Industry Perspective

- Identifying test methods, study designs, best ways to reduce the impact STEC prevalence is very complex
- We have had a couple of days of very detailed information
  - More questions than answers but that should not be surprising
  - The multi discipline approach is wonderful and is the only way to continue to drive improvement.

Industry Perspective

- Challenges we are faced with
  - How do we navigate this data set, USDA regulatory world, and our daily plant operations in a controlled manner
  - Do we really need to test for everything or can process testing meet our objectives
- Our goal has to be to achieve a 0-Goal for pathogens in meat
  - Currently that goal is lofty, what can we really obtain?

Industry Perspective

- Do we need to paint all processes with the same paint brush?
  - Will the data show that a more targeted approach based off of product type, geographic location, etc. be more impactful?
- How do we open up facilities for more research
- Some more data!

Beef Veal Baseline - Preliminary Shakedown Data

- Samples scheduled 798 (399 at Post-HR and 399 at Pre-Chill)
- Samples collected 664 (332 at Post-HR and 332 at Pre-Chill)
- Samples analyzed 620 (310 at Post-HR and 310 at Pre-Chill)

Distribution of Samples by Beef Subclass

Beef Subclasses	Samples by Subclass	Percent of Total Samples
Beef Carcasses		
Cow	38	12.3%
Steer	110	35.5%
Bull	9	2.9%
Dairy Cow	61	19.7%
Heifer	51	16.5%
Veal Carcasses		
Heavy Calf	9	2.9%
Non-formula fed Veal	1	0.3%
Formula-fed Veal	14	4.5%
Bob Veal	17	5.5%
Total	310	100%

Data from PHIS/Data Warehouse

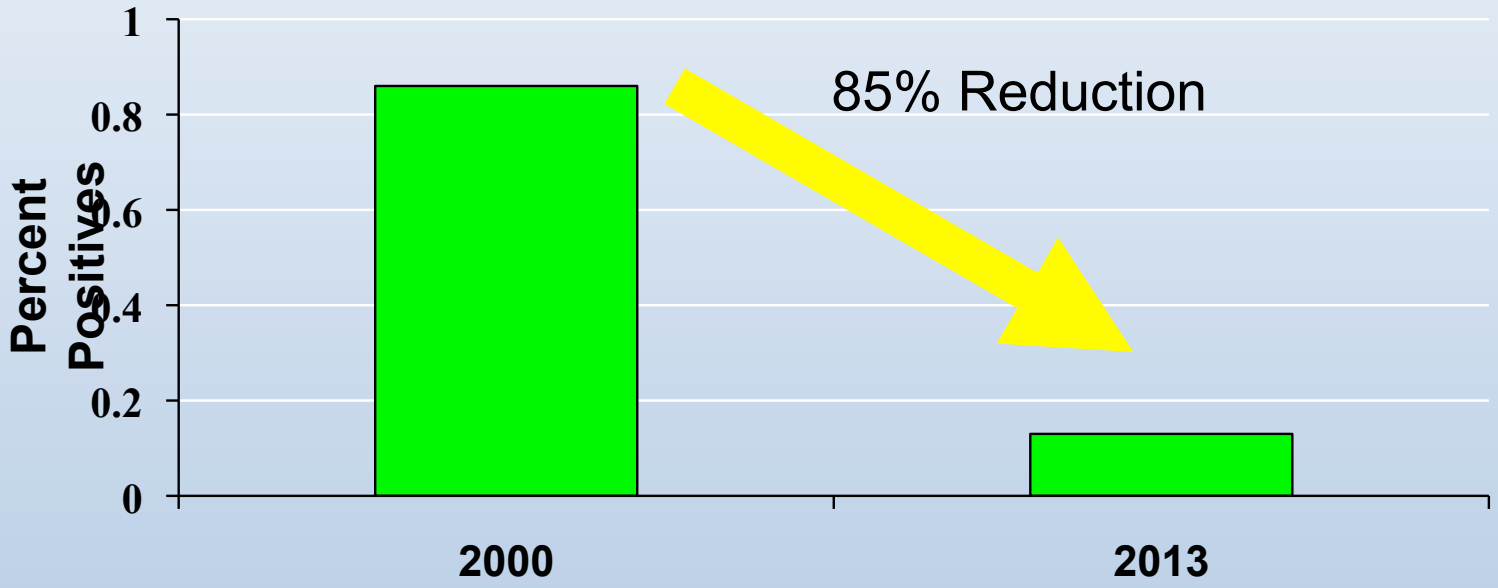
Positive Results

Table 2: Breakdown of BVCBS Positive STEC Serogroups

Month	Project	*E. coli* Serogroups							
		O157:H7	O26	O45	O103	O111	O121	O145	TOTAL
January	S52_PSTHR	2	1		2	1			6
	S52_PRECH					1			1
February	S52_PSTHR	1	4		4	2	1		12
	S52_PRECH		2		1	2			5
March	S52_PSTHR		7		7	1		1	16
	S52_PRECH		1		3				4
TOTALS	S52_PSTHR	3	12	0	13	4	1	1	34
	S52_PRECH	0	3	0	4	3	0	0	10
GRAND TOTALS		3	15	0	17	7	1	1	44

