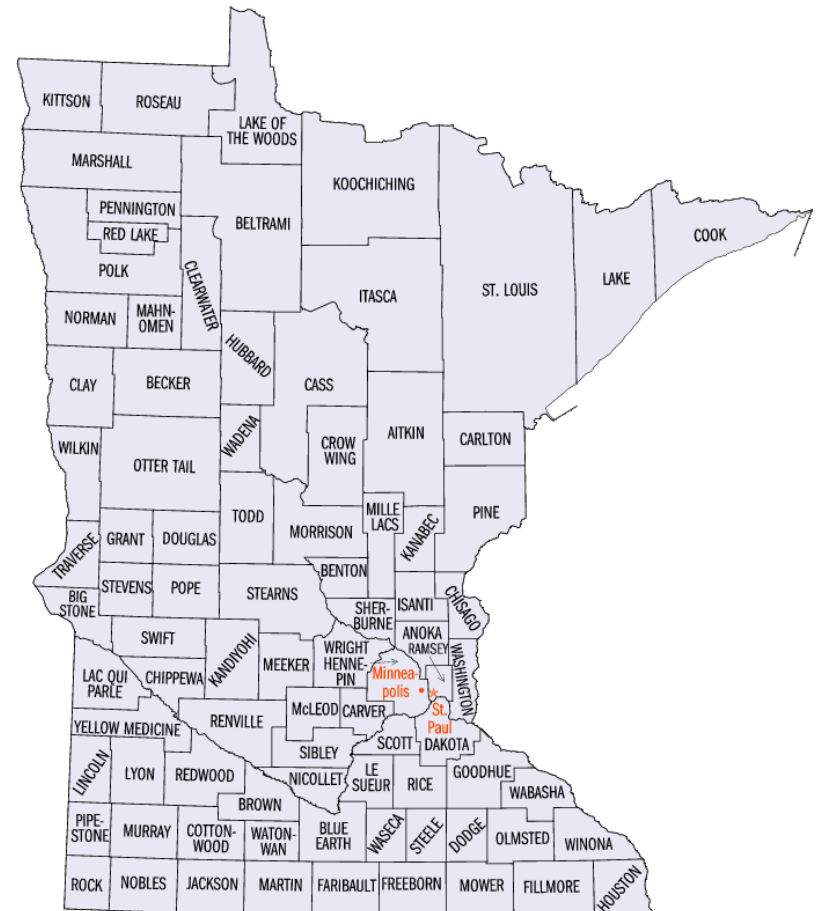
Biosecurity Basics

- Biosecurity: Steps taken to prevent the introduction of disease onto a farm or into a flock
 - Avoiding contact with other birds/hogs
 - Limit traffic
 - No sharing of farm equipment
 - Cleaning of barns
 - Manure handling/disposal
 - Dead bird disposal
 - KNOW WHERE PEOPLE HAVE BEEN!



Levels of Biosecurity

- Individual Barn/Pen Biosecurity
- Individual Farm Biosecurity
- Regional Biosecurity



-Disease Prevention/Biosecurity- Know where diseases come from!

- Egg transmitted diseases (Mycoplasma, Salmonella)
 - Breeder flock
 - Hatchery
 - People and equipment at these facilities



-Disease Prevention/Biosecurity-

Know where diseases come from!

- Mechanically transmitted diseases (Mycoplasma, AI, Salmonella)
 - People - Shoes, Clothing, Equipment, Vehicles
 - Equipment
 - Pests (rodents, wild birds, etc.)
 - Environnemental contamination (dust or soil)



Biosecurity

- Structural Biosecurity
 - Physical construction and maintenance of the facility
 - Walls, netting
 - Major enhancements
 - Capital investments
- Operational Biosecurity
 - Standard Operating Procedures (SOP)
 - Compliance to minimize the introduction of viruses
 - Employee, equipment policies

