

## Quarterly Progress Report on *Salmonella* and *Campylobacter* Testing of Selected Raw Meat and Poultry Products: Preliminary Results, July 2014 to September 2014

### Executive Summary

- There were 3985 samples collected and analyzed for the PR/HACCP Verification program.
- There were no PR/HACCP samples collected for ground chicken and ground turkey because sampling of ground poultry was suspended at the start of the Not Ready To Eat (NRTE) Comminuted Poultry Sampling Project, except in category 3 establishments.
- The MT43S Sampling program was discontinued at the end of May 2014. Instead, the MT43 sampling program is now co-analyzing ground beef for both *E. coli* O157:H7 and *Salmonella*.<sup>1</sup>
- A total of 2,968 samples were collected in the raw ground beef sampling program MT43. Of those, 94 (3.2%) were positive for *Salmonella*.
- From the previous quarter, the percentage of plants in Category 3:
  - Decreased for Young Chicken plants (4.5% to 3.5%; from 8 out of 178 plants to 6 out of 171 plants)
  - Remained the same for Turkey plants (0%; 0 out of 35 plants to 0 of 29 plants)
  - Increased for Ground Beef plants (1.0% to 1.6%; from 3 out of 300 plants to 3 out of 192 plants)
  - Decreased for Ground Chicken plants (25.0% to 0%; from 2 out of 8 plants to 0 out of 1 plants)
  - Remained the same for Ground Turkey plants (0%; 0 out of 22 plants to 0 out of 5)
- There were 2918 samples co-analyzed for *Campylobacter*, with the following percent positive results:
  - Young Chicken – 6.9% (2396 samples analyzed)
  - Turkeys – 1.2% (522 samples analyzed)
- 88.2% of all establishments are in Category 1, while 2.3% are in Category 3. The remaining plants are in some version of Category 2.
- NRTE Comminuted Poultry Sampling Project Results for all finished products are:
  - *Salmonella* – 46.8% (2802 out of 5984 samples)
  - *Campylobacter* – 7.6% (453 out of 5978 samples)
- Out of 1747 samples analyzed for other 7 MT projects, 67 samples (3.8%) were found positive, while in imported raw products, only one sample was positive (0.8%).

---

<sup>1</sup> The MT43 raw ground beef sampling program only began testing for *Salmonella* starting June 29, 2014 by [Federal Register Notice FSIS 28-14](#). 47 samples were analyzed (one positive) at the end of June and are not included in this report. More samples were analyzed for *E. coli* than for *Salmonella* as the *Salmonella* co-analyses began. Results for both pathogens are expected to be proportionate in CY 2014 quarter 4, with additional summary information becoming available.

This report discusses the *Salmonella* and *Campylobacter* verification sampling results for the Third Quarter CY2014 as presented in Tables 1-10, Chart 1, and Figures 1-6.<sup>2</sup> It also includes sampling results from the NRTE Comminuted Poultry Sampling Project as presented in Tables 8a and 8b.<sup>3</sup>

#### **Tables 1a and 1b**

Tables 1a and 1b describe the *Salmonella* performance standards/guidance for 5 product classes and allowed positives for category 1, 2T, 2 and 3.

#### **Tables 2a and 2b**

Table 2a summarizes *Salmonella* verification samples including *Salmonella* positive results, based on sample collection date, from July - September 2014 for all five product classes. Table 2b summarizes **quantitative (1 ml--regulatory)** *Campylobacter* verification samples including *Campylobacter* positive results, based on sample collection date, from July - September 2014 for young chicken and turkey carcasses.

#### **Tables 3-7**

Tables 3-7 report the proportion of establishments by categories that have completed at least two recent *Salmonella* verification-sampling sets. New establishments are not identified in any category until FSIS has documented the results from two sets. An establishment with its last set  $\leq 50\%$  of the performance standard or guidance and the prior set at  $> 50\%$  of the performance standard or guidance is sub-categorized as 2T, with T standing for transitioning to Category 1. Young chicken and young turkey set results are classified using the performance standards that were in place at the time the set was initiated. Table 5 (ground beef) continues to report only those establishments eligible for traditional PR/HACCP *Salmonella* verification sampling and that have completed two sets.