Data is from FSIS's internal Laboratory Information Management System (LIMS)

Prevalence of *E. coli* O157:H7 in Ground Beef*



* Microbiological results of raw ground beef products analyzed for *Escherichia coli* O157:H7.

Results from Analysis of Raw Ground Beef/Veal Samples for *E. coli* O157:H7[1]

Raw Ground Beef (RGB)

As of May 18, 2014

	Federal Plants		Retail[2]		Imports
Source[3]	**Verification**	**Follow-up**[8]	**Verification**	**Follow-up**	**Verification**
Beef	0.02%[4] (1/4,481)[5]	0.00% (0/61)	N/A	N/A	0.00% (0/4)
Veal	0.00% (0/66)	0.00% (0/15)	N/A	N/A	0.00% (0/0)
Mixed[6]	0.00% (0/27)	0.00% (0/9)	N/A	N/A	0.00% (0/0)
Unknown[7]	0.00% (0/0)	0.00% (0/0)	N/A	N/A	0.00% (0/0)
TOTAL	0.02% (1/4,574)	0.00% (0/85)	0.00% (0/206)	0.00% (0/0)	0.00% (0/4)

Results from Analysis of Raw Ground Beef Component Samples for non-O157 STEC [1]

Raw Ground Beef Components (RGBC) [2]

Source	As of May 19, 2013			As of May 18, 2014		
	Number Analyzed	Number Positive [3]	Percent Positive	Number Analyzed	Number Positive [3]	Percent Positive
Federal Plants	**1,190**	**10**	**0.84**	**1,166**	**14**	**1.20**
Trim Verification	768	7	0.91	885	4	0.45
Follow-up to Raw Ground Beef (RGB) Positive [1]	124	0	0.00	102	3	2.94
Follow-up to RGBC Positive	298	3	1.01	142	5	3.52
Non-routine Follow-up/ Traceback	0	0	0.00	37	2	5.41
Imports	**219**	**0**	**0.00**	**207**	**2**	**0.97**

Non-O157 STEC (by serogroup) and *E. coli* O157:H7 YTD [1]

Raw Ground Beef Components (RGBC) [2]

As of **May 18, 2014**

	Federal Plants				Import
Target STEC [3]	Trim Verification *Percent Positive (Number)*	Follow-up to RGB Positive at Supplier *Percent Positive (Number)*	Follow-up to RGBC Positive *Percent Positive (Number)*	**Non-routine Follow-up/ Traceback** *Percent Positive (Number)*	Verification/ Follow-up *Percent Positive (Number)*
O157:H7	**0.22% (2/918)**	**0.00% (0/120)**	**0.69% (1/145)**	**0.00% (0/38)**	**0.00% (0/234)**
Total non-O157 STEC	**0.45% (4/885)**	**2.94% (3/102)**	**4.23% (6/142)**	**5.41% (2/37)**	**0.97% (2/207)**
O26	0.11% (1/885)	0.00% (0/102)	2.11% (3/142)	2.70% (1/37)	0.48% (2/207)
O45	0.00% (0/885)	0.00% (0/102)	1.41% (1/142)	0.00% (0/37)	0.00% (0/207)
O103	0.11% (1/885)	0.98% (1/102)	0.70% (1/142)	0.00% (0/37)	0.48% (1/207)
O111	0.23% (2/885)	1.96% (2/102)	0.00% (0/142)	2.70% (1/37)	0.00% (0/207)
O121	0.00% (0/885)	0.00% (0/102)	0.00% (0/142)	0.00% (0/37)	0.00% (0/207)
O145	0.00% (0/885)	0.00% (0/102)	0.00% (0/142)	0.00% (0/37)	0.00% (0/207)

Results from Analysis of Raw Ground Beef Component Samples for non-O157 STEC [1]

Raw Ground Beef Components (RGBC) [2]

