Veterinary Services

National Poultry Improvement Plan
2013-2014 Annual Report

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U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Veterinary Services
Surveillance Preparedness Response Service
October 21, 2014
Today’s Commercial Poultry Industry

- 6.2 Billion Meat Chickens
- 320 Million Meat Turkeys
- 1.2 Billion Table-Egg Layers
- 100 Million Meat-Type Breeding Chickens
- 4.7 Million Egg-Type Chicken Breeding Chickens
- 8.8 Million Breeding Turkeys
- 225 Egg & Meat-Type Chicken Hatcheries
- 37 Turkey Hatcheries
- $44 Billion Industry 2014
Objective

• To provide a cooperative Industry-State-Federal program through which new diagnostic technology can be effectively applied to the improvement of poultry and poultry products throughout the country.
NPIP Administration

- **49** Official State Agencies
- **96** Authorized Laboratories
- Provisions are in the *Code of Federal Regulations* (9 CFR parts 56, 145, 146 and 147 and Program Standards)
- General Conference Committee – Secretary of Agriculture’s Official Advisory Committee on Poultry Health
- Participating Hatcheries
  - Egg and Meat Type Chicken Hatcheries – **225**
  - Turkey Hatcheries – **37**
  - Waterfowl, Exhibition Poultry, and Game Birds – **734**
Official NPIP Classifications

• Breeder Classifications
  – U.S. Pullorum Typhoid Clean
  – U.S. Mycoplasma Gallisepticum Clean
  – U.S. Mycoplasma Synoviae Clean
  – U.S. Mycoplasma Meleagridis Clean
  – U.S. Mycoplasma Gallisepticum Monitored
  – U.S. Mycoplasma Synoviae Monitored
  – U.S. Salmonella Enteritidis Clean
  – U.S. Salmonella Enteritidis Monitored
  – U.S. Sanitation Monitored
  – U.S. Salmonella Monitored
  – U.S. Avian Influenza Clean
  – U.S. H5/H7 Avian Influenza Clean

• Commercial Production Classifications
  – U.S. H5/H7 Avian Influenza Monitored
NPIP Participating Breeding Flocks and Birds

– Egg-Type Chickens
  • 237 Flocks with 6,233,761 birds

– Meat-Type Chickens
  • 3,192 Flocks with 72,671,121 birds

– Turkeys
  • 492 Flocks with 4,886,147 birds

– Waterfowl, Exhibition Poultry, and Game Birds
  • 5,601 Flocks with 1,574,450 birds

– Meat-Type Waterfowl
  • 93 Flocks with 213,191 birds
Historic Look at Pullorum Reactors (1921-2014)
Pullorum-Typhoid Eradication

- *Salmonella* pullorum and *Salmonella* gallinarum eradication program – 1935

- Pullorum
  - 2008 – One isolation in backyard poultry
  - 2009 – None
  - 2010 – None
  - 2011 – Two in backyard poultry
  - 2012 – None
  - 2013 – None
  - 2014 – None

- Fowl Typhoid — No isolation since 1987
Historic Look at Pullorum-Typhoid
1975-2014
NPIP Salmonella Programs

- Pullorum-Typhoid Clean
- SE Clean
- SE Monitored
- Sanitation Monitored
- Salmonella Monitored
NPIP Flocks with Salmonella Classifications

• Egg Type Primary and Multiplier Breeders— SE Clean

• Meat Type Primary Breeders— SE Clean and Salmonella Monitored

• Meat Type Multiplier Breeders— SE Monitored and Sanitation Monitored

• Turkey Breeders— Sanitation Monitored

**All Flocks MUST be PT Clean**
Salmonella enteritidis Isolations in Egg-Type Chickens 1989–2014
### NPIP SE (Egg-Type Breeding Flocks)
#### Isolates by Phage Type 1989-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>No. Flocks</th>
<th>Phage Type</th>
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<tbody>
<tr>
<td>1989</td>
<td>1</td>
<td>13A</td>
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<td>11</td>
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<td>1994</td>
<td>3</td>
<td>13A, 8</td>
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<td>1995</td>
<td>2</td>
<td>13A, 28</td>
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<td>1996</td>
<td>5</td>
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<td>1997</td>
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<td>8</td>
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<tr>
<td>1998</td>
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<td>8</td>
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<td>1999</td>
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<td>13</td>
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<td>2000</td>
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<td>2001</td>
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<td>13</td>
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<td>2002</td>
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<td>2003</td>
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<td>13</td>
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<td>2006</td>
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<td>2009</td>
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<td>2010</td>
<td>3</td>
<td>8(2), 13</td>
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<td>2011</td>
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<td>2013</td>
<td>0</td>
<td>n/a</td>
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<tr>
<td>2014</td>
<td>1</td>
<td>n/a</td>
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</tbody>
</table>

#### Pie Chart

- **13**
- **13A**
- **23**
- **28**
- **34**
- **RNDC**
- **Untypable**
- **8**
Percent Condemnation for Airsacculitis by Year for Commercial Broilers

MG Program

MS Program

MM Program

% Condemns

Axis Title

1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0

% Condemns
Mycoplasma gallisepticum, Mycoplasma synoviae, and Mycoplasma meleagridis 2012–2013