#### **Tables 8a and 8b**

Table 8a summarizes *Salmonella* positive results from June 2013 - September 2014 for the NRTE Comminuted Poultry Sampling Project. Table 8b summarizes *Campylobacter* positive results from June 2013 - September 2014 for young chicken and turkey comminuted products for the NRTE Comminuted Poultry Sampling Project.<sup>3</sup> Both tables also display the quartile distributions of percent positives among the sampled establishments for each type of product.

---

<sup>2</sup> This data is presented in the format discussed in the *Salmonella* second quarterly report CY2008 which can be accessed on the FSIS website at [http://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/microbiology/quarterly-reports-salmonella/q2-2008/ct\\_index](http://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/microbiology/quarterly-reports-salmonella/q2-2008/ct_index).

<sup>3</sup> The NRTE Comminuted Poultry Sampling Project was initiated by Federal Register Notice FSIS-2012-0007: <http://www.fsis.usda.gov/wps/wcm/connect/0dffa4be-45e8-43ea-8b65-3b7100e19acb/2012-0007.pdf?MOD=AJPERES>.

## Tables 9 and 10

Table 9 summarizes *Salmonella* samples analyzed from all other raw beef projects, while Table 10 includes the samples taken from all raw products imported from other countries.<sup>4</sup>

### MT43S<sup>1</sup>

A total of zero (0) samples in the low volume ground beef sampling program (MT43S) were collected and analyzed from July - September 2014 for *Salmonella* because the project was discontinued.

### MT43

A total of 2,968 samples were collected in the ground beef sampling program MT43. Of those, 94 (3.2%) were positive for *Salmonella*.<sup>1</sup>

### ***Salmonella* in Other MT (Beef) and Imported Raw products:**

In addition to the MT43 raw beef project, as of third quarter CY2014, FSIS has decided to post *Salmonella* results from other MT projects.<sup>1</sup> A total of 1747 samples were analyzed from other seven MT projects for *Salmonella* in third quarter CY2014, from which 67 samples were positive. The highest rate of positives (7.24%) was found in Raw Beef Components, followed by Beef Manufacturing Trimmings (4.96%).

In imported raw product from all other countries, FSIS found one sample positive out of 132 analyzed for *Salmonella*.

### Chart 1

This chart represents the total percentage of establishments within product classes classified by category and sub-category. This chart indicates that as of September 30, 2014, 88.2% of establishments are in Category 1, 5.5% are in Category 2T, 4.0% are in Category 2, and 2.3% are in Category 3.

### Figures 1-3

Figures 1-3 summarize *Salmonella* positive results by product classes for the most recent five quarters. Past reports included figures with ground turkey and ground chicken sampling results. The last samples for these products under this program were taken in December 2013. Therefore, those figures are not included in this report. These products are now sampled in the Not Ready To Eat Comminuted Turkey and Not Ready To Eat Comminuted Chicken programs. The data from these newer programs are shown in Tables 8a and 8b.

---

<sup>4</sup> Raw beef samples, including import MT08 and MT51 samples, collected for STEC analysis are also analyzed for *Salmonella* by [FSIS Federal Register Notice 18-15](#)

**Figures 4-5**

Figures 4-5 summarize *Campylobacter* positive results by product classes for the most recent five quarters.

**Figure 6**

Figure 6 summarizes *Salmonella* positive results by project code in this quarter for other seven raw beef projects.

**NOTE:** While earlier quarterly reports included individual sample results from “A” sets only, the current report format summarizes data from all sets. This change was discussed in the 2006-second quarterly report, which can be accessed on the FSIS website: [http://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/microbiology/quarterly-reports-salmonella/q2-cy-2006/ct\\_index](http://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/microbiology/quarterly-reports-salmonella/q2-cy-2006/ct_index).

**Additional information regarding this report:**

In order to handle sample scheduling more efficiently and to update information on actively producing establishments, the Agency continues to automate the sampling algorithm process. Therefore, the total number of active operating establishments can change from quarter to quarter as establishments exit or enter the industry. This change does not apply to intermittently-producing establishments. The Agency will continue to categorize them because they are considered to be operating at some level.

Given the revised sampling strategy, the percentage of positive samples is no longer useful as an indicator of trends. As described above, FSIS has implemented placing establishments into Category 1, 2T, 2, or 3 as an alternative trend indicator for the *Salmonella* verification sampling program. While the Agency does not expect the category trend indicator to vary greatly on a quarterly basis, it should facilitate tracking of overall industry performance when examined over multiple years. Other trend indicators continue to be considered.

