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# *E. coli* O157:H7 Contamination of Beef – Regulatory Perspective

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## FSIS Responsibility

FSIS is the public health regulatory agency within USDA

- FSIS ensures that the commercial supply of ***meat, poultry***, and processed ***egg*** food products in the U.S. is not adulterated or misbranded
- FSIS authorizing authorities (FMIA, PPIA, EPIA) do **not** bind the Agency to in-plant activity



## Healthy People 2010 Objectives

### *Campylobacter* infections\*:

<u>1997 Baseline</u>	<u>2010 Target</u>
24.6	12.3

### *Escherichia coli* O157:H7 infections\*:

<u>1997 Baseline</u>	<u>2010 Target</u>
2.1	1.0

### *Listeria monocytogenes* infections\*:

<u>1997 Baseline</u>	<u>2010 Target**</u>
0.5	0.25

### *Salmonella* infections\*:

<u>1997 Baseline</u>	<u>2010 Target</u>
13.7	6.8

\*Laboratory confirmed cases/100,000 humans (FoodNet)

\*\* Changed to year 2005 by E.O. (President Clinton)



## Current (2006) FoodNet Results

- STEC O157 incidence at **1.31** compared to Healthy People 2010 goal of 1.00
  - up from 1.06 in 2005 and 0.9 in 2004
  - STEC O157 illnesses did not decrease significantly from baseline period (1996-1998)\*

\*MMWR, CDC. Preliminary FoodNet Data on the Incidence of Infection with Pathogens Transmitted Commonly Through Food – 10 States, 2006. April 13, 2007, Page 336-339



## FSIS Testing

- 1994 -
  - October 17, FSIS began collecting 5,000 samples of ground beef annually, divided equally between Federal establishments and retail operations
  - Not statistically designed, but intended to stimulate industry actions to reduce the presence of *E. coli* O157:H7
- 2007 -
  - Through December 18, FSIS analyzed 12,200 samples of ground beef at approximately 2,000 Federal establishments and retail operations (fewer than 200 samples collected at retail), with 29 positives
  - FSIS began testing manufacturing trimmings (3, 742 samples annually), including foreign produced trim.
  - FSIS put in motion a mechanism to began testing other raw beef components such as head meat and cheek meat (1,500 samples)