<table>
<thead>
<tr>
<th></th>
<th>Egg</th>
<th>Meat</th>
<th>Turkey</th>
<th>WEGBY</th>
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<tbody>
<tr>
<td>MG</td>
<td>0</td>
<td>5</td>
<td>7</td>
<td>38</td>
</tr>
<tr>
<td>MS</td>
<td>0</td>
<td>86</td>
<td>4</td>
<td>30</td>
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<tr>
<td>MM</td>
<td>0</td>
<td>0</td>
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Mycoplasma gallisepticum, Mycoplasma synoviae, and Mycoplasma meleagris dedicated 2013–2014

<table>
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<th>Meat</th>
<th>Turkey</th>
<th>WEGBY</th>
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<tbody>
<tr>
<td>MG</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>MS</td>
<td>14</td>
<td>50</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>MM</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
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NPIP Mycoplasma Diagnostic Services to the Industry

- Known and unknown panel of convalescent contact infected chicken sera against MG and MS produced by Dr. Naola Ferguson Noel as a quality control tool for NPIP laboratories **1995–2014

A MG/MS PCR Proficiency Panel was offered to all NPIP approved laboratories
Quality Assurance Panel of Convalescent Contact Infected Chicken Sera (MG and MS) 1998–2014

June 2014
## NPIP Avian Influenza Surveillance Summary by Subpart 2012-2014 Antibody and Antigen Detection

<table>
<thead>
<tr>
<th>Subpart</th>
<th>Flocks</th>
<th>Birds</th>
<th>Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egg-Type Chicken Breeders</td>
<td>285</td>
<td>4,767,282</td>
<td>25,196</td>
</tr>
<tr>
<td>Table-Egg Layers-Commercial</td>
<td>5,151</td>
<td>1,287,343,146</td>
<td>78,217</td>
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<tr>
<td>Chicken Breeders</td>
<td>5,921</td>
<td>100,934,447</td>
<td>304,670</td>
</tr>
<tr>
<td>Chickens-Commercial</td>
<td>76,823</td>
<td>6,181,374,286</td>
<td>1,145,549</td>
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<tr>
<td>Turkey Breeders</td>
<td>949</td>
<td>8,785,331</td>
<td>36,575</td>
</tr>
<tr>
<td>Turkeys-Commercial</td>
<td>19,275</td>
<td>323,465,462</td>
<td>170,558</td>
</tr>
<tr>
<td>Waterfowl, Upland Game birds, Ex. Poultry</td>
<td>2,123</td>
<td>1,152,151</td>
<td>34,384</td>
</tr>
<tr>
<td>Upland Game birds, Waterfowl, Raised for Release</td>
<td>2,563</td>
<td>37,502,099</td>
<td>33,294</td>
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<tr>
<td>Waterfowl-Commercial</td>
<td>2,563</td>
<td>37,502,099</td>
<td>33,294</td>
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<tr>
<td>Total</td>
<td>113,090</td>
<td>7,945,324,204</td>
<td>1,828,443</td>
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</tbody>
</table>
Notifiable Low Pathogenicity AI Outbreaks FY2014

USA submitted two commercial poultry AI notifications to OIE

- **California H5N8 isolated:**
  - a commercial quail layer flock
  - VI positive
  - Flock was depopulated

- **New Jersey H7N3 isolated:**
  - a commercial game bird hunting preserve/ breeding farm
  - VI positive
  - Pheasants on the premises were tested by rRT-PCR every 7 days for 4 weeks and all tests were negative
  - The premises was inspected by the NJDA and quarantine was released on September 16, 2014
NVSL Annual Proficiency Test Offered To All NPIP Labs

- Group D *Salmonella* check test
- *Salmonella* serotyping Check Test
- AI AGID check test

Coming Soon...
- Pullorum Microagglutination
- AI ELISA check test
- Collaboration with PDRC for a Mycoplasma serology and pcr proficiency test

NPIP Lab Requirements
- Check Test Proficiency
- Trained Technicians
- Laboratory Protocol
- State Site Visit- Annually
- NPIP Review
- Reporting- MOU
- Verification- Duplicate Samples
Laboratory Services Provided to Authorized Laboratories of NPIP

- Annual Salmonella Isolation and Identification Workshop for authorized laboratories sponsored by the GPLN, UGA, U of A, and TPF
  1994-2014

- Three videos sponsored by the U.S. Poultry and Egg Association on Salmonella:
  - Isolation and Identification
  - Sampling and Collection
  - Serology
Laboratory Services Provided to Authorized Laboratories of NPIP

  - Culture, Media preparation, Air sac scoring, ELISA
  - Fluorescent antibody typing, PCR, Random Polymorphic, DNA Fingerprinting.
Laboratory Services Provided to Authorized Laboratories of NPIP

• Avian Influenza Diagnostic Workshop 2000-2014 held at the PDRC and coming to Minnesota in 2015!!

  – Biology of Avian Influenza
  – Avian influenza in layers & turkeys
  – Rapid HA/HI test
  – Laboratory diagnosis of avian influenza
  – RT-PCR test for avian influenza
  – AGID test antigen production
  – Tests to distinguish avian influenza virus from avian paramyxovirus
  – AGID (AGID accreditation CD)
  – ELISA
Thank You

Questions?