



Pre-harvest Food Safety

Presented by
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Office of Policy and Program Development
Food Safety and Inspection Service
U.S. Department of Agriculture

National Advisory Committee on Meat and Poultry Inspection
September 22th and 23th, 2011
Washington, DC



FSIS 2010 Goals

- Develop effective policies and collaborative steps to promote PH
- Receive input from NACMPI on the following pre-harvest topics:
 - *Salmonella* Enteritidis
 - *Escherichia coli* O157:H7*
 - Chemical Residues
 - Antimicrobial Resistance

**In order to be more effective in its E. coli O157:H7 goals, FSIS is currently considering whether to include all or some STECs in its pathogen reduction strategies*



NACMPI Committee 2010:

Questions regarding pre-harvest are incredibly complex and NACMPI recognizes the great need for and importance of pre-harvest controls among the industry. The committee appreciates the opportunity to begin tackling the necessary and complicated issue of pre-harvest controls.



NACMPI Committee 2010:

The committee supports FSIS and its partner agencies on the federal and state level in their pursuit of the development of policies, verification activities, and the efficacies of practical and applicable technologies that could be employed by producers to better protect public health.



NACMPI 2010 Recommendation:

- *The committee recognizes that this approach will require **multiple public meetings**, possibly a series, with all stakeholder groups, and many areas of expertise represented.*
 - *Meetings should **focus on the various market classes** and species of livestock and poultry and also focus on existing programs and policies...*



FSIS Actions: 2010 Meeting

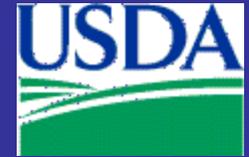
- The Agency is currently planning such a series of meetings, **starting in the fall of 2011 with cattle**, to explore practical pre-harvest interventions designed to reduce the likelihood that FSIS regulated products will be contaminated with pathogens of public health concern.



