Outline

- 2018 AVEP Disease Survey
- Issues of Concern
- Emerging layer diseases
- Egg Industry Update
AVEP Disease Survey

- AVEP – Association of Veterinarians in Egg Production
- 186 members
  - 138 core members
  - 13 retired
  - 3 honorary
  - 34 student
AVEP Disease Survey

- 30 core members responded
- Categorization of diseases and conditions
  - 1 = Little or no importance
  - 2 = Some importance
  - 3 = Moderate importance
  - 4 = High importance
  - 5 = Very high importance
## Early Chick Mortality

<table>
<thead>
<tr>
<th></th>
<th>Caged Pullets</th>
<th>Cagefree Pullets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starveouts</td>
<td>2.87</td>
<td>3.18</td>
</tr>
<tr>
<td>Yolk Infections</td>
<td>2.90</td>
<td>3.11</td>
</tr>
</tbody>
</table>

Starveouts and yolk infections continue to be an issue of moderate concern.
AVEP 2018 Disease Survey - Caged Pullets

1 - Infectious Coccidiosis Bronchitis
2 - ILT
3 - IBD
4 - Mg
5 - Post SE Bacterin Hepatitis
5 - Necrotic Enteritis
7 - Marek's
8 - E coli
9 - Pox
AVEP 2018 Disease Survey - Cagefree Layers

1. Pecking
2. E. coli
3. Coccidiosis
4. Piling
5. Infectious Bronchitis
6. Mg
7. Roundworms
8. Necrotic Enteritis
9. ILT
10. Calcium Depletion
False Layer Syndrome (FLS) and Infectious Bronchitis (IBV)

- FLS is the result of a nephropathogenic IBV infection of the oviduct of chicks during the first two to three weeks of life
- Seen in areas of high broiler density and multi-age pullet facilities that have circulating nephropathogenic IBV
- Delmarva 1639 or PA nephropathogenic strains most often implicated
- Use of day-old IBV vaccination is working well for prevention
False Layer Syndrome and Infectious Bronchitis
Bacterin Hepatosis Syndrome

- Also called Post SE Bacterin Hepatitis
- Massive destruction of liver tissue starting two weeks post injection
- Mortality can reach a total of 7%
Roundworms

- New product for use in layers in production approved for use this year – AquaSol (fenbendazole)
- No good anthelminthic for organic layers yet
AVEP Survey – Foreign Animal Diseases, Food Safety, Welfare, and Other Issues

- AVEP members asked to categorize different issues on a 1 to 5 scale:
  - 1 = Little importance
  - 2 = Some importance
  - 3 = Moderate importance
  - 4 = High importance
  - 5 = Very high importance
<table>
<thead>
<tr>
<th>Disease or Issue</th>
<th>Ave. Rating</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avian influenza</td>
<td>4.2</td>
<td>High to Very High</td>
</tr>
<tr>
<td>Virulent Newcastle Disease</td>
<td>3.4</td>
<td>Moderate to High</td>
</tr>
<tr>
<td>Lack of approved, effective treatments/antibiotics</td>
<td>4.0</td>
<td>High</td>
</tr>
<tr>
<td>Salmonella enteritidis (SE)/FDA Egg Safety Rule compliance</td>
<td>3.2</td>
<td>Moderate to High</td>
</tr>
<tr>
<td>Group C or other non-SE serotypes resulting in egg recalls</td>
<td>3.7</td>
<td>Moderate to High</td>
</tr>
<tr>
<td>Welfare issues:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banning of beak trimming</td>
<td>3.8</td>
<td>Moderate to High</td>
</tr>
<tr>
<td>Disposal of male chicks after hatched</td>
<td>3.2</td>
<td>Moderate to High</td>
</tr>
<tr>
<td>On-farm euthanasia of spent fowl</td>
<td>3.1</td>
<td>Moderate to High</td>
</tr>
<tr>
<td>Emergency depopulation of layers</td>
<td>3.7</td>
<td>Moderate to High</td>
</tr>
<tr>
<td>Cagefree issues</td>
<td>3.8</td>
<td>Moderate to High</td>
</tr>
<tr>
<td>Lack of effective vaccines</td>
<td>2.6</td>
<td>Low to Moderate</td>
</tr>
<tr>
<td>Lack of effective diagnostics</td>
<td>2.2</td>
<td>Low to Moderate</td>
</tr>
</tbody>
</table>
Emerging Diseases

- Non-SE Salmonella egg associated human outbreaks
- Ulcerative dermatitis of brown egg cagefree layers
- Spotty Liver Disease
- Erysipelas
- Fowl cholera
- Feed refusal syndrome
- Bedbugs
Egg Associated Group C Salmonella

- 2016 and 2017 *S. oranienburg* outbreaks
- *S. braenderup* human outbreak in 2018 associated with a 2.6 million bird complex in North Carolina
  - 45 cases, 10 states, 11 hospitalized
- Associated with one restaurant chain
- Manure swabs showed very little hen infection
- Outbreak strain found in non-egg contact surfaces in processing area
- Entire complex depopulated
- The FDA Egg Safety Plan has no controls in place for non-SE Salmonella
Ulcerative Dermatitis

- Ulcer seen in the middle of the back resulting in secondary E. coli infections and high deaths
- Mortality over 50% in some cases over a 20 week period
Spotty Liver Disease

- Cause determined to be Campylobacter hepaticus
- 4 week duration
  - High mortality – 1 to 5%
  - Lower egg production – 5 to 20%
- Most cases seen in hot, humid weather
- Pastured layers
- Missouri/Arkansas
Spotty Liver Disease

Photo from Dr. Tom Grimes
Erysipelas

- Many new cases this year in pastured layers
- High mortality – up to 4% a day
- Live vaccine found to work in chickens in face of the outbreak
Fowl Cholera

- Continued problems in enzootic areas
- Pastured flocks
- High mortality – 2 to 5%+
- Vaccination during outbreak works
Feed Refusal Syndrome
Feed Refusal Syndrome

- No evidence of an infectious disease
- Mycotoxicosis suspected
  - Fumonisin
  - DON
  - DAS
  - Others that have no assay
- Difficult to diagnose due to small pockets of toxin in feed
Bedbugs

- Flocks infested in northeast US refused to be transported by companies due to the possibility of crew members carrying bedbugs to their homes.
- A veterinarian that visited a flock carried them home.
Egg Industry

- Profitability good for last year compared to last two years
- Layer numbers rising 2 to 3 % per year
- Cagefree percent increasing
- Iowa continues as the top egg producing state
Figure 3: Estimated U.S. Average Farm Egg Prices by Month (Cents/dozen)

Cost of Production
Top 6 Egg Producing States August 2018

- Iowa
- Indiana
- Ohio
- Pennsylvania
- Texas
- California
Summary

- Overall layer health is good
- Professionals continue to work on solving emerging and existing problems
  - Biosecurity
  - Vaccines
  - Use of antibiotics and non-antibiotic feed additives
  - Use of sanitation products during production and between flocks
Questions ???

Kansas City