Beginning March 28, 2008, FSIS posted completed *Salmonella* sample set results from young chicken slaughter establishments with variable (Category 2) and highly variable (Category 3) process control. Currently only Category 3 young chicken slaughter establishments are posted on the FSIS website. In July 2014, there were 8 establishments in Category 3, in August and September 2014, there were 7 establishments in Category 3. FSIS continues to update this information on or about the 15th of each month. The current posting can be accessed at: <http://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/microbiology/salmonella-verification-testing-program/salmonella-verification-testing-program>.

As announced in the January 2008 Federal Register Notice: *Salmonella* Verification Sampling Program: Response to Comments and New Agency Policies (<http://www.fsis.usda.gov/OPPDE/rdad/FRPubs/2006-0034.pdf>), turkey establishments in Category 2 and 3 were eligible for posting to the FSIS website beginning May 15, 2008. The Agency is still considering publishing category results for establishments in additional product classes. Annual reports summarizing results for calendar years are available on the FSIS Web site as well as previous quarterly reports. The restructuring of *Salmonella* set scheduling, however, means that it is inappropriate to compare results from 2006 onward to previous years. Similarly, the changes to the *Salmonella* verification-sampling program prevent valid comparisons of testing results over time (e.g., quarter-to-quarter or year-to-year trends).

**Table 1a: *Salmonella* Product classes, performance standards/guidance, and allowed positives for Categories 1, 2T, 2 and 3.**

Product class	Performance standard (percent positive for <i>Salmonella</i> ) (%)	Number of samples tested	Maximum number of positives to achieve standard $\diamond$	Category 1 <sup>s</sup>	Category 2T (T for Transitioning) <sup>s</sup>	Category 2 <sup>s</sup>	Category 3 <sup>s</sup>
Young Chicken*	7.5	51	5	recent two set results $\leq 2$	last set $\leq 2$ prior set NOT $\leq 2$	Last set >2 w/o failing	last set $\geq 6$
Ground Beef $\phi$	7.5	53	5	most recent two set results set $\leq 2$	last set $\leq 2$ prior set NOT $\leq 2$	Last set >2 w/o failing	last set $\geq 6$
Ground Chicken	44.6	53	26	most recent two set results set $\leq 13$	last set $\leq 13$ prior set NOT $\leq 13$	Last set >13 w/o failing	last set $\geq 27$
Ground Turkey $\phi$	49.9	53	29	most recent two set results set $\leq 14$	last set $\leq 14$ prior set NOT $\leq 14$	Last set >14 w/o failing	Last set $\geq 30$
Turkey*	1.7	56	4	most recent two set results set $\leq 2$	last set $\leq 2$ prior set NOT $\leq 2$	Last set >2 w/o failing	last set $\geq 5$

$\diamond$ Maximum number of positives is set at the number which would provide 80% likelihood of an establishment passing the sample set, if it were operating at exactly the performance standard (e.g. there is an 80% chance that a young chicken plant that has *Salmonella* in exactly 7.5% of its product getting 5 or fewer positive samples out of a set of 51).

\*New performance standards for young chicken and turkey carcasses were implemented July 1, 2011

$\S$ Establishment category, which is based on the most recent two sets completed

$\Phi$ FSIS is now rounding down the allowable positives for Category 1 status for those product classes having odd numbered standards or guidelines. Therefore the current performance standards will be: Young Chicken (Category 1:  $\leq 2$  vs.  $\leq 3$  *Salmonella* positive results), Ground Beef (Category 1:  $\leq 2$  vs.  $\leq 3$  *Salmonella* positive results), and Ground Turkey (Category 1:  $\leq 14$  vs.  $\leq 15$  *Salmonella* positive results).

**Table 1b: *Campylobacter* Product classes, performance standards/guidance, and allowed positives for Categories 1, 2T, 2 and 3.**

Product class	Performance standard (percent positive for <i>Campylobacter</i> ) (%)	Number of samples tested	Maximum number of positives to achieve standard	Category 1	Category 2T (letter T standing for transitioning)	Category 2	Category 3
Young Chicken	10.4	51	8	T.B.D.	T.B.D.	T.B.D.	T.B.D.
Turkey	0.79	56	3	T.B.D.	T.B.D.	T.B.D.	T.B.D.