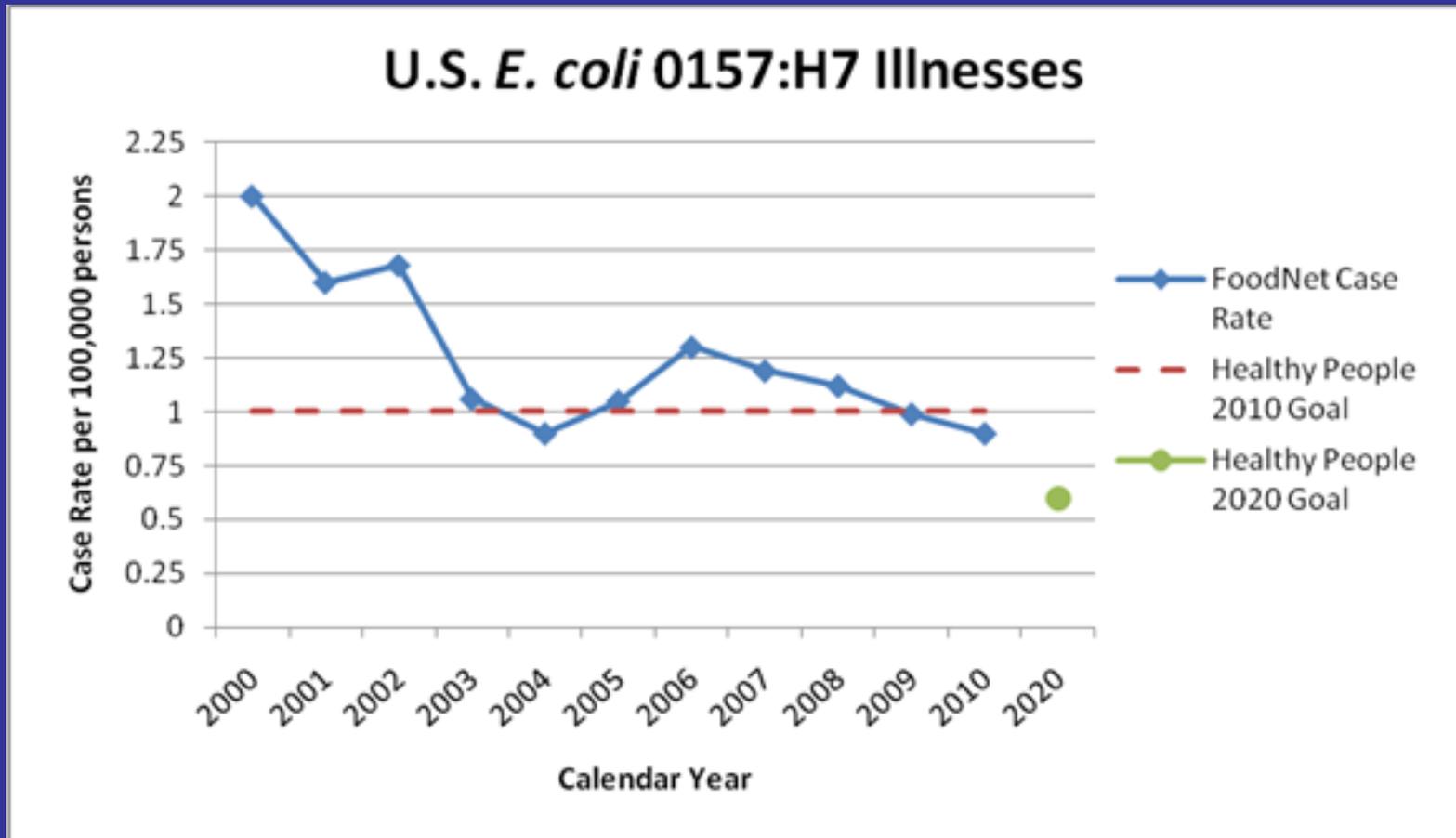
ESCHERICHIA COLI O157:H7*

2010 RECAP

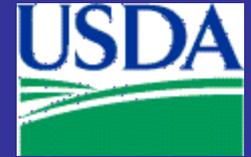
**And possibly some or all STECs*



Escherichia coli O157:H7



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CHEMICAL RESIDUES

2010 RECAP



NACMPI 2010 Recommendation:

- The committee recommends that FSIS **relay information to industry** as quickly as possible and that FSIS gather input from industry about what information would be useful to them in order to improve their food safety systems.



FSIS Actions: 2010 Meeting

- The Agency has recently developed new **compliance guidelines** for Residue Prevention and Agency Testing for Residues and will announce them in a Federal Register Notice (FRN).
- The Agency **will accept comments** on these guidelines and on the utility and ease of use of the Repeat Violator List.



SALMONELLA ENTERITIDIS*

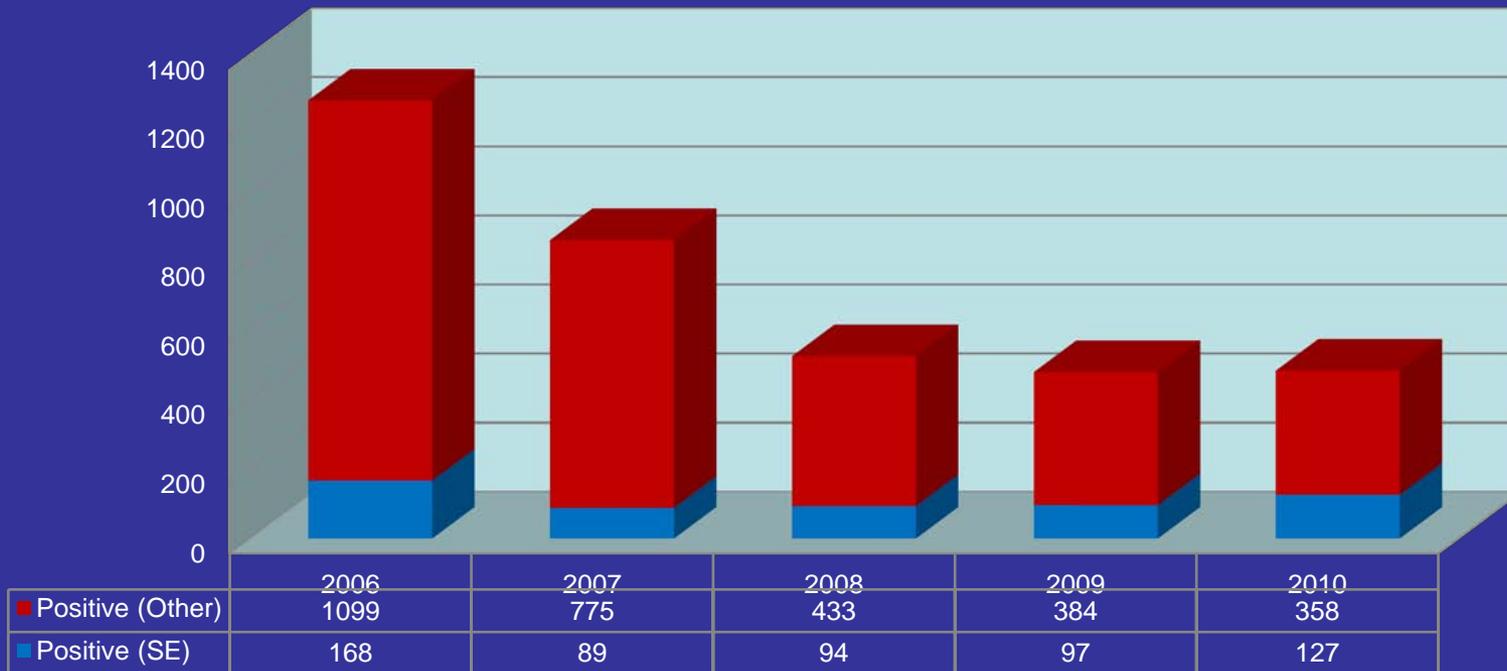
2010 RECAP

*Includes Committee multi-drug resistance recommendations and FSIS actions



Salmonella Enteritidis (SE)