Source	As of May 19, 2013			As of May 18, 2014		
	Number Analyzed	Number Positive [3]	Percent Positive	Number Analyzed	Number Positive [3]	Percent Positive
Federal Plants	**1,190**	**10**	**0.84**	**1,166**	**14**	**1.20**
Trim Verification	768	7	0.91	885	4	0.45
Follow-up to Raw Ground Beef (RGB) Positive	124	0	0.00	102	3	2.94
Follow-up to RGBC Positive	298	3	1.01	142	5	3.52
Non-routine Follow-up/ Traceback	0	0	0.00	37	2	5.41
Imports	**219**	**0**	**0.00**	**207**	**2**	**0.97**

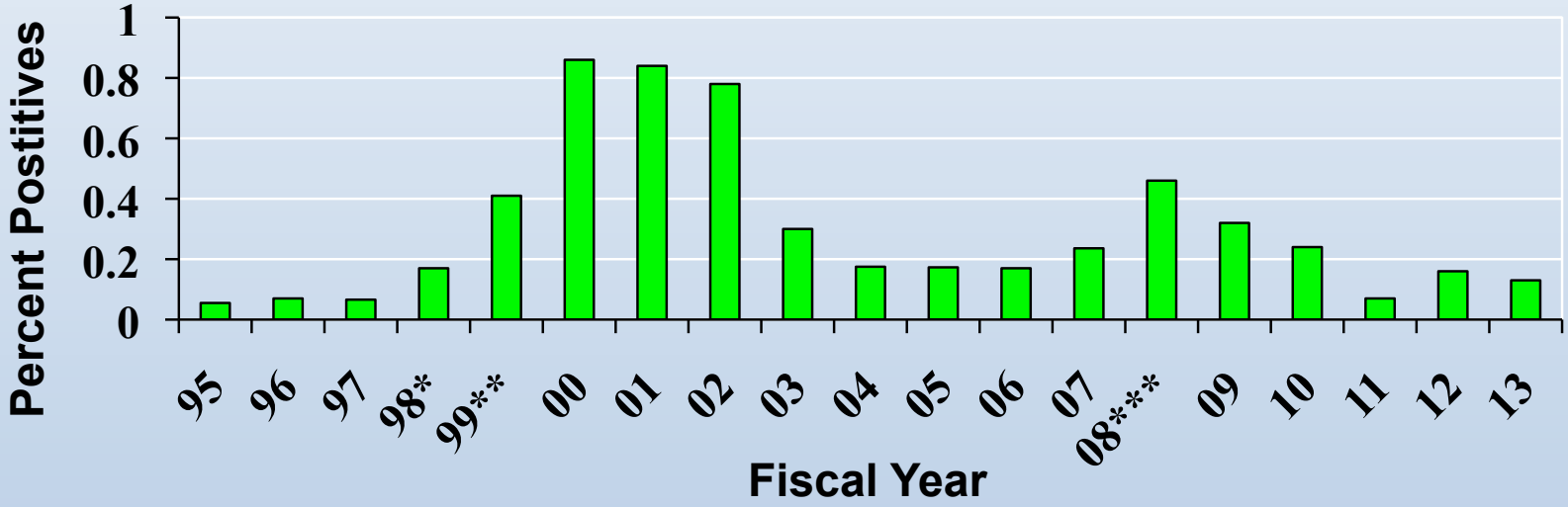
Results from Analysis of Raw Ground Beef/Veal Component Samples for *E. coli* O157:H7[1]

Raw Ground Beef Components (RGBC)

As of May 18, 2014

	Federal Plants					Import
Source[2]	**Trim Verification**	**Follow-up to RGB Positive at Supplier**	**Follow-up to RGBC Positive**	**Other RGBC Verification**	**Bench Trim Verification**	**Verification/ Follow-up**
Beef	0.22%[3] (2/902)[4]	0.00% (0/95)	0.00% (0/121)	0.00% (0/208)	0.00% (0/559)	0.00% (0/226)
Veal	0.00% (0/15)	0.00% (0/25)	4.17% (1/24)	0.00% (0/8)	0.00% (0/15)	0.00% (0/7)
Mixed[5]	0.00% (0/0)	0.00% (0/0)	0.00% (0/0)	0.00% (0/0)	0.00% (0/1)	0.00% (0/0)
Unknown[6]	0.00% (0/1)	0.00% (0/0)	0.00% (0/0)	0.00% (0/0)	0.00% (0/0)	0.00% (0/1)
TOTAL	0.22% (2/918)	0.00% (0/120)	0.69% (1/145)	0.00% (0/216)	0.00% (0/575)	0.00% (0/234)

