

THE U.S.H5N2 HPAI EPORNITIC OF 2015- LESSONS LEARNED



Eastern NC Broiler Production Course

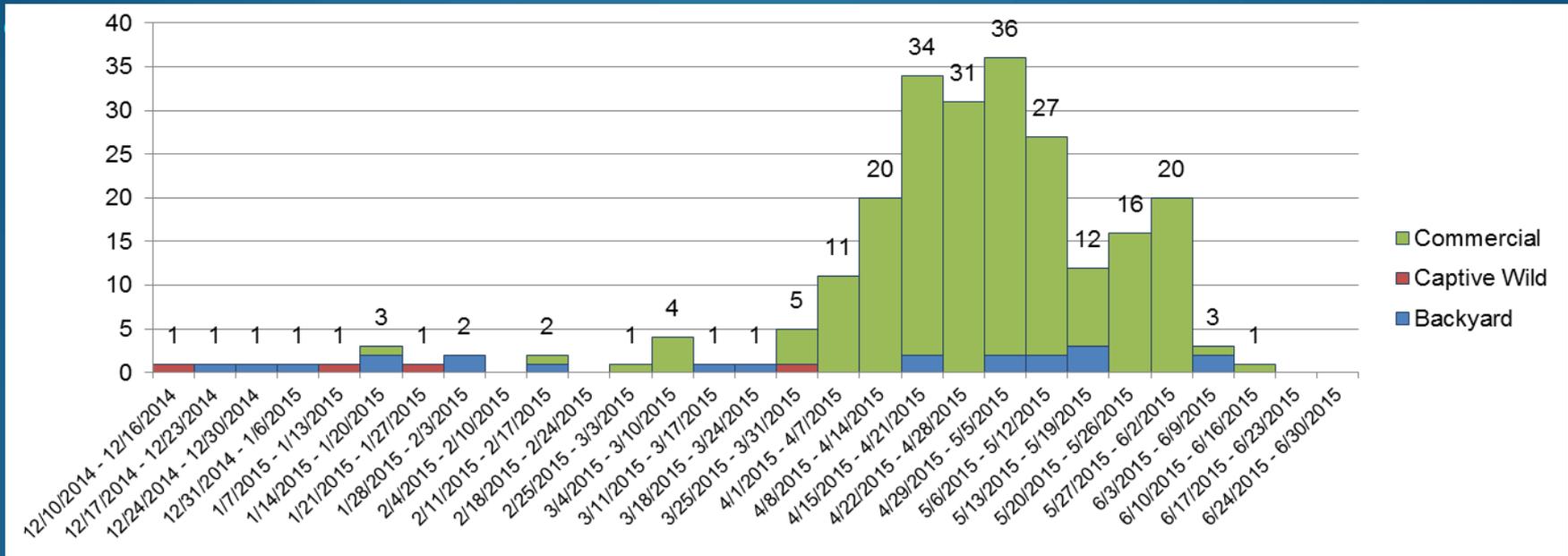
September 16th 2015.

Simon M Shane FRCVS, BVSc, PhD, MBL, ACCPV.

PROGRESS OF THE INFECTION

- Dec. 19th Oregon H5N8 Backyard (first case)
- Jan. 23rd California H5N8 Turkeys
- March 10th Missouri H5N2 Turkeys
- March 20th Minnesota H5N2 Turkeys
- April 1st S. Dakota H5N2 Turkeys
- April 11th Wisconsin H5N2 Layers
- April 27th Iowa H5N2 Layers
- May 5th Minnesota H5N2 Layers
- May 12th Nebraska H5N2 Layers
- May 14th S. Dakota H5N2 Layers
- June 17th Iowa H5N2 Layers (last case)

EPIDEMIC CURVE FOR 2015 HPAI OUTBREAKS



WATERFOWL MIGRATION '15

- Pacific Flyway H5N8**
- Central Flyway H5N8 and H5N2**
- Mississippi Flyway H5N2**
- Atlantic Flyway No Isolations**

TOTAL LOSSES FROM HPAI

- Commercial farms affected = 211
- Backyard flocks diagnosed = 21
- Turkeys depleted = 7.5 million or 7.5% of inventory
- Hens depleted = 38.5 million or 10% of inventory
- Pullets depleted = 3.5 million or 6.3% of inventory

LAYER OUTBREAKS 2015

<u>State</u>	<u>MN</u>	<u>IA</u>	<u>SD</u>	<u>NE</u>	<u>WI</u>
• April	2	7	0	0	2
•					
• May	2	25	1	4	1
•					
• <u>June</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>
•					
• Total	4	34	1	4	3

TURKEY OUTBREAKS 2015

<u>State</u>	<u>MN</u>	<u>IA</u>	<u>SD</u>	<u>NE</u>	<u>WI</u>
• April	60	4	6	0	4
• May	27	24	2	0	2
• <u>June</u>	<u>10</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>
•					
• Total	97	30	8	0	6