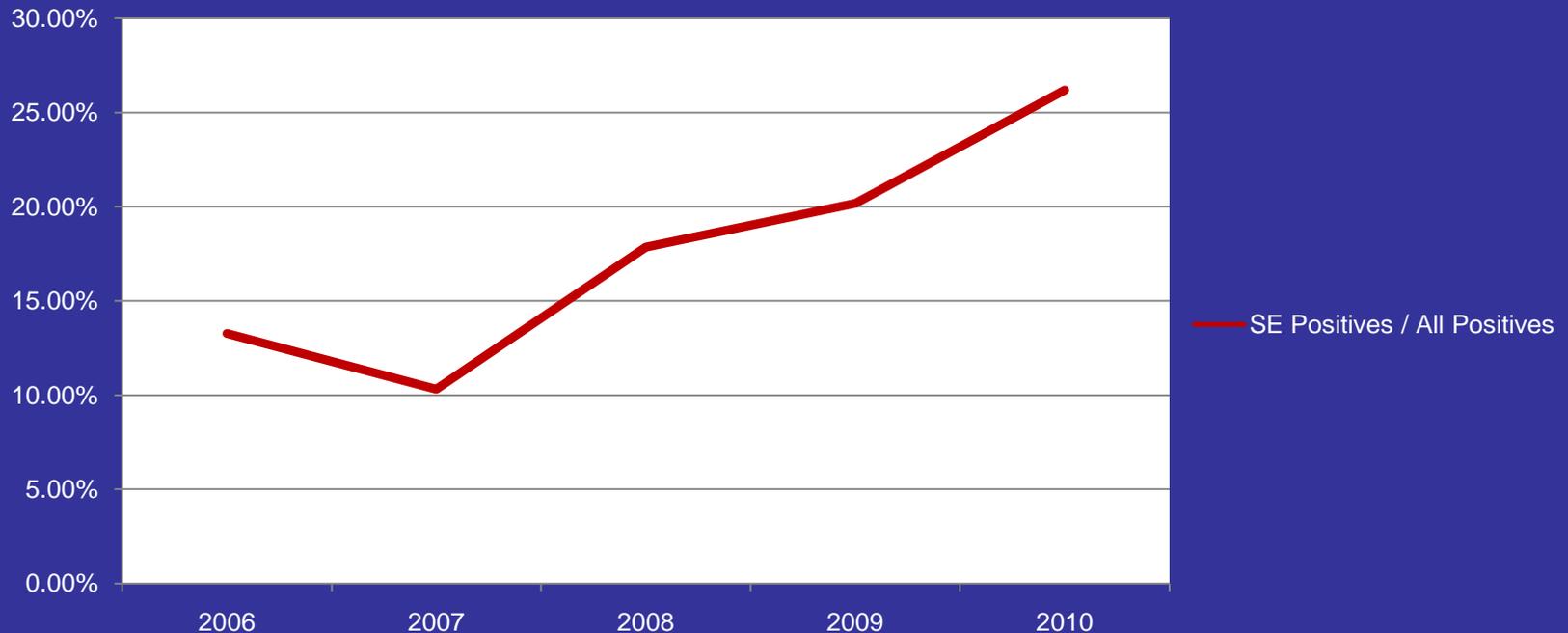
Salmonella Positives from FSIS Verification Testing (Broilers)





Salmonella Enteritidis (SE)

Percent of SE Positives from FSIS Verification Testing
(Broilers)





NACMPI 2010 Recommendations:

- The committee provided several recommendations centered on **working with other Federal agencies and public health partners**, including international partners, to identify best practices that FSIS could tap into, analyze data, and collaborate on scientific studies focused on SE controls.



FSIS Actions: 2010 Meeting

- The Agency **continues to collaborate** with the Food and Drug Administration, the Centers for Disease Control and Prevention (CDC), and the Animal and Plant Health Inspection Service (APHIS) on effective strategies to reduce the human disease burden associated with SE.
- FSIS remains in **continued discussion with the Agricultural Research Service** (ARS) on potential associated research projects.



