US Egg Layer Health Report

USAHA COMMITTEE ON POULTRY AND OTHER AVIAN SPECIES
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Highlights of layer disease problems during the year

Association of Veterinarians in Egg Production (AVEP) Annual Layer Health Survey

Emerging Diseases

US layer industry economic situation

Summary
Layer Disease Highlights 2019

Virulent Newcastle in California

Infectious coryza in Arizona and Pennsylvania
Infectious Coryza – Arizona and Pennsylvania

Both outbreaks started in late December/Early January

Severe production and mortality losses

Easily spread among complexes
Infectious Coryza PA

Over 12 million layers, pullets and broilers affected in 6 months in PA

Caused by Avibacterium paragallinarum

Supposedly fragile in the environment but spread very easily between farms in PA

Now has spread to Ohio, Delaware, Maryland, and New Jersey
Coryza PA – Case II
Survival of *Avibacterium paragallinarum*

- Recent Studies at U Penn New Bolton Center
- No reduction after 24 hours+ in tap water at 43F or 77F
- Significant reduction in numbers at 95F after 7 hours
Timeline of Pullet and Layer Coryza Cases in PA
Timeline of Broiler Coryza Cases in PA
Survey of Production Managers - Possible Reasons for Introduction of Coryza

**Bird Movement**

- Infected pullets grown in Lancaster County
- Spent fowl
- Fowl trucks used for pullet movement
- Crews down time only 8 hours after working positive flocks then negative flocks
- Interchange of layer and pullet crewmembers
- Interchange of pullet and layer hauling equipment

**Movement of people across the line of separation especially at house entries**

- Lack of abiding by the rules of hand and footwear changing
Response to Coryza Outbreaks

- Treatment of positive flocks
- Vaccination not begun until vaccine (commercial bacterin) became available in mid April 2019
- Autogenous bacterin not available until July 2019
- Evaluate epidemiology and biosecurity to prevent further spread
AVEP = Association of Veterinarians in Egg Production

140 dues paying members

30 additional members that includes student, retired, and honorary members

Sent to 42 selected members actively involved in direct commercial layer health management

Consultants
Egg production company vets
Biologic company vets
Primary breeder company vets
Diagnostic lab vets
Pharmaceutical company vets

30 responded = 71% response rate
Members asked to judge the importance of each disease or condition according to the following scale:

1 = Little or no importance to flock health or profitability. Very little effort to control

2 = Some importance to flock health or profitability. Moderate effort to control on some farms.

3 = Moderate importance to flock health or profitability. Moderate effort needed to control on most farms.

4 = High importance to flock health or profitability. Significant effort to control on some farms.

5 = Very high importance to flock health or profitability. Significant effort to control on most farms.
<table>
<thead>
<tr>
<th>Condition</th>
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<tbody>
<tr>
<td>1-E coli</td>
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<td>2-Infectious bronchitis</td>
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<td>3-Calcium depletion</td>
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<td>4-Coccidiosis</td>
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<td>4-Mg</td>
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<tr>
<td>6-Infectious coryza</td>
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<tr>
<td>7-Focal Duodenal Necrosis</td>
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<td>8-False Layer Syndrome</td>
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<td>9-Peckouts</td>
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<td>10-Necrotic enteritis</td>
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Caged Layers
Cagefree Pullets

1. Coccidiosis
2. Panning
3. Infectious bronchitis
4. IBD
5. Necrotic enteritis
6. E. coli
7. ILT
8. Mg
9. Post-SE Bacterin Hepatitis
10. Roundworms
AVEP Important Issues

**High to Very High**
- Avian Influenza
- Lack of approved, effective treatments

**Moderate to High**
- vND
- SE
- Egg associated human outbreaks with other Salmonella serotypes
- Lack of effective vaccines

**Low to Moderate**
- Lack of diagnostics
AVEP Welfare Issues

- All Moderate to High Concern
  - Possible ban on beak trimming
  - Possible ban on using maceration for male chick euthanasia
  - Continued misuse of MAK carts
  - Lack of information for emergency depopulation
  - Cagefree management challenges
Emerging Diseases

- False Layer Syndrome
- Spotty Liver Disease
- Bed Bugs
False Layer Syndrome

False Layer continues to be seen in different areas of the US and Canada

Felt to be caused by infect with the DMV 1639 infectious bronchitis virus during the first 2 to 3 weeks of life in contaminated multi-aged pullet growing facilities or areas of high poultry density

Characterized by low peaks of 50 to 85%

Find birds with non-functional left oviducts, often cystic

May see penguin walking birds
False Layer Syndrome
## False Layer Syndrome

<table>
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<tr>
<th>Treatment – none</th>
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<tr>
<td>Detection of DMV 1639</td>
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<tr>
<td>• Submit cecal tonsils and respiratory tissue to lab for IBV detection</td>
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<td>• Example: 7 days, 14 day, 5 weeks</td>
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<td>Prevention</td>
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<td>• Mas5 vaccination at hatchery or IBron vaccination at 0 to 2 days after placement</td>
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<tr>
<td>• Biosecurity practices – direct air from neighboring older pullets away from young pullets for the first 3 weeks if possible</td>
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Spotty Liver Disease
Spotty Liver Disease

Caused by Campylobacter hepaticus

Mostly seen in flocks with outdoor access although there are a handful of cagefree conventional and caged layer complexes with the disease

Seen mostly in the southern Midwest (MO and AR) but now in many more states including Iowa

Lesions of miliary white foci of necrosis in the liver

Flock mortality increases to 0.3 to 1% per week for 4 weeks +.

Egg production losses are 5 to 20% for 4 to 6 weeks

Treated with chlortetracycline, citric acid (lower water pH to 4), chlorination of water, oregano
Bedbugs
Bedbugs

An increasingly seen problem in the Northeast and Midwest

Possibly irritation issues on birds

The main problem is transfer of bedbugs to house worker or crew member dwellings and other public housing

Feed on the birds at night and hide during the daylight hours

Very difficult to eliminate from poultry houses due to movement to other houses during treatment and sequestered from chemicals in hiding places

House treatments

Heat – 130F+ for several hours
Insecticides
Bed Bugs

Bite Appearance

- Bed bug bites often resemble and can be mistaken for other insect bites, a number of skin conditions, or chicken pox.

- Bites are usually painless, despite leaving small, visible puncture marks on the skin, and most people do not report a reaction.

- The development of 2-5-mm itchy, red, raised or flat bumps are the most common reactions seen.

- Most bites will heal within a week, unless they are aggravated by scratching.

- Individuals exposed to repeated bites can also develop allergic reactions to the bed bugs’ saliva, which resemble allergic reactions to insect stings.

Bedbugs
Gregory Martin Bedbug Trap

Construct a tube of cardboard

Paint two pieces of heavy paper with “Catch Master” glue for mice trapping

Place inside the cardboard tube

Place a small piece of dry ice for a CO2 source to attract bedbugs

Place near where chickens bed down at night

Check traps in the morning for bedbugs caught on the glued paper
Layer Industry Economics
Figure 5: U.S. Cage-Free and Conventional Layers

- Organic
- Total cage-free
- Conventional
- % cage-free

Source: USDA AMS
1) IA - 55.5 million
2) OH – 34.8
3) IN – 32.5
4) PA – 25.7
5) TX - ???
6) CA – 12.5
Figure 5: Estimated Cost of Production and Producer Non-Processed Egg Price in U.S. (Quarterly 2010-2019)
Summary

Egg producers face a long list of significant disease issues

Much work is needed to develop prevention strategies
- Biosecurity
- Vaccinology
- Bird environment management

Too many layers = Low Egg Prices
Questions??