LPAI & Controlled Product Marketing (CPM) for the Layer Industry
A Story of Success: Controlled Marketing

• Background:
  • Animals that get influenza, recover and clear the virus which is correlated with the development of antibodies.
  • Birds with antibodies, do not transmit virus

• Controlled Marketing is a plan to safely get LPAI recovered flocks to market
  • meat birds
  • Holding currently infected LPAI (i.e. PCR +) birds in the house on the farm, until recovery (i.e. PCR -)
    • All other flocks on farm must be PCR -
  • Depopulation by taking birds to market
Controlled Marketing

• Mainly performed with turkey flocks and mostly in Minnesota (over 1000 LPAI infected flocks have moved to market without spreading to other farms)

• States that have done CM
  • California
  • Colorado
  • Pennsylvania
  • Maryland
  • Michigan
  • Minnesota
  • Missouri
  • Nebraska
  • North Carolina
  • South Dakota
  • Utah
  • Wisconsin

https://blogs.scientificamerican.com/
Controlled Product Marketing (CPM)

- A plan to continue marketing **EGGS and EGG PRODUCTS**
  - Layers, breeders
  - Holding currently infected flocks (i.e. PCR +) on the farm until recovery (i.e. PCR -) (seroconversion)
    - Egg product from flocks continues to process
    - Shell eggs are not put into market from an actively infected flock. Rather, they are sent to liquid egg processing.
    - Once the flock has recovered, shell eggs can re-enter the market
  - Birds live out their natural life with continued egg production
    - Potentially depopulate recovered flock for C&D on a multi-age complex, if all others remain healthy

https://www.reddit.com/r/hatchery/
Why is Controlled Product Marketing (CPM) a Critical Option for Table Egg Layers?

• The egg is the value product that is marketed
  • Hens produce eggs for approx. 1.5 -2 years

• Birds must be saved for business continuity
  • May result in permanent loss of customer and work force
  • Physical product market loss is costly

• The monetary expense of depopulation is greater than that of CPM
  • In 2003 (CT): $5 M (CPM) vs projected $76 M for depopulation

• In certain situations, the risk of LPAI spread outside a complex during a depopulation process is greater than that of the CPM option when detection is early and biosecurity is tight.
HPAI and LPAI are very different diseases

**HPAI**
- Deadly
- Infected birds die
- Spread by proximity
- Passive surveillance
- Virus detection

**LPAI**
- Silent
- Infected birds can recover
- Spread through networks
- NPIP surveillance
- Virus or antibody detection
HPAI and LPAI are very different diseases

**HPAI**
- Controlled with stamping out
- Depopulation
- Disposal
- Decontamination
- Repopulation

**LPAI**
- Can be eliminated by stamping out
- Can be eliminated by controlled product marketing
Preliminary Simulation Results: Prevalence of Infectious and Seropositive Birds Over Time in an LPAI Infected Flock

With LPAI, you are too late with detection for rapid mass depop to reduce risk.
Preliminary Simulation Results: Prevalence of Infectious and Seropositive Birds Over Time in an LPAI Infected Flock

Time post exposure (days)

95-100% at 8 days
75-80% at 10 days
100% at 11 days

Carol Cardona - UMN
Preliminary Simulation Results: Prevalence of Infectious and Seropositive Birds Over Time in an LPAI Infected Flock

- 95-100% prevalence at day 8
- 75-80% prevalence at day 11
- 10-12% prevalence at day 16

Carol Cardona - UMN
Preliminary Simulation Results: Prevalence of Infectious and Seropositive Birds Over Time in an LPAI Infected Flock

Carol Cardona - UMN
Can we make CPM a successful option?

**RISK ASSESSMENT**

ASSUME TIGHT OPERATIONAL BIOSECURITY FOR ELIMINATION OF OFF-FARM SPREAD

High

VS

Intermediate

VS

Low
Egg Movement is Low Risk

- LPAI infection on farm *must be monitored and under control*

- Horizontal Transmission: Washed and sanitized eggs are negligible risk

- Vertical Transmission: There is little evidence that this occurs with LPAI virus
Can we make CPM a successful option?

BIOSECURITY

Keep the “outside out”
Exclusion Biosecurity

Keep the “inside in”
Quarantine farm and houses!!
Inclusion Biosecurity

Carol Cardona - UMN
Can we make CPM a successful option? **EARLY DETECTION**

- Encourage early detection and confirmation to prevent spread both off-farm and between houses
  - Important for large multi-house complexes
  - Develop serology surveillance and production parameter triggers

- Early detection reduces likelihood of converting to a HPAI virus
  - We can make a potentially high risk situation, lower risk by detecting early and putting mitigation steps in place
  - Less virus, less opportunity to re-assort

- Early detection promotes successful CPM and CM (i.e. Turkeys in Wisconsin in 2017)
  - MUST CONTAIN VIRUS AS SOON AS POSSIBLE
Can we make CPM a successful option?

**STRict REQUIREMENTS FOR CPM**

- Define strict and specific requirements for CPM option
- Each case will be different and should be handled according to the specific situation
- The flock(s) must be a limited size and a closed population
  - No introduction of naïve birds
  - Large multi-age complexes will be difficult to control
    - Potential to selectively depopulate the recovered barn and eliminate virus from the environment on a multi-age complex that has good inclusion biosecurity.
Strict Requirements for CPM

• Quarantine procedures in place for farm and specific houses
• No spread to other premises
• No significant trade bans
• Available market for eggs
• If any of these measures fails, CPM is no longer an option!
Suggested control options

• Multi-factorial approach is necessary to be successful. For example:
  • Barn quarantine
  • Closed flock (no naïve bird introduction)
    • Multi-age premises will be problematic without controlling house to house spread
  • Virus needs to be fast moving and infect the majority of the flock quickly
  • Employee and equipment traffic
  • Disinfection controls
    • Ozone treatment of eggs
    • UV treatment of egg belts
    • Chlorine dioxide spray of bird environment
Suggested control options

• Close monitoring of virus in the environment
• Sentinel birds
• Use feed additive immune system modulators that have been shown to prevent virus infection
• Define and develop early warning signals for layers in different production systems
  • Mortality, water consumption, and egg production
Where do we go from here?

• Bring in scientists to speak at industry meetings to educate and generate ideas
  • Round table discussions
  • NCADC, Midwest Poultry Show, IPPE, USAHA

• Create scientific panel of experts to make educated, risk based decisions on LPAI response
  • Risk assessments

• Start with low risk farms
  • Sites with one or two houses and small flock sizes
  • Sites with minimal movements on/off premises
Conclusion

• CPM should be an OPTION for the layer industry.
  • CPM will not always be a possibility and thus we still need indemnity as a choice
  • It is not a “one or the other” type of case – it is based on each individual event and the factors that influence it
• Keep an open mind and get creative
• Research mitigation steps
  • Support research that can help the layer industry make educated decisions
• Coordinate risk assessments to determine course of action