NACMPI 2010 Recommendation:

- *The committee recommends that FSIS **relay information to industry as quickly as possible** and that FSIS gather input from industry about what information would be useful to them in order to improve their food safety systems.*



FSIS Actions: 2010 Meeting

- The Agency has collaborated with an industry coalition to provide blinded verification data, specific to SE in poultry, on a frequent basis, to supplement industry data and augment industry-wide analysis of trends.
- The same information will also be made publicly available on the Agency's website at some frequency.



FSIS Actions: 2010 Meeting

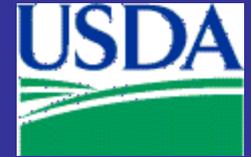
- FSIS will in the very near future begin providing a **compilation of all serotypes** from individual positive verification testing samples in the **Salmonella End-of-Set letters** (EOSL) provided to establishments when the sample set is completed.
- The EOSL will also ultimately include **PFGE-based and drug-resistance information**.



FSIS Actions: 2010 Meeting

- The Agency intends to **provide complete available historical *Salmonella* verification results data to every active federally inspected facility** in an effort to provide those establishments every opportunity to assess and react to any historical *Salmonella* trends.

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2011 ISSUE: PRE-HARVEST *SALMONELLA*



FSIS 2011 Goals

- Develop effective policies and collaborative steps to promote PH
- Receive input from NACMPI on the following pre-harvest topics:
 - Food safety hazards that can occur ***before entry*** into the official establishment
 - *Salmonella*-specific controls



Salmonella

- According to the CDC, *Salmonella* is the **leading cause** of the most serious foodborne illnesses
- For illnesses related to known foodborne pathogens it is responsible for:
 - about **28 percent of deaths**
 - 35 percent of hospitalizations



Salmonella

- While *Salmonella* can be contracted from a number of foodborne sources, FSIS regulated products, **especially poultry**, contribute to the overall disease burden.
- FSIS estimates that **472,859 people became ill** with *Salmonella* from consuming FSIS regulated products in the third quarter of FY2011 alone.



Salmonella

- As part of its corporate “All-Illness” performance measure, FSIS tracks illnesses caused by three major foodborne pathogens:
 - *Salmonella*
 - *Listeria monocytogenes (Lm)*
 - *E. coli* O157:H7

