Federal Programs: 

Salmonella in Poultry

Dr. Teresa N. Cereno

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Presentation Outline

- Current program
- Results of testing/monitoring
- Limitations, gaps and challenges
  - A. Hatchery program
  - B. Egg program
  - C. Meat program
  - D. Feed Program
Hatchery program

Courtesy: Petersime
Hatchery program
Current program

- Legislative authority – Health of Animals Regulations and Hatchery Regulations under the Health of Animals Act

- Section 79 of the Regulations
  - Covers Pullorum (*Salmonella Pullorum*) and Fowl Typhoid (*Salmonella Gallinarum*) which are foreign animal diseases
    - Both diseases are federally reportable and have been eradicated from Canada
    - Blood testing of primary breeder birds
    - Approved hatchery supply flock policy (AHSF) in force in the province where flock is located
Hatchery program
Current program

- There are 99 health monitored hatcheries
  - Inspected 2-4 x a year depending on classification
  - 15 HACCP-recognized
  - 3 vaccine hatcheries
  - 3 research hatcheries
- Submits fluff samples every six weeks for salmonella monitoring
- SE response policy
  - Re-sampling
  - Hatchery environmental testing
  - Etc.
Hatchery program
Results of testing/monitoring

![Graph showing the results of testing/monitoring for Hatchery program over years 2007 to 2010. The graph compares Salmonella, SE, and Total samples.](image-url)
Hatchery program
Results of testing/monitoring

Percent SE over all Salmonellae

SE Prevalence in Fluff samples
Hatchery program
Limitations, gaps and challenges

- Hatchery Regulations – need a re-write
  - Modernize to firmly address domestic and international standards
    - Import and export requirements
  - Amalgamate regulations
  - Outcome-based regulations
  - Strengthen AHSF – for breeders only; testing on farm level
  - Creation of an authorized salmonella laboratory network
  - Address *Salmonella* Enteritidis and Notifiable Avian Influenza
  - Other emerging zoonotics

- Update hatchery inspection Manual of Procedures
The biggest challenge - slow process of updating a Regulation

The biggest gap – coverage of commercial layer, broiler, and turkey flocks

There is a need to have a well-defined communications protocol between the human health and poultry sectors in federal, provincial, and industry levels when a human illness due to zoonotic disease is reported.
Egg Program

Courtesy: Rondeel eggs
Egg Program
Current program

- Egg Regulations and Processed Egg Regulations under the Canada Agricultural Products Act
- All grading stations are federally registered
  - Total of 255
  - 45% are small – grading less than 50 boxes (15 dozen/box) per week
  - Regular sanitation and product inspection by the CFIA
    - Frequency is based on history of compliance and volume throughput
- Environmental sampling conducted by the CFIA 2x a year in all grading stations and 4x a year in all breaking stations
Egg Program

Current program

- Clean cracked eggs are moved to federally registered processed egg station for breaking and pasteurization
- Since 1995 – 5 provinces permit sale of cracked eggs within the province
  - Packed in federal grading stations
  - Sold to wholesalers, bakeries, and corner grocery stores
- Imports only from USA grading establishments that are environmentally tested 2x a year and demonstrates freedom from Salmonella
Egg Program
Results of testing/monitoring

- All shipments of table eggs from the USA are sampled for SE
  - No positive results in 2009-2010
  - SE has been detected in the past
  - If found, the USDA is notified and the supplier is removed from the list of eligible grading station

- Environmental sampling in 2009-2010
  - 3.5% positive for Salmonella spp.
  - 0.2% positive for SE
Egg Program
Limitations, gaps, and challenges

- Industry and not federal regulations/program
  - Most eggs originate from industry-regulated egg producer
  - Environmental testing at least once during the life cycle
- Ungraded eggs are sold at farm gate by producers
  - Have not been washed/sanitized
  - If washed/sanitized – conditions are not monitored
  - No quality inspection
- Proliferation of urban farming
Meat Program – Abattoir

Courtesy: johnsmeatco.ie
Meat Program - Abattoir
Current program

- Meat Inspection Regulations under the Meat Inspection Act
- Modernized Poultry Inspection Program (MPIP)
  - Highly based on the USDA-FSIS program
- Salmonella is monitored from fresh carcasses post-chill tank (industry)
  - One representative carcass per day for 51 consecutive kill days per year
- Current maximum tolerance level - 12 Salmonella positive specimens
Meat Program - Abattoir
Current program

