HPAI: Lessons Learned and Changes Implemented from a Producer Prospective

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PREVENTION - BIORISK OVER $600,000,000 IN CURE PREVENTION - BIOSECURITY IN A POST-HPAI ERA
Educational Opportunities

• Industry sponsored education tools
  – Producer biosecurity education sessions done by 3rd party veterinarians
  – Barn entry video demonstrating the Danish entry process
  – Epidemiologic study to inform biosecurity programs
HPAI Epidemiology Study

• Study objective was to identify potential risk factors associated with introduction and spread of HPAI H5N2 virus into turkey flocks in the Upper Midwest

http://www.cahfs.umn.edu/research/epidemiologic-study-highly-pathogenic-avian-influenza-h5n2-among-turkey-farms
## Risk Factors

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cases (%)</th>
<th>Controls (%)</th>
<th>Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilled in last 14 days</td>
<td>12 (66.7%)</td>
<td>3 (30.0%)</td>
<td>13.88 (1.04-184.85)</td>
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<tr>
<td>High worker biosecurity</td>
<td>5 (27.8%)</td>
<td>7 (70.0%)</td>
<td>0.05 (0.01-0.96)</td>
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<tr>
<td>High visitor biosecurity</td>
<td>15 (83.3%)</td>
<td>4 (40.0%)</td>
<td>7.92 (0.88 – 71.41)</td>
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<tr>
<td>Close proximity to other poultry farms</td>
<td>23 (6)</td>
<td></td>
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<tr>
<td>Tilled in last 14 days</td>
<td>21 (5)</td>
<td></td>
<td></td>
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<tr>
<td>Render dead birds</td>
<td>30 (8)</td>
<td></td>
<td></td>
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<tr>
<td>Wild mammals near barns</td>
<td>4 (11.1%)</td>
<td>9 (34.0%)</td>
<td>0.14 (0.02-1.06)</td>
</tr>
</tbody>
</table>
CRITICAL BIOSECURITY MEASURES
People

• Multiple interventions appear to be the key
• 3 zone entry/exit system in place with multiple mitigation steps
  – Barn specific boots
  – Boot disinfection
  – Make sure the clothing you wear inside the birds doesn’t come into contact with the outside
  – Sanitize and/or cover your hands
• Visitor biosecurity starts upon entering the premise, not the barn
Vehicles

• Vehicles parked away from barns in designated location and are not driven during the day
• Dedicated farm only vehicle that is protected from wild bird exposure
• Improved vehicle wash stations
Rendering

• Expand use of alternative methods for carcass disposal
  – Incinerators
  – On-site burial
  – Composting

• Rendering mitigation
  – Separate driveway
  – Dumpster location
  – Cooling capacity
  – Test and move
Ventilation

• Be aware when field work is occurring
• Limit debris and dust entering the barns through open curtains
  – Use wind direction to determine which curtain to open first
  – Keep curtains closed as long as possible
  – Adjust multiple times a day
Regional Biosecurity Practices

- 3 levels of biosecurity
- Individual barn
- Individual farm
- Entire region
HPAI H5N2-Infected Poultry Flocks in Minnesota by County, 2015 (n=108)

Slide courtesy of MDH
Industry’s Regional Biosecurity

• Good active surveillance program especially during high risk times of the year
  – Pre-movement testing
  – Biofilm surveillance of every turkey flock >9 weeks in areas of dense production
  – Catching infection early to minimize the risk of spread

• If your suspicious- CALL SOMEONE!
  – Minimize cfms without putting birds at risk in order to reduce potential viral spread
  – Use landscaping fabric over fans to minimize amount of particulate matter getting out of the barn

• Have a depopulation plan
PREPAREDNESS-
PRACTICE IS WORTH EVERY PENNY
The incubation period was long...

The graph shows the daily mortality over time, with dates from 26-Mar to 7-Apr. Key points include:
- **Introduction** on 28-Mar
- **Earliest opportunity for detection** on 31-Mar
- **Likely point of detection** on 7-Apr

The graph indicates that the daily mortality started increasing significantly from 1-Apr onwards.
Detection

• Waiting for clinical signs to appear is not an option in areas of dense production
• Traditional sampling techniques are labor and time intense
• Industry in partnership with the U of MN, industry developed of a novel way of testing turkey flocks
  – Collection of biofilm off of bell drinkers
  – Easy to collect– makes aggressive surveillance possible
  – Early detection– precedes dead bird surveillance by 1-2 days
Depopulation

• Need to ensure that positive flocks are depopulated immediately to limit the spread of virus

• Companies have purchased and trained company personnel on depopulation methods
  – Exercises in a variety of weather conditions

• State of MN and USDA has also purchased depopulation equipment through the NVS
Preparedness - Managing the response

• Who’s watching the uninfected farms?
• Who’s going to manage the paperwork?
  – Permit requests
  – C&D plans and cooperative agreement
• What are you going to do with underutilized personnel?
  – Feed mill personnel
  – Live haul
  – Plant personnel
PEOPLE
People involved in a FAD response

- You probably think about these folks…
  - State and federal responders
  - Diagnostic laboratory
  - Producers, company

- But do you think about these folks…
  - Neighbors
  - Public health
  - Customers
  - Consumers

Incident Name: MN HPAI 2015
June 9, 2015

Personnel
- MN BAH/MDA: 88
- USDA:APHIS:VS: 64
- Other Federal Agency: 22
- Contracted Overhead: 12
- Contracted Depop. Crews: 334
- Total: 520
People health: Mental health support

ComPsych® (Employee Assistance Plan - phone or web)

Minnesota Farmer Assistance Network (MFAN)

Outreach by JOTS Nursing Staff
People health: MN Dept of Health Role

• Provide guidance on infection control and use of PPE for poultry personnel
• Recommend human influenza vaccination
• Interview workers for exposure and illness history
• Initiate active surveillance for respiratory symptoms in humans exposed to infected poultry
• Facilitate distribution of antiviral drugs
Customers/Consumers-
What are your talking points?

• Unified talking points are key
• Important stakeholders need to have the same 3-5 key messages
  – State animal health officials
  – State Department of Agriculture and Health
  – State commodity organization(s)
  – Other poultry companies
• A consistent message makes creating drama difficult for the media
Collaboration
Summary

• Biosecurity is an ever evolving concept that is barn/farm/operation specific

• Industry needs to have a regional FAD plan
  – All potentially affected producers need to know each other’s plans

• Industry needs to be in the best spot to initially respond to a FAD introduction
  – We can respond the quickest and most efficiently

• Don’t forgot about the people
Acknowledgements

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  – Jordan Bowers, Evan VanBeusekom, Petri Papinhano, Gorica Rajcic-Spasojevic
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  – MCROC
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• HPAI survivors club