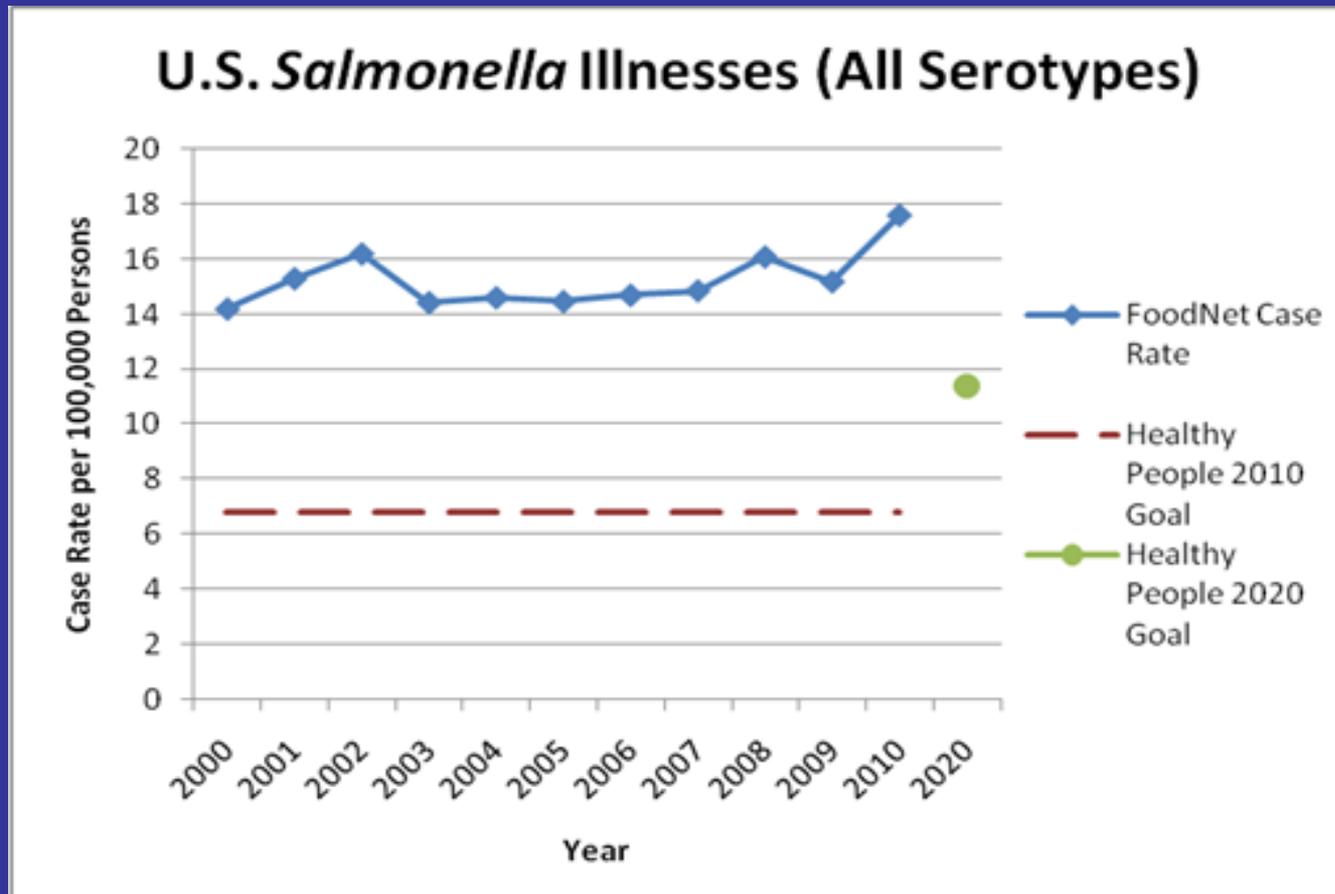


Salmonella

- Significant progress has been made towards reducing illnesses caused by *Lm* and *E. coli* O157:H7
- *Salmonella* illness numbers **remain relatively flat** and those estimated to be caused by FSIS regulated products are significantly higher than are conducive to meeting critical Healthy People 2020 public health goals.