Structural Biosecurity



Photo credit: R. Spasojevic



Operational Biosecurity

-Daily Practices/Routine Chores-

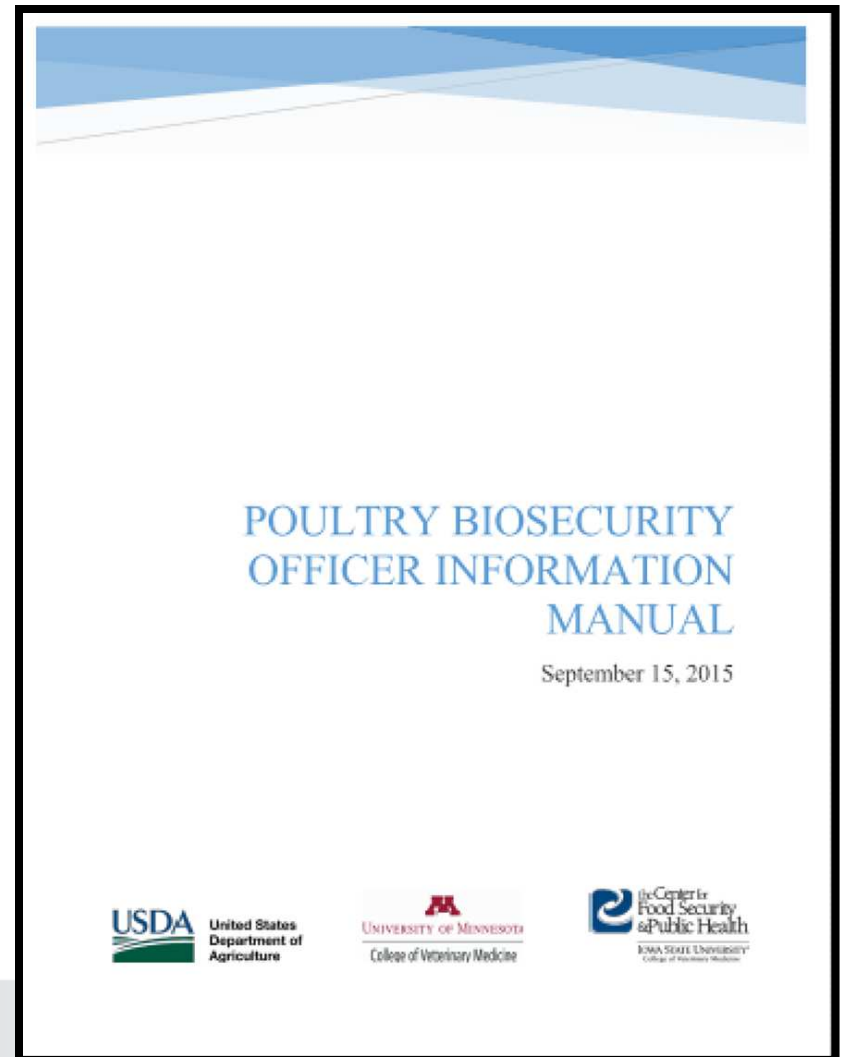
- Employee / Equipment Policies
- High Risk – Spring / Fall
 - Standing water
 - Grad/Fill/Drain low areas that could hold water
 - Feed Spills
 - Daily routine where feed pads are swept, washed, disinfected
 - Spring nesting areas
 - Daily inspections to prevent nests from being established

NPIP Biosecurity Principles

- 2016 NPIP Biennial Conference Proposal
- Minimum Biosecurity Standards for ALL NPIP Program Diseases
- 12 Components
 - Biosecurity responsibilities, training
 - Lines of Separation, Perimeter Buffer Area
 - People and Equipment Traffic
 - Wild Bird, Rodents, Insects
 - Dead Bird Disposal, Manure Management
 - Water, Feed, Replacement Litter

Three New Biosecurity Concepts for Commercial Poultry Operations

- Biosecurity Coordinator
- Line of Separation (LOS)
- Perimeter Buffer Area



1. Biosecurity Coordinator

- Each production site/system should have a designated person responsible for developing/maintaining biosecurity program
- Person should be knowledgeable in biosecurity principles or should consult with a veterinarian experienced in poultry production for assistance
- Program should be developed that addresses the principles described and should be reviewed internally at least annually and revised if needed
- Production management is responsible for implementation / execution of site- specific biosecurity protocols

2. Biosecurity Training

- Biosecurity Coordinator works with production management to develop biosecurity training materials that cover biosecurity principles
- Site-specific biosecurity protocols
- Production management is responsible for training and documentation of site-specific training for all production personnel and suppliers that enter live production facilities, and/or perimeter buffer areas
- Training is to be done at hire and at least once per calendar year.