Categories for *Campylobacter* To Be Determined (T.B.D.)

**Table 2a: Percent Positive *Salmonella* Tests (All Samples) in the PR/HACCP Verification Testing Program by Product Class and Establishment Size - Third Quarter CY2014 (July 1, 2014 through September 30, 2014).**

All Sets	Establishment Size											
	Large			Small			Very Small			All Sizes		
Product ID	Samples	Positive	Percent Positive	Samples	Positive	Percent Positive	Samples	Positive	Percent Positive	Samples	Positive	Percent Positive
Young Chicken	1479	22	1.5%	557	23	4.1%	360	54	15.0%	2396	99	4.1%
Ground Beef	72	4	5.6%	789	25	3.2%	206	6	2.9%	1067	35	3.3%
Ground Chicken	0	0	N/A	0	0	N/A	0	0	N/A	0	0	N/A
Ground Turkey	0	0	N/A	0	0	N/A	0	0	N/A	0	0	N/A
Turkeys	209	3	1.4%	313	7	2.2%	0	0	0	522	10	1.9%

**Table 2b: Percent Positive Quantitative (1 ml--regulatory) *Campylobacter* Tests (All Samples) in the PR/HACCP Verification Testing Program by Product Class and Establishment Size - Third Quarter CY2014 (July 1, 2014 through September 30, 2014).**

All Sets	Establishment Size											
	Large			Small			Very Small			All Sizes		
Product ID	Samples	Positive	Percent Positive	Samples	Positive	Percent Positive	Samples	Positive	Percent Positive	Samples	Positive	Percent Positive
Young Chicken	1479	19	1.3%	557	44	7.9%	360	102	28.3%	2396	165	6.9%
Turkeys	209	1	0.5%	313	5	1.6%	0	0	N/A	522	6	1.2%

**Table 3: Young Chicken Establishments by *Salmonella* Category, 3rd Quarter CY2014**

Young Chicken Establishments, by Category, Quarter 3 CY2014						
Category	Quarter 1	Percent of TOTAL	Quarter 2	Percent of TOTAL	Quarter 3	Percent of TOTAL
1	141	80.6%	146	82.0%	150	87.7%
2T	16	9.1%	12	6.7%	8	4.7%
2	12	6.9%	12	6.7%	7	4.1%
3	6	3.4%	8	4.5%	6	3.5%
TOTAL *	175	100.0%	178	100.0%	171	100.0%

\*Total Number of Establishments Currently Operating And Subject To Sampling That Have At Least Two Completed Sets

**Table 4: Turkey Establishments by *Salmonella* Category, 3rd Quarter CY2014**

Turkey Establishments, by Category, Quarter 3 CY2014						
Category	Quarter 1	Percent of TOTAL	Quarter 2	Percent of TOTAL	Quarter 3	Percent of TOTAL
1	26	74.3%	27	77.1%	26	89.7%
2T	4	11.4%	5	14.3%	1	3.4%
2	3	8.6%	3	8.6%	2	6.9%
3	2	5.7%	0	0	0	0
TOTAL *	35	100.0%	35	100.0%	29	100.0%

\*Total Number Of Establishments Currently Operating And Subject To Sampling That Have At Least Two Completed Sets.



**Table 5: Ground Beef Establishments by *Salmonella* Category, 3rd Quarter CY2014**

Ground Beef Establishments, by Category, Quarter 3 CY2014						
Category	Quarter 1	Percent of TOTAL	Quarter 2	Percent of TOTAL	Quarter 3	Percent of TOTAL
1	269	88.8%	269	89.7%	170	88.5%
2T	13	4.2%	21	7.0%	12	6.3%
2	15	5.0%	7	2.3%	7	3.6%
3	6	2.0%	3	1.0%	3	1.6%
<b>TOTAL *</b>	<b>303</b>	<b>100.0%</b>	<b>300</b>	<b>100.0%</b>	<b>192</b>	<b>100.0%</b>

\*Total Number of Establishments Currently Operating and Subject to Sampling That Have At Least Two Completed Sets.