- Establishment category:

<table>
<thead>
<tr>
<th>Category</th>
<th>Old Program</th>
<th>New Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>6 or less/51</td>
<td>2 or less/51</td>
</tr>
<tr>
<td>Category 2</td>
<td>7-12/51</td>
<td>3-5/51</td>
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<tr>
<td>Category 3</td>
<td>12 or more/51</td>
<td>5 or more/51</td>
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</tbody>
</table>
Meat Program – Abattoir
Results of testing/monitoring

Salmonella Isolation Rates in Federal Establishments

![Bar chart showing Salmonella isolation rates from 2002 to 2009. The rates are consistently high, with a slight decrease in 2009. The chart includes data from 7-32 plants with a total of 357-1632 samples.](chart)

- **2002**: 12%
- **2004**: 14%
- **2006**: 16%
- **2008**: 14%
- **US-20072009**: 10%

**Source:** CFIA, J. Thatcher, August 2010
Meat Program – Abattoir
Results of testing/monitoring

Current USDA Salmonella Standard

Year

% Abattoir Compliance

Category 1
Category 2
Category 3

New USDA Salmonella Standard

Year

% Abattoir Compliance

Category 1
Category 2
Category 3

Source: CFIA, J. Thatcher, August 2010
Meat Program – Abattoir
Limitations, gaps, and challenges

- Salmonella isolates are not serotyped from the Federal testing program – no data on SE level
  - If Plants are serotyping, data are confidential
- No specific initiative detached from the USDA-FSIS program
- Federal Plants are aware of the new USDA standard
Meat Program – Ready-to-Eat

Courtesy: Piller’s

Courtesy: laaloosh.com
Meat Program – Ready-to-eat (RTE) 
Current program

- Meat Inspection Regulations under the Meat Inspection Act
- Ready-to-eat (RTE) is defined as domestic and imported poultry and other meats including fermented and cured products
- Each establishment is sampled 6x (2010)
  - Line swab with product (5 sample units equal to 1250 g) sampling
  - Samples analyzed for *E. coli* count, *S. aureus* count, *Salmonella spp.*, and *Listeria monocytogenes*
Meat Program – Ready-to-Eat
Results of testing/monitoring

- Tests for domestic and imported RTE meat
- 2008 – 1/85 samples unsatisfactory (positive for *Salmonella* spp.)
- 2009 – 133 samples all satisfactory
- 2010 – 74 samples all satisfactory
- SE has not been detected in RTE products tested by the CFIA since 2008
Feed Program
Feed Program

Salmonella Monitoring

- Feed can be a route of exposure for *Salmonella* in the Feed/Food chain

- Control of *Salmonella* in feed manufacturing facilities is very important.

- Because of the impact of *Salmonella* on human and animal health, the CFIA has a livestock feeds monitoring program for domestic and imported feeds.
Feed Program
Salmonella Monitoring

• Approximately 14% of all feeds sampled since 1989 tested positive for *Salmonella*.
• Some feeds are targeted preferentially under this program so this level does not represent a feed industry average.
• This program is used for compliance verification rather than end product monitoring so the number of samples collected by the CFIA each year is relatively low.
• Serotypes of *Salmonella* species that commonly cause infection in humans and animals are not commonly found in feed.
Feed Program

Salmonella Monitoring

• When a feed sample tests positive, the facility must prepare a corrective action plan to address the contaminated feed and how to prevent future contamination.

• Recurring *Salmonella* contamination or detection of a Salmonella serotype of concern may result in placement of the feed/facility on a more intensive, targeted sampling program.
Acknowledgment

- Thanks to all my Hatchery Program colleagues who provided the data for the fluff test results
- Thanks to the following CFIA colleagues for their inputs into this presentation:
  - Dr. Surinder Saini
  - Dr. Judy Scaife
  - Dr. Marina Steele
  - Dr. Gary Thiessen
  - Mr. Neil Vary
“...If you are going to solve a big problem today, you need to do it with much more horizontal collaboration.”

Rick Klausner

The World is Flat by Thomas Friedman