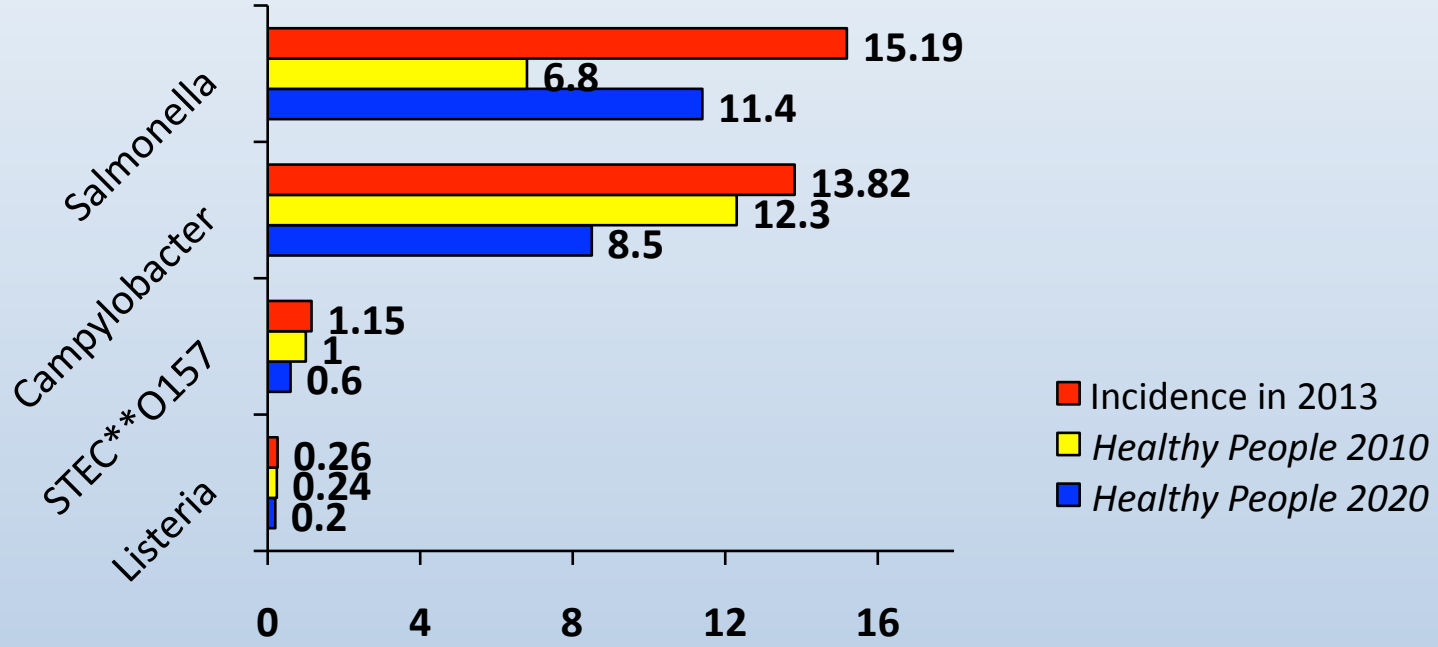
Prevalence of *E. coli* O157:H7 in Ground Beef[1]



[1] Microbiological results of raw ground beef products analyzed for *Escherichia coli* O157:H7.
* In 1998 FSIS increased sample size from 25 g to 325 g.
** In July 1999 FSIS changed to a more sensitive analytical method.
*** In 2008, FSIS changed to a more sensitive enrichment broth

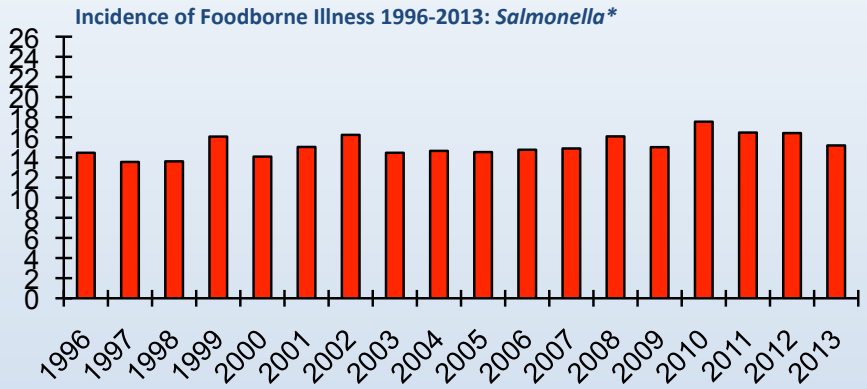
http://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/microbiology/ec