U.S. *Salmonella* Illnesses





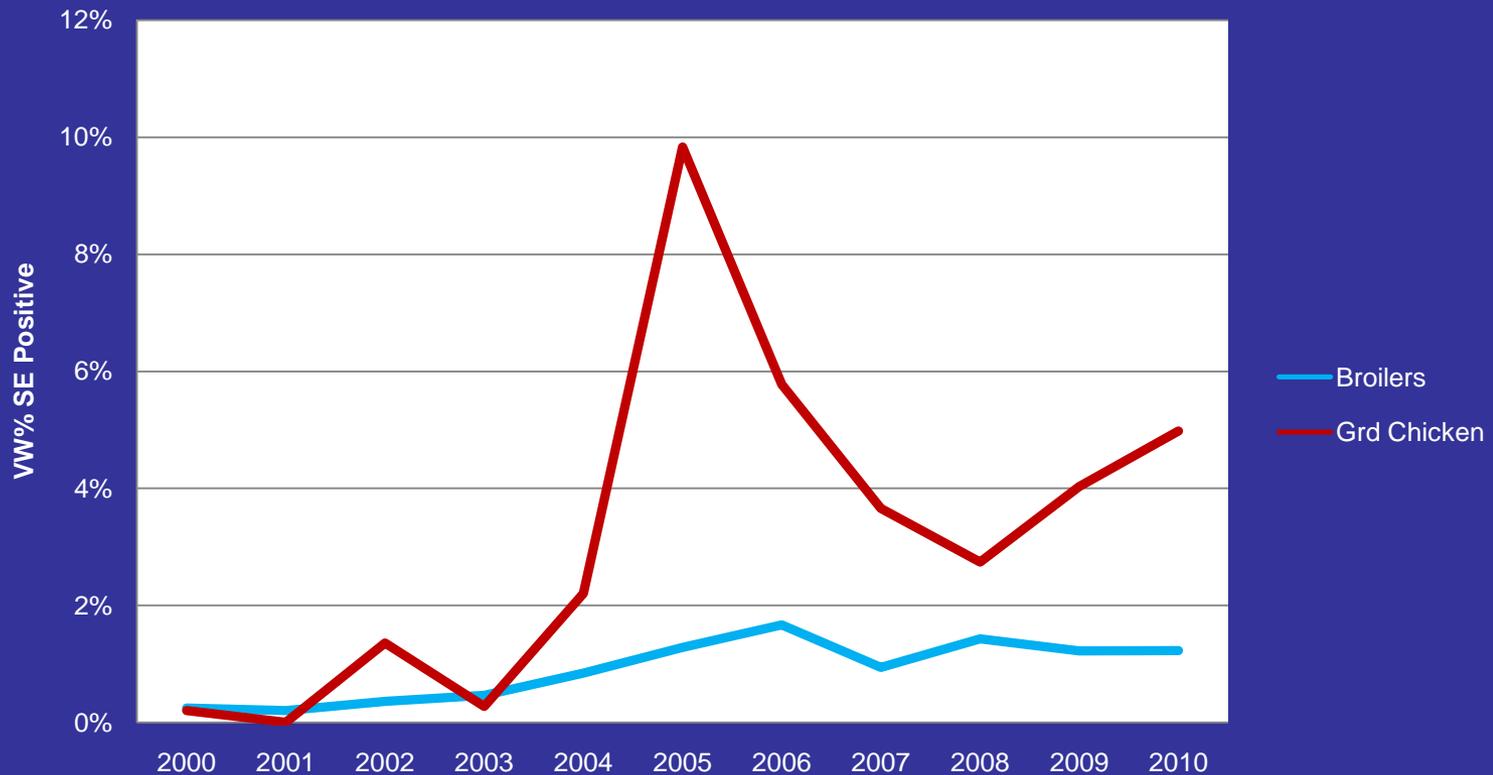
Salmonella

- Since 2009, **over 37 million pounds** of raw ground beef and ground turkey products have been recalled over five separate recalls because they were implicated in salmonellosis outbreaks.
- Impetus: Human Illness
- Resource-intensive investigation after products consumed



Salmonella Enteritidis (SE)

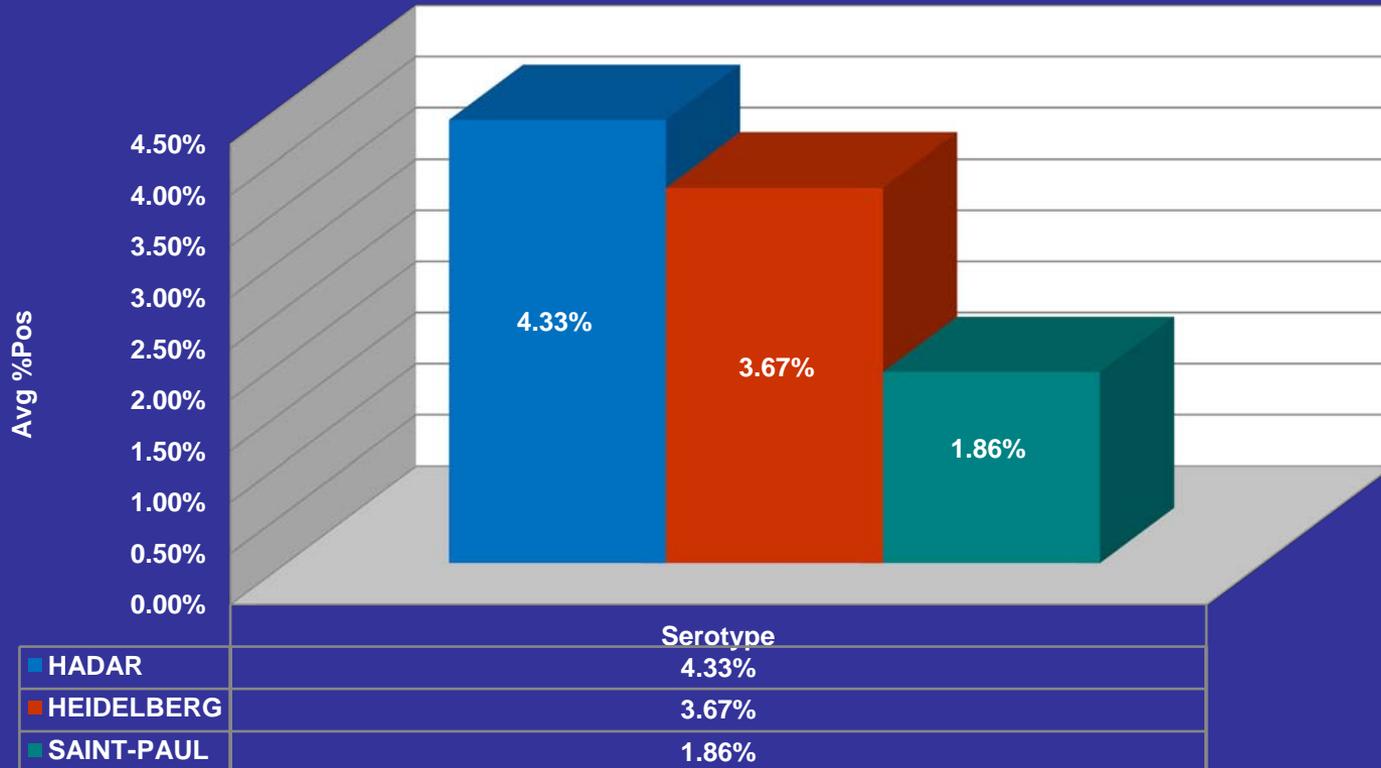
Volume-Weighted SE Percent Positive
(FSIS: Chicken Products)