**Table 6: Ground Chicken Establishments by *Salmonella* Category, 3rd Quarter CY2014**

Ground Chicken Establishments, by Category, Quarter 3 CY2014						
Category	Quarter 1	Percent of TOTAL	Quarter 2	Percent of TOTAL	Quarter 3	Percent of TOTAL
1	5	83.3%	5	62.5%	0	0
2T	1	16.7%	1	12.5%	1	100.0%
2	0	0	0	0	0	0
3	0	0	2	25.0%	0	0
<b>TOTAL *</b>	<b>6</b>	<b>100.0%</b>	<b>8</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>

\*Total Number of Establishments Currently Operating And Subject To Sampling That Have At Least Two Completed Sets

**Table 7: Ground Turkey Establishments by *Salmonella* Category, 3rd Quarter CY2014**

Ground Turkey Establishments, by Category, Quarter 3 CY2014						
Category	Quarter 1	Percent of TOTAL	Quarter 2	Percent of TOTAL	Quarter 3	Percent of TOTAL
1	20	90.9%	20	90.9%	5	100.0%
2T	1	4.5%	1	4.5%	0	0
2	1	4.5%	1	4.5%	0	0
3	0	0	0	0	0	0
<b>TOTAL *</b>	<b>22</b>	<b>100.0%</b>	<b>22</b>	<b>100.0%</b>	<b>5</b>	<b>100.0%</b>

\*Total Number Of Establishments Currently Operating And Subject To Sampling That Have At Least Two Completed Sets.

**Table 8a: Percent Positive *Salmonella* Tests (All Samples) in the NRTE Comminuted Poultry Sampling Project by reported Finished Product Category – All Samples (June 1, 2013 through September 30, 2014)\*\***

Product Group	Finished Product	Overall Samples			Establishment Data		Establishment Percent Positive Distribution		
		Number Analyzed	Number Positive	Percent Positive	Plants Sampled	Avg. Samples per Plant	Q1	Median	Q3
Chicken	A. Ground Chicken	1529	608	39.76%	80	19.11	15.83%	33.33%	61.90%
	B. Mechanically Separated Chicken	1798	1482	82.42%	54	33.3	64.29%	89.35%	98.21%
	C. Other Comminuted Chicken	564	236	41.84%	36	15.67	11.27%	35.09%	60.16%
	Chicken Subtotal	3891	2326	59.78%	132	29.48	21.83%	49.19%	83.85%
Turkey	D. Ground Turkey	1586	322	20.30%	54	29.37	0.00%	12.77%	29.31%
	E. Mechanically Separated Turkey	162	90	55.56%	22	7.36	33.33%	53.59%	100.00%
	F. Other Comminuted Turkey	345	64	18.55%	32	10.78	0.00%	2.63%	32.07%
	Turkey Subtotal	2093	476	22.74%	75	27.91	5.36%	16.39%	37.74%
<b>Salmonella Grand Total</b>		5984	2802	46.82%	176	34	16.53%	34.60%	70.5%

\*\*NOTE:

The finished product information is obtained here through inspection personnel responses on the sampling forms and is subject to further review by the Agency for future analyses.

**Table 8b: Percent Positive *Campylobacter* Tests (All Samples) in the NRTE Comminuted Poultry Sampling Project by reported Finished Product Category - All Samples (June 1, 2013 through September 30, 2014) \*\***

Product Group	Finished Product	Overall Samples			Establishment Data		Establishment Percent Positive Distribution		
		Number Analyzed	Number Positive	Percent Positive	Plants Sampled	Avg. Samples per Plant	Q1	Median	Q3
Chicken	A. Ground Chicken	1527	49	3.21%	80	19.09	0.00%	0.00%	0.78%
	B. Mechanically Separated Chicken	1799	368	20.46%	54	33.31	0.00%	16.53%	25.00%
	C. Other Comminuted Chicken	564	17	3.01%	37	15.24	0.00%	0.00%	0.00%
	Chicken Subtotal	3890	434	11.16%	132	29.47	0.00%	0.00%	12.30%
Turkey	D. Ground Turkey	1581	12	0.76%	54	29.28	0.00%	0.00%	0.00%
	E. Mechanically Separated Turkey	162	7	4.32%	22	7.36	0.00%	0.00%	3.33%
	F. Other Comminuted Turkey	345	0	0.00%	32	10.78	0.00%	0.00%	0.00%
	Turkey Subtotal	2088	19	0.91%	75	27.84	0.00%	0.00%	0.00%
<b><i>Campylobacter</i> Grand Total</b>		5978	453	7.58%	176	33.97	0.00%	0.00%	6.96%

\*\*NOTE:

The finished product information is obtained here through inspection personnel responses on the sampling forms and is subject to further review by the Agency for future analyses.