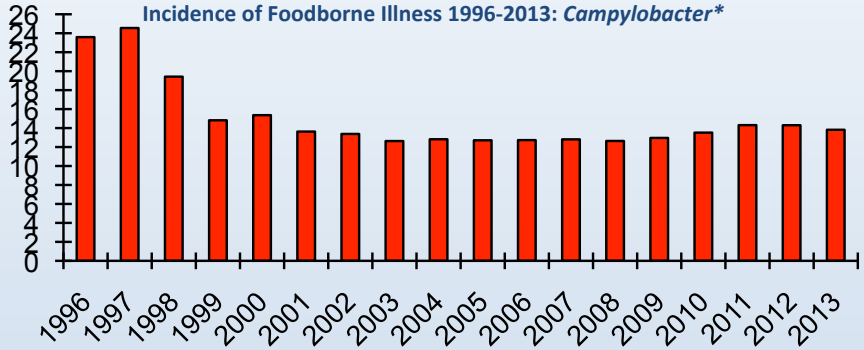
Progress towards Healthy People Objectives for Foodborne Illnesses

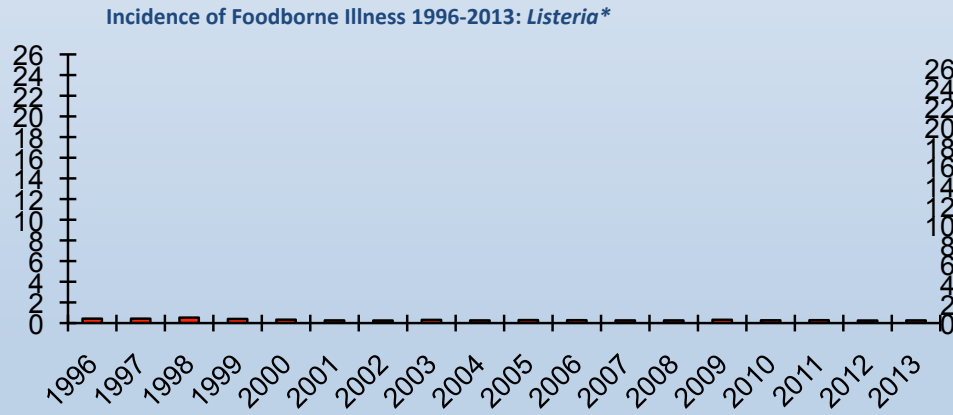


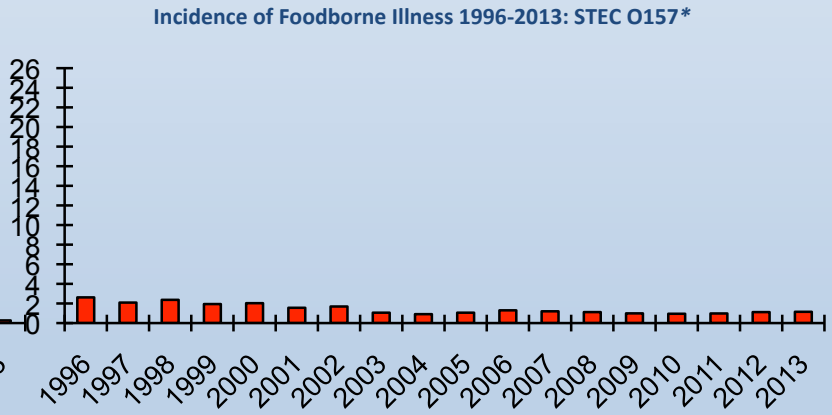
**Shiga toxin-producing *Escherichia coli*

*Incidence and Trends of Infection with Pathogens Transmitted Commonly Through Food — Foodborne Diseases Active Surveillance Network, 10 U.S. Sites, 2006–2013. *Morbidity and Mortality Weekly Report,* April 18, 2014. 63(15);328-332.









*Incidence and Trends of Infection with Pathogens Transmitted Commonly Through Food — Foodborne Diseases Active Surveillance Network, 10 U.S. Sites, 2006–2013. *Morbidity and Mortality Weekly Report,* April 18, 2014. 63(15);328-332.

Where is the Industry Now

- Continuing to work our processes
  - Question?
    - Are all STEC's at a prevalence rate that is concerning
  - Continue to test and monitor USDA and research results
- Looking for new innovative interventions
  - Ones that can be used by all
  - Ones that are economically feasible

Where is the Industry Now

- Learning all we can about STEC
  - USDA, Industry, and Academia
- Pushing USDA to analyze their data
  - Are all types of beef impacted equally, geographic, seasonal
  - Drive to a realistic goal – minimize outbreaks