IMPACT OF 2015 HPAI EPORNITIC*

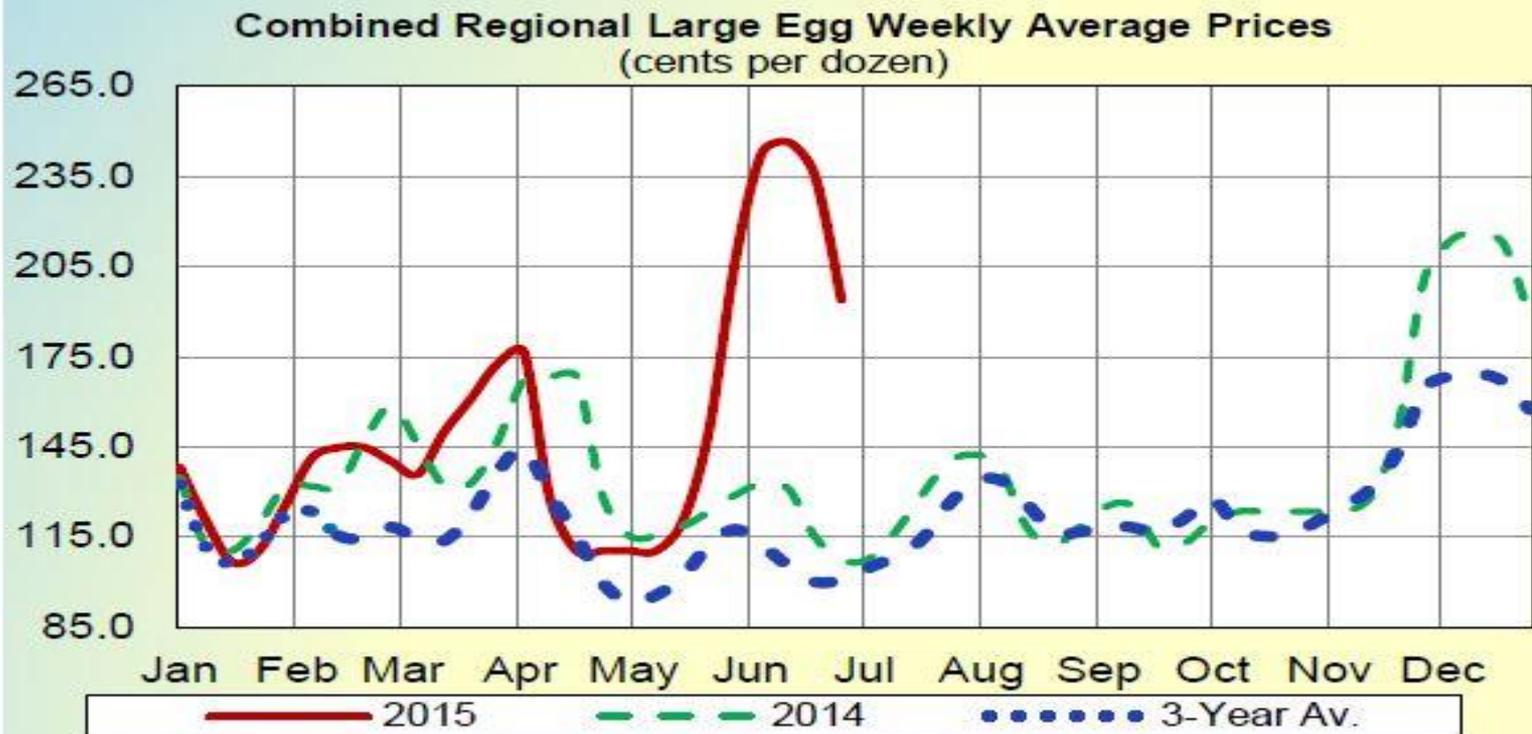
- **Turkeys** **160 farms** **7.5 million**
- **Layers** **49 farms** **42.1 million**
- **& Pullets**

- **20 states affected but most losses in**
- **MN, IA, SD and WI**
- * as of Monday June 29th 2015

CONSEQUENCES OF THE 2015 HPAI EPORNITIC

- Financial loss to contractors and integrators
- (\$800 million)
- Financial loss to suppliers and communities
- (\$500 million)
- Costs for control incurred by USDA and States
- (\$1 billion)
- Costs to consumers from escalation in prices
- (\$1.7 billion and rising)
- Disruption in exports and losses (\$1.5 billion)
- Anxiety and concern in the industry
- Consumer concerns were not apparent

IMPACT OF HPAI ON 2015 SHELL EGG PRICE



Source: USDA, AMS, LPG Market News

DISSEMINATION OF HPAI VIRUS

- Preliminary epidemiological study
- Tentative conclusions:
 - Waterfowl are shedders of virus
 - Defective biosecurity
 - Conceptual, Structural and Operational
 - Aerogenous route?