Salmonella

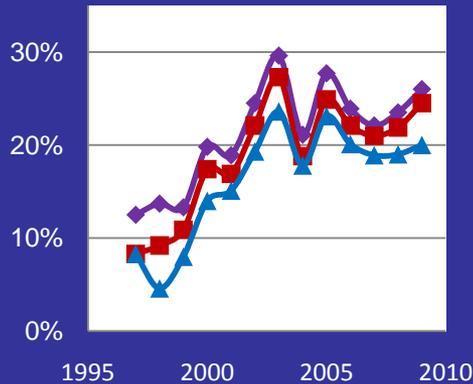
Average Ground Turkey Percent Positive *PREP 1998-2010*





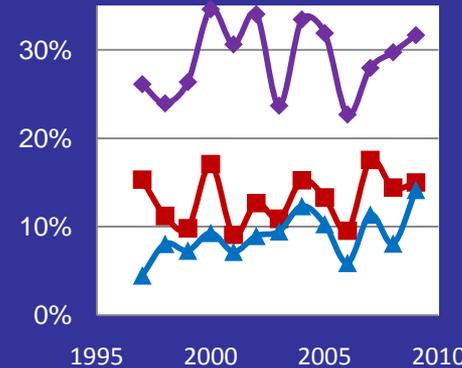
Antimicrobial Resistance

Salmonella Multi-Drug Resistance (MDR) NARMS Data



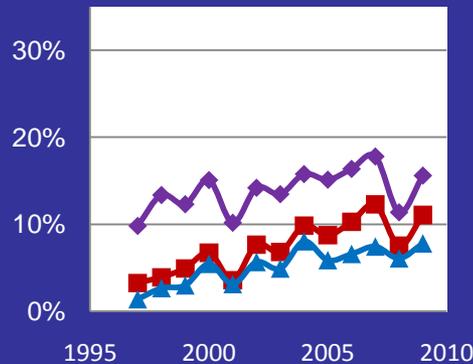
Cattle

- Resistant to ≥ 3 Cattle
- Resistant to ≥ 4 Cattle
- Resistant to ≥ 5 Cattle



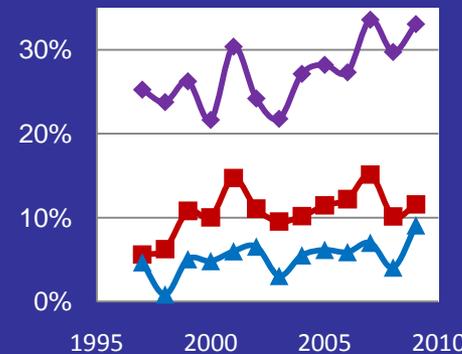
Swine

- Resistant to ≥ 3 Swine
- Resistant to ≥ 4 Swine
- Resistant to ≥ 5 Swine



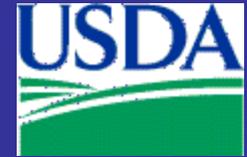
Chicken

- Resistant to ≥ 3 Chicken
- Resistant to ≥ 4 Chicken
- Resistant to ≥ 5 Chicken



Turkey

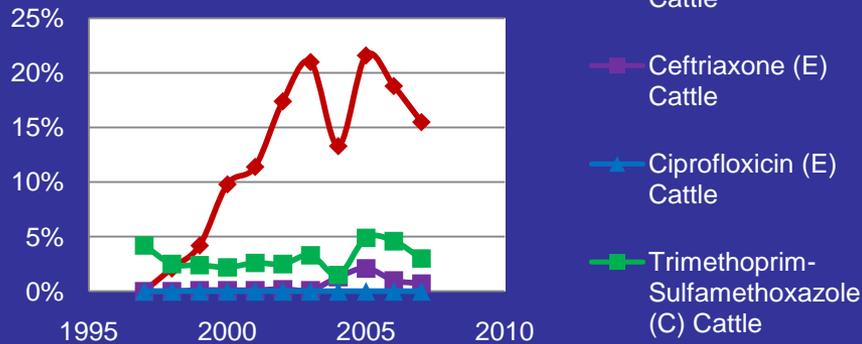
- Resistant to ≥ 3 Turkeys
- Resistant to ≥ 4 Turkeys
- Resistant to ≥ 5 Turkeys