3. Line of Separation (LOS)

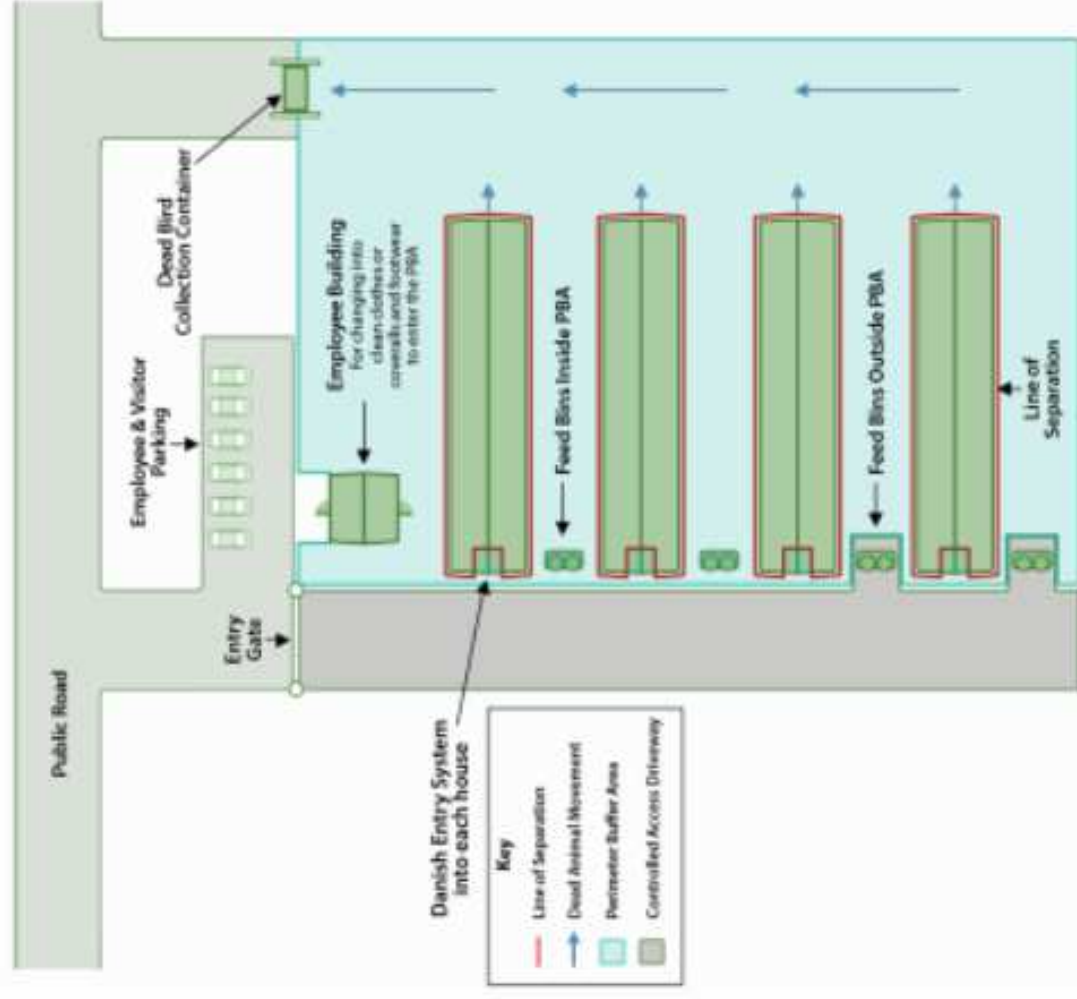
- For enclosed poultry
 - Essential component for each building
 - Walls form the line of separation and separate poultry from potential disease sources
 - Plan must address how this line will be defined and defended for each poultry house
- For non-enclosed poultry operations, the LOS is recommended but not required
- In emergency disease State, it is recommended to enclose all poultry and enforce a LOS.

4. Perimeter Buffer Area

- Objective – reduce pathogen load in the outside environment
- The perimeter buffer area entrance should be clearly indicated, located and marked with signage so that personnel do not leave the buffer area in the course of their daily tasks
- Visitor's access should be controlled at all times.

Figures 1 – 3: Examples of Perimeter Buffer Areas and Lines of Separation on Poultry Sites

Figure 1:



Source: Center for Food Security and Public Health, Iowa State University



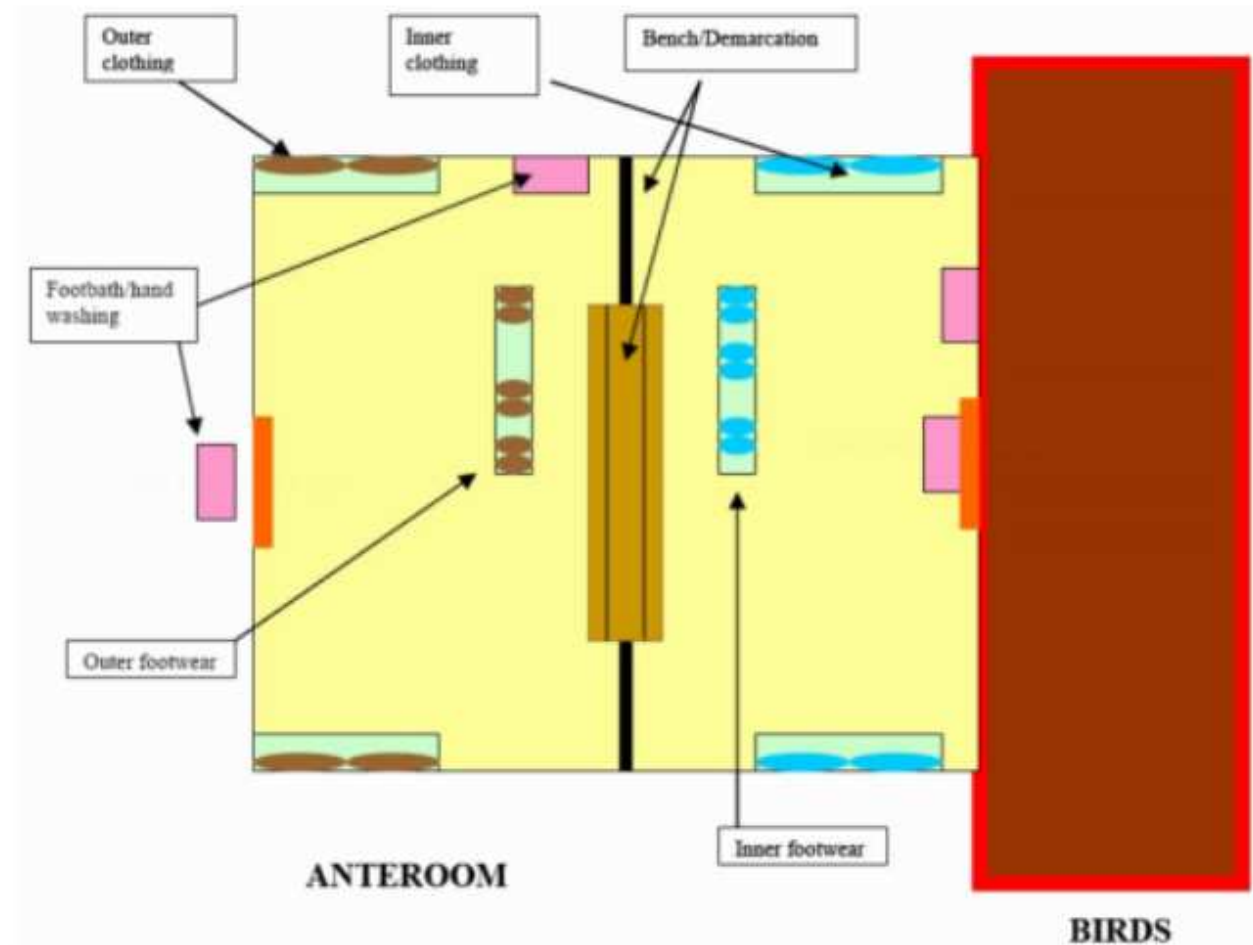
Source: Ontario Pork Industry Council, Donish Entry Examples, 2013

Danish Entry System

Figures 4 – 5: Examples of the Danish Entry System

There are other configurations that will also work. The main objective is for personnel to leave boots and outer clothing in the entry, to wash or sanitize hands, then to put on barn specific boots and outer clothing after crossing the LOS.

Figure 4:



Source: <http://www.inspection.gc.ca/animals/terrestrial-animals/biosecurity/standards-and-principles/general-producer-guide/eng/1398640321596/1398640379048?chap=9>

5. Personnel

- Personnel should change into designated premises clothes/footwear prior to crossing PBA
- Personnel should not come into contact with other poultry or poultry premises unless having followed company established protocols.