FEDERAL (APHIS) CONTROL

- Aim is eradication (HPAI “exotic”)
- Rapid diagnosis (PCR)
- Depopulation
- Disposal
- Surveillance
- 3 km Infected Zone + Buffer Zone = 10 km Control Area
- Decontamination

THE U.S. POULTRY INDUSTRY AFTER HPAI IN THE SPRING OF 2015

- **Conceptual Biosecurity**

- Size and Location of complexes
- Combined in-line and off-line operation

- **Structural Biosecurity**

- Investment in facilities cost: benefit studies

- **Operational Biosecurity**

- Farm personnel and crews, vehicles, rodents,
● wild birds, products,

- **Immunization**

- With what? When administered? Exit strategy?

APPROACH TO ENHANCED BIOSECURITY AGAINST HPAI

- Each Complex requires a comprehensive biosecurity program (feed mill; hatchery; breeding; growout; services; plant)
- Each farm requires a specific biosecurity plan

EPIDEMIOLOGIC FINDINGS, AFFECTED TURKEY FARMS

- **60% with dwelling on site**
- **81% with unlocked gates**
- **38% with unlocked barns**
- **38% with dead-bird pickup by 3rd party contractor**
- **63% with waterfowl in vicinity before outbreak**
- **35% reported wild birds in houses**
- **16% had family working on other poultry facilities**

DEVELOPING AN EFFECTIVE BIOSECURITY PROGRAM

- Define diseases to be prevented
- Assess risks and consequences of infection
- Quantify the financial impact of a specific disease
- Based on epidemiology of the infection identify and prioritize sources of infection
- Develop appropriate biosecurity measures:-
 - Structural improvements
 - Enhanced operational procedures
- Determine benefit : cost ratio of improvements

AEROGENOUS SPREAD OF H5N2 HPAI VIRUS ?

- **Two high-biosecurity breeder farms +ve after depopulation of nearby +ve growout farms.**
- **Progress of infection in house with pens followed ventilation pattern.**
- **Sustained high winds implicated in cluster**
- **Virus +ve in affected houses, no virus in air over 70m from affected house.**
- **Geospatial analysis not indicative of arogenous spread**

HPAI MYTHS

- “There have never been two outbreaks of HPAI in consecutive years”
- *No Trespassing* signs keep out HPAI virus
- Sunlight and high temperature will end an HPAI outbreak
- Footbaths are the major biosecurity barrier against HPAI
- Since HPAI is spread by air there is not much point in biosecurity

IMPORTANT LESSONS

- **HPAI now carried by migratory waterfowl**
- **When introduced, rapid dissemination occurs**
- **Defective biosecurity responsible for most cases**
- **Aerogenous spread possible, but not common**
- **Myths and misinformation abound**

EFFECTIVE STRUCTURAL BIOSECURITY TO PREVENT HPAI

- **Fencing around perimeter of house area with lockable gates and signage**
- **Vehicle decontamination station at entrance**
- **Designated parking area outside house perimeter for workers, service people and visitors**
- **Decontamination module for contractor, company personnel , authorized visitors, maintenance and work crews.**
- **Impervious roads from entrance to houses**
- **Efficient drains to prevent standing water**

STRUCTURAL BIOSECURITY

(CONTINUED)

- **Houses secured against rodents and wild birds**
- **On-farm disposal of dead birds**
- **Chlorinated water supply**
- **Self-sufficiency with respect to equipment**
- **Feed mill and Hatchery equipped with high-efficiency vehicle wash installations**

EFFECTIVE OPERATIONAL BIOSECURITY AGAINST HPAI

- Documented procedures in Biosecurity Plan
- Training with validation for effective biosecurity
- Limits on authorized visitors
- No visits to other poultry by anyone including family of contractor
- No hunting whatsoever by contractor, family or workers
- Decontamination of vehicles entering farm
- Decontamination of all personnel entering house perimeter
-

OPERATIONAL BIOSECURITY

(CONTINUED)

- **Approved and effective pest-control program implemented and monitored**
- **Procedures for disposal of routine mortality**
- **Program for monitoring health of flocks with designated responsibility for investigating and reporting morbidity and mortality**
- **Contingency plans for introduction of infection**
- **Program of internal reviews of procedures and third-party audits.**

TAKE-HOME MESSAGES.

- H5N2 reassortant HPAI virus represents a novel and potentially seasonal reoccurring infection
- Conceptual biosecurity is generally predetermined and fixed. Deficiencies must be compensated by enhanced structural and operational biosecurity
- Structural biosecurity requires capital investment which predicates a return from avoidance of disease

THANK YOU

- **QUESTIONS?**

- **COMMENTS!**