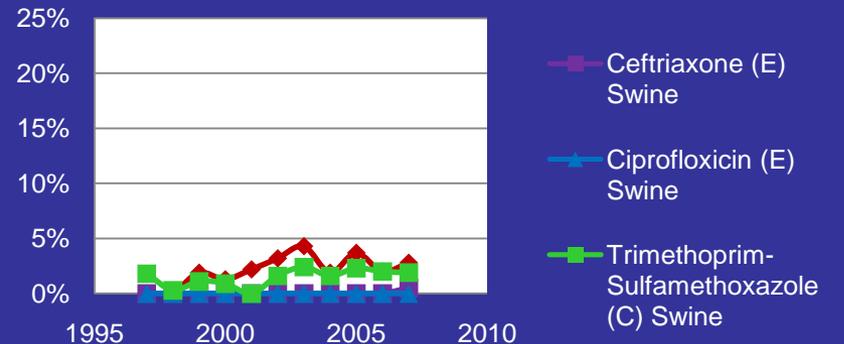
Antimicrobial Resistance

Salmonella Critical-Drug Resistance NARMS Data

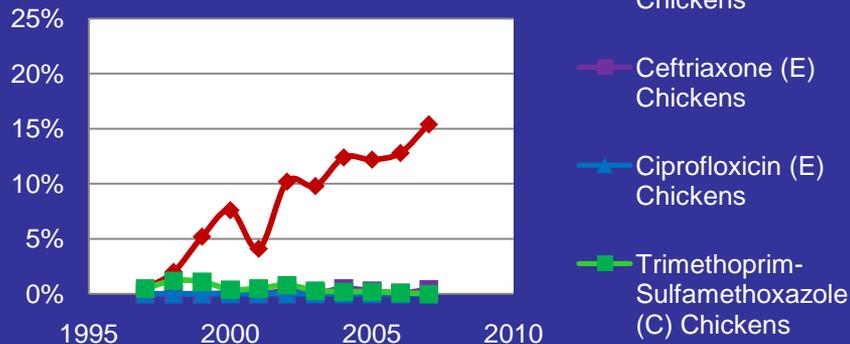
Cattle



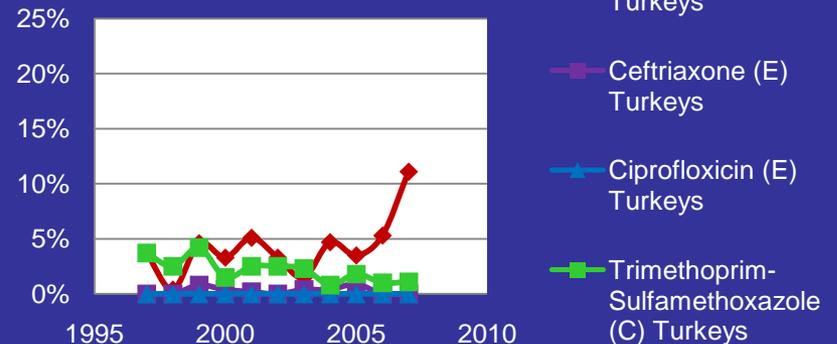
Swine



Chicken



Turkey





HACCP

- 9 CFR 417.1 defines a “**Food Safety Hazard**” as: “Any biological, chemical, or physical property that may cause a food to be unsafe for human consumption.”



HACCP

- 9 CFR 417.2(a)(1) states: “Every official establishment shall conduct, or have conducted for it, a hazard analysis to determine the food safety hazards reasonably likely to occur in the production process and identify the preventive measures the establishment can apply to control those hazards. **The hazard analysis shall include food safety hazards that can occur before, during, and after entry into the official establishment. ...”**



HACCP

- 9 CFR 417.4(a) states: “Every establishment shall **validate the HACCP plan’s adequacy** in controlling the food safety hazards identified during the hazard analysis, and shall verify that the plan is being effectively implemented.”



2011 Question 1

- Varying factors, such as subtype or drug resistance, have historically played significant roles in human salmonellosis outbreaks attributed to FSIS regulated products. With that in mind, what **food safety hazards** that can occur **before entry** into the official establishment does the committee see as most important for establishments to consider when conducting their hazard analysis?



2011 Question 2

- What innovative steps can the Agency take to assist industry in **preventing** strains of *Salmonella* **from entering** official establishments on source animals/products that could negatively impact the public's health?
 - In **vertically integrated** industries, such as poultry or market hogs.
 - In **non-vertically integrated** industries, such as cull dairy and other beef industries (FSIS acknowledges the discussion around animal ID from the previous year).



2011 Question 3

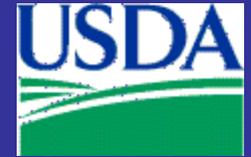
- What does the committee see as the pros and cons to the Agency developing a similar approach to **establishments receiving *Salmonella* positive poultry** or livestock as it takes to repeat residue violators?



2011 Question 4

- The Agency intends to **update *Salmonella* End-of-Set Letters** (EOSLs) to include PFGE and drug-resistance data. Because some of the information may take weeks to collect and collate, FSIS may send the serotype and PFGE/drug-resistance information in separate mailings. Does the committee have feedback on this process or any additional thoughts on the EOSLs to make them more useful for industry to better protect the public's health?

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Thank You!