Data Source: FSIS Data Warehouse

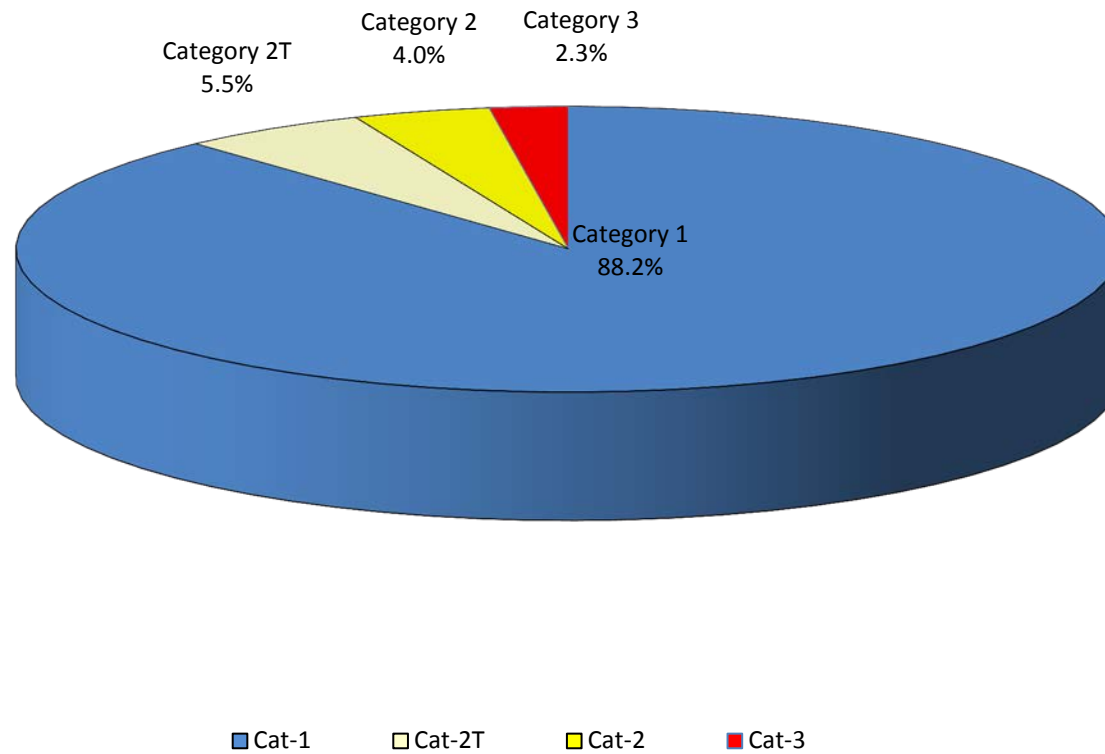
**Table 9: Percent Positive *Salmonella* Tests (All Samples) in Other Raw Beef Sampling Projects – All Samples (July 1, 2014 through September 30, 2014)**

Project	Total Samples Analyzed	Total Sample Positive	Percent Positive
Retail <i>E. coli</i> O157:H7 Raw Ground Beef	140	3	2.14%
<i>E. coli</i> O157:H7 in Raw Ground Beef - Traceback	83	1	1.20%
<i>E. coli</i> O157:H7 Follow-up Sampling of Suppliers of Beef Manufacturing Trimmings or Components for Raw Ground Beef	7	0	0.00%
<i>E. coli</i> O157:H7 Follow-up Sampling of Beef Manufacturer Trim or Other Raw Ground Beef or Beef Patty Components	175	8	4.57%
<i>E. coli</i> O157:H7 Sampling of Raw Ground Beef Components or Raw Beef Patty Components (other than trim)	138	10	7.24%
Sampling of Bench Trim for further use in ANY raw, non-intact beef products - <i>E. coli</i>	358	3	0.83%
<i>E.coli</i> O157:H7 Sampling Beef Manufacturing Trimmings - Domestic	846	42	4.96%

