LT: Biosecurity and Control Programs

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LT: Biosecurity and control

- Laryngotracheitis (LT) disease description
- Significance of incubation period
- How LT moves from farm to farm
- LT vaccine control programs
- How biosecurity can prevent spread of LT
- Review of 2006 Delmarva LT outbreak

Laryngotracheitis (ILT or LT)

Laryngotracheitis (LT)

- A herpesvirus (pathogenicity can vary) infection primarily of chickens, with a morbidity of 50-100% and a mortality of 10-20%
- LT is widely viewed as one of the most contagious viruses that affects the broiler industry (low infectious dose)
- Symptoms include coughing, sneezing, head shaking, lethargy, conjunctivitis and difficulty breathing
- Incubation period is 8-14 days

LT description continued

- Recovered and vaccinated birds are long-term carriers (latent infections)
- The route of infection is via the upper respiratory tract and conjunctiva or possibly oral
- Transmission between farms can occur by contaminated people and/or equipment and by airborne particles

Laboratory diagnosis of LT

- Gross lesions: conjunctivitis and tracheitis
- Lack of secondary infections
- Histopathology to identify viral intranuclear inclusion bodies in eyelids and trachea from affected birds is the gold standard to make a confirmed diagnosis of LT
- Serologic tests are unreliable and not used
- PCR tests (new) are being used in research but are currently not reliable enough for routine use
Clinical signs and gross lesions of LT

**Conjunctivitis**

*Eye involvement* in older birds is the most diagnostic clinical symptom that may indicate the presence of LT in the flock.

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**LT conjunctivitis: wing wiping**

Exudate with dirt on feathers

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**LT early conjunctivitis lesion**

Eye opening appears ovoid in shape

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**LT foamy conjunctivitis lesion**

Foamy exudate with swollen eyelids

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**Tracheal lesions**

- Range from excess mucus to diptheritic membrane of sloughed tissue with blood and exudate along entire length of trachea
- Mild lesions are nondescript and suggestive of respiratory disease only
- **Tracheal changes in combination with eye lesions are very indicative of the presence of LT infection in the flock**
Incubation period

8 to 14 days

Introduction of LT onto a farm

Two patterns observed: Walk in or blow in

Walk in: Clinical signs of LT appear near the entrance door used by poultry house workers (people spread)

Blow in: Clinical signs of LT appear along sidewall air inlets in the house located nearest to the road (aerosol spread)
“Walk in” spread of LT

People spread LT
- Contact with incubating flocks
- Contact with diseased flocks
- Contact with people from incubating farms
- Contact with people from diseased farms
- Contact with vehicles and equipment from incubating farms
- Contact with vehicles and equipment from diseased farms
- PEOPLE SPREAD LT

Aerosol transmission of LT

“Blow in” exposure to LT virus via the wind and livehaul trucks

Windborne risk of LT spread = 10X if located within 2.0 miles inside wind vector

Broiler LT vaccination programs
- CEO vaccine administered via the drinking water is the industry standard (do not spray)
- Rolling reactions and very small risk of spread are negatives of CEO vaccines
- Vector vaccines (designer vaccines) with pieces of LT virus incorporated into carrier viruses do not cause reactions and do not spread
- Fowl pox LT (FPLT) administered in ovo: off label use, 50% protection of CEO, not cost effective
- HVT LT (HVTLT) administered in ovo: off label use, equal protection to CEO, not cost effective
Broiler LT vaccination programs

- **Success of vaccination:** A random 70% of animals must be immunized against a disease to eliminate it from the population
- Control of LT with vaccination is not a “go it alone” disease control program
- Cooperation between companies will result in the best opportunity to eliminate LT from a dense poultry area in a timely manner
- Vaccination can usually stop after 30-60 days without a confirmed case of LT

Biosecurity and LT

Biosecurity Basics

(Biosecurity = protecting life)

Following good biosecurity practices will reduce the risk of LT reaching your farm

Biosecurity basics

- Isolation (keep disease far away)
- Locate poultry houses away from roads and other poultry
- Do not keep other poultry on the farm and do not visit other poultry
- Do not allow unnecessary visitors
- Only allow clean equipment onto your farm
- Wear farm dedicated footwear and clothing when inside poultry houses
- Keep dead birds on the farm

Growers **partner** with company in production of poultry

- Poultry companies contract with local farm families (growers) to grow poultry
- Contract grower provides poultry housing and labor to raise birds
- Poultry growers are the first and most important line of defense to prevent introduction of poultry diseases into their flocks
- Poultry companies must educate growers about biosecurity

Grower education: Biosecurity

Poultry companies provide biosecurity information and training to growers in several ways:

- Meetings with company veterinarian
- Biosecurity risk assessment score (new tool)
- Letters
- Company newsletters
- Service personnel should talk up biosecurity during each contact with growers
Biosecurity risk assessment tool
- Developed by industry with input from academia and government
- Measures biosecurity risk in a quantitative way – a “score” makes people care
- Helps growers and company representatives to understand and discuss “risky” practices
- Use this tool to manage and reduce risk
- 3 levels measured: Area, Farm, and House
- 66 questions in current form

Dead bird management
- The most LT virus on an LT positive farm is in the birds that died of the disease: dead birds are dangerous
- Dead birds should never leave the farm
- Never have contact with dead birds from other farms (shared composters, shared manure sheds, rendering sites, laboratories, illegal feeding to hogs)

Biosecurity on Delmarva
We can and need to do better

Isolated farm location is ideal

Farm density on Delmarva

Sign to discourage visitors
Descriptive sign with visitor log

Do not encourage farm traffic: produce stand on poultry farm

Do not encourage farm traffic: fishing supplies stand on poultry farm

Backyard poultry may be reservoirs of LT virus due to latent infections

Pastured poultry near UDE Lab

Poultry houses close to the road are a risk to "blow in" infections: plant vegetative buffer if possible

Early 2006 LT positive farm located in Gumboro, DE
Vegetative buffer to reduce aerosol exposure to poultry viruses

2006 Delmarva LT outbreak

- December 2005 to May 2006
- All companies involved
- Total farms: 260 confirmed cases
- **Obstacles to control:** Some companies delayed start of LT vaccination program and FPLT vector vaccine used early in the outbreak was not protective

Thank you for your cooperation and support in protecting our industry from disease