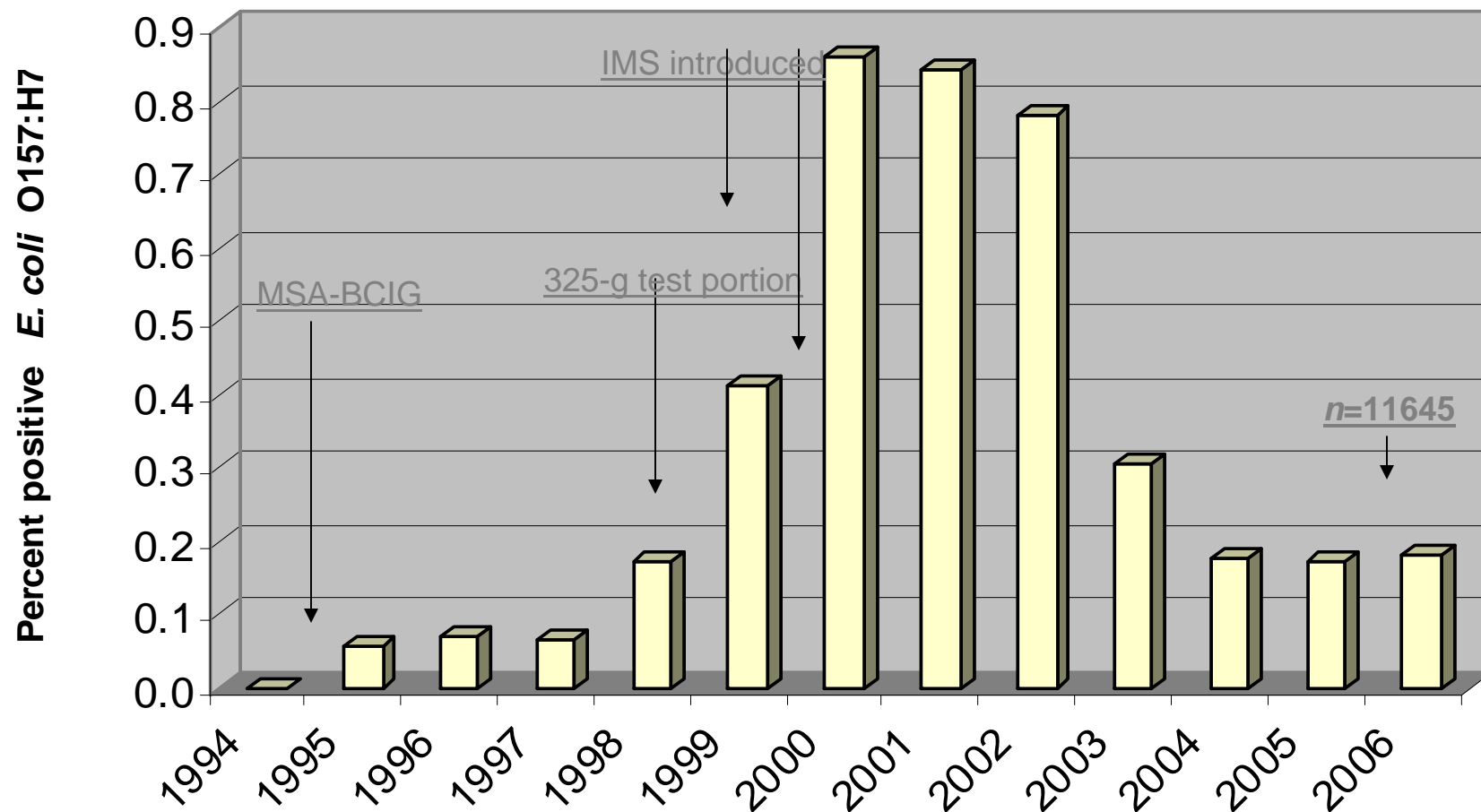


## FSIS Testing Method Changes

- 1994-
  - In the wake of a large-scale outbreak related to fast-food hamburgers in the Western U.S., FSIS declares “zero tolerance” for *E. coli* O157:H7 in raw ground beef
  - FSIS monitoring begins
- 1997-
  - FSIS increases single 25-g test portion to five 65-g test portions (325 grams)
- 1999 -
  - FSIS implements new detection method based on immunomagnetic capture and chromogenic plating media
- 2006 -
  - FSIS implements BAX PCR for screening
  - FSIS initiates baseline study of trimmings used for ground beef
- 2007-
  - FSIS implements risk-based sampling

Ground beef samples positive for *E. coli* O157:H7  
by calendar year

Industry reassesses HACCP







# Inspection System Design

- Microbiological data, in the form of verification testing results for each establishment, supplement on-site observations and give a perspective on compliance with regulatory requirements over time
- Changes in the % positive rate for pathogens of public health concern serve as an early warning of systemic problems arising, tracked quarterly and annually
  - Public health assumption is that a reduction in the % positive rate of product containing pathogens of public health concern should result in a reduction on disease incidence in humans



## Performance Measure

- *E. coli* O157:H7
  - FSIS estimates, using attribution data, that a % positive rate not exceeding 0.20% in ground beef would achieve the Healthy People 2010 goal of 1.0 illnesses/100,000 cases (non-volume adjusted) for the ground beef contribution
  - FSIS will continue to enforce a risk mitigation strategy to keep the % positive rate below 0.20%, and continue to drive the % positive rate lower each year through 2010



## 2008 Focus

- *E. coli* O157:H7
  - Increasing FSIS understanding regarding control practices for all types of beef products (Checklist #5 associated with FSIS Notice 65-07)
  - Implementing targeted (risk-based) testing of trim and other raw beef components (ground beef program began January 2008)
  - Contribution of foreign raw beef for domestic use
  - Significant new focus on sanitary dressing procedures and linespeeds at slaughter

## New Safety Issue

- STEC (non-O157 Shiga toxin producing *E. coli*)
  - Follow-up to October 17, 2007 public meeting;  
~Spring 2008
  - Intend to initiate process to begin testing for STECs in beef in 2008

United States Department of Agriculture  
Food Safety and Inspection Service



**Thank you**