Avian Mycoplasma – an update

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Current Picture

- MG
  - Low prevalence
  - High significance

- MS
  - Higher prevalence
  - Lower significance
MS Sequence Types

S-01, S-03/S-05, S-08, S-12, S-14, S-20, S-30, S-33, S-37, S-48, S-50, S-52, S-57, S-62, u-2, u-4, u-6, u-8, u-10, u-12, u-14, u-16, u-18
No. of positive submissions (no vaccinated flocks)
Check Tests

- Panel of convalescent chicken sera against *M. synoviae* and *M. gallisepticum*

- Panel of tracheal swabs and purified DNA from *M. synoviae* and *M. gallisepticum* infected chickens
Antisera Check Tests

• 85 kits (29 Known, 56 Blind)
  – 10 MG+
  – 10 MS+
  – 10 negative

• Pass = Score of >80%
Antisera Check Tests Results

Avian Mycoplasma PDRC Check Tests 2017 Results

Lab Name: Poultry Laboratory
Invoice No. 2003

1) SEROLOGY (Blind Kit): **PASS** Score = 97%

   ELISA – BioChek MGMS Combo (Score = 93%)
   HI – NVSL (Score = 100%)

Comments:
- Two MS+ samples (B14 and B19) were false negative on ELISA (MS HI positive). Some other labs got similar results on ELISA with these samples.

Summary of All Participants (n=85):
   Range of Scores = 87-100%
   # PASS = 85
   # FAIL (≤ 80%) = 0
Antisera Check Tests Results

Range of Scores = 87-100%

# PASS = 85 (100%)

# FAIL (< 80%) = 0
PCR Check Tests

• 67 Kits
  – 49 “Blind”
  – 18 “Known”

• Pass = Score of >80%
PCR Check Tests

• 5 swabs pools (5 swabs each)
  – 1 negative
  – 1 MG+
  – 1 MS+
  – 1 MG and MS+ (1 weak)

• 5 DNA samples
  – 1 negative
  – 1 MG+
  – 1 MS+
  – 1 MG and MS+ (1 weak)
PCR Check Tests

- Strong positive Ct = 20 - 27
- Weak positive Ct = 30 - 35
PCR Check Tests Results

Swabs:
Range of Scores = 80 - 100%
# PASS = 66 (99%)
# FAIL = 1
PCR Check Tests Results

DNA:
Range of Scores = 70 - 100%
# PASS = 64 (96%)
# FAIL = 3
## PCR Check Test Results

### Avian Mycoplasma PDRC Check Tests 2017 Results

**Lab Name:** Vet Diagnostic Lab  
**Invoice No.:** 2003

2) PCR (Blind Kit):

- **Swabs:** 
  - FAIL, Score = 80%
- **DNA:** 
  - PASS, Score = 90%

### Table: Blind Panel Results

<table>
<thead>
<tr>
<th>Blind Panel</th>
<th>Expected Results</th>
<th>% Participants with correct result (Mean Ct)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swab label</td>
<td>MG</td>
<td>MS</td>
</tr>
<tr>
<td>17-06</td>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>17-07</td>
<td>Negative</td>
<td>Positive</td>
</tr>
<tr>
<td>17-08</td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>17-09</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>17-10</td>
<td>Positive</td>
<td>Positive</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DNA tube</th>
<th>MG</th>
<th>MS</th>
<th>MG</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-06</td>
<td>Negative</td>
<td>Negative</td>
<td>100% (-)</td>
<td>100% (-)</td>
</tr>
<tr>
<td>17-07</td>
<td>Negative</td>
<td>Positive</td>
<td>96% (-)</td>
<td>96% (24.7)</td>
</tr>
<tr>
<td>17-08</td>
<td>Positive</td>
<td>Positive</td>
<td>93% (23.0)</td>
<td>100% (-)</td>
</tr>
<tr>
<td>17-09</td>
<td>Positive</td>
<td>Positive</td>
<td>99% (28.6)</td>
<td>97% (28.6)</td>
</tr>
<tr>
<td>17-10</td>
<td>Positive</td>
<td>Weak Positive</td>
<td>99% (-)</td>
<td>97% (31.0)</td>
</tr>
</tbody>
</table>

Positive expected Ct = 21 - 35  
Weak Positive expected Ct = >28

### Comments:
- Incorrect results in submission **highlighted**
- Two MS+ swab pools (17-09 and 17-10) were false negative on MS PCR.
- MS Ct value from swab (17-07) was higher than other labs (39 vs. 33.3 average)
- One DNA sample (17-07) was false positive on MG PCR.

### Summary of All Participants:

**Swabs (n=67):**
- Range of Scores = 80-100%
- # PASS = 66
- # FAIL (≥ 80%) = 1

**DNA (n=67):**
- Range of Scores = 70-100%
- # PASS = 64
- # FAIL (≥ 80%) = 3
PCR

- Swab material
- Moistened vs Dry swabs
- Temperature and time of storage
- Transport/Prep media
Swabbing for PCR
Tracheal
Oropharyngeal

Rachel Jude, 2017
Swabbing for MG and MS Detection by Real-Time PCR

Pierre, S., et al., unpublished
Swabbing for MG and MS Detection by Real-Time PCR

Pierre, S., et al., unpublished
Swabbing for MG Detection by Real-Time PCR

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Swabbing for ILT Detection by Real-Time PCR

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Swabbing for MG, MS & ILT Detection by Real-Time PCR

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Jude, R., et al., unpublished
Thank you

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