6. Wild Birds, Rodents and Insects

- Poultry operations should have control measures to protect poultry from wild birds, their feces and their feathers
- Rodent/insect control programs should be in place



HPAI

Highly Pathogenic Avian Influenza



RISK FACTORS IDENTIFIED IN THE STUDY

Full-outbreak risk factors for HPAI Odds ratio (95% CI)

Close proximity to other farms	46.14	(5.96 - 357.55)
Render dead birds	9.80	(1.46 - 65.95)
Tilled in last 14 days	6.46	(1.36 - 30.78)
Wild mammals near barns	0.14	(0.02 - 1.06)

Early-outbreak risk factors for HPAI Odds ratio (95% CI)

Tilled in last 14 days	13.88	(1.04 - 184.85)
High visitor biosecurity	7.92	(0.88 - 71.41)
High worker biosecurity	0.07	(0.01 - 0.96)

Late-outbreak risk factors for HPAI Odds ratio (95% CI)

Use of vehicle wash station/spray area	12.40	(0.94 - 163.52)
Non-asphalt roads	10.05	(0.65 - 156.49)
Wild birds near dead bird disposal	0.12	(0.02 - 0.72)

Note: Odds ratio measures farms with the factor have X times greater or less odds of having an outbreak than farms without that particular factor. The 95% confidence intervals indicate that 95% of the time the true effect estimate is expected to be within this range.



UM HPAI Study

- Multiple introductions of virus from wild birds or contaminated environmental reservoir
 - Spring Field Tilling
- Biosecurity Breaches
- Rendering



7. Equipment and Vehicles

- Equipment should be effectively sanitized between uses
- Minimize sharing of equipment
- Shared equipment plan
 - Cleaning, disinfecting, inspecting equipment between farms
 - Plan of how equipment and vehicles will enter the PBA/LOS.



8. Dead Bird Disposal

- Dead birds should be disposed of in a manner that does not attract wild birds, rodents and other animals and avoids the potential for uncontrolled cross-contamination
- Methods
 - Composting, Rendering, Landfill, Burial



9. Manure and Litter Management

- Manure and spent litter should be removed and disposed of in a manner to prevent exposure of susceptible poultry (either on or off the farm of origin) to disease agents.



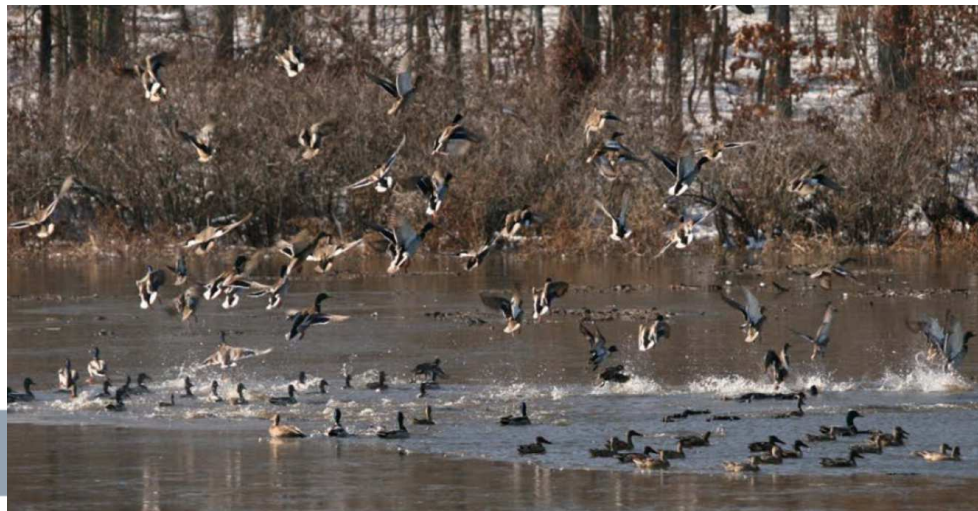
10. Replacement Poultry

- Should come from health monitored facilities and should be transported in vehicles cleaned, disinfected and inspected appropriately.



11. Water Supplies

- Drinking water should come from sources treated to eliminate contamination with disease agents
- Water from a surface water source should be treated to eliminate disease agents
- Surfaces cleaned or flushed with surface water should employ subsequent disinfection



12. Feed and Replacement Litter

- Feed, feed ingredients and litter should be stored / maintained in a manner that limits exposure / contamination by wild waterfowl or other birds, insects, and/or rodents



None of Us Alone are as
Good as All of Us Together





Take Home Message

- Biosecurity are the measures taken to prevent the introduction of any disease onto a farm or into a flock
- NPIP LPAI Surveillance and Response provides the framework for an HPAI response
- The proposed 12 Point Biosecurity Principles are applicable to all NPIP Program Diseases
- Good Decisions are not made in a Swivel Chair
- Don't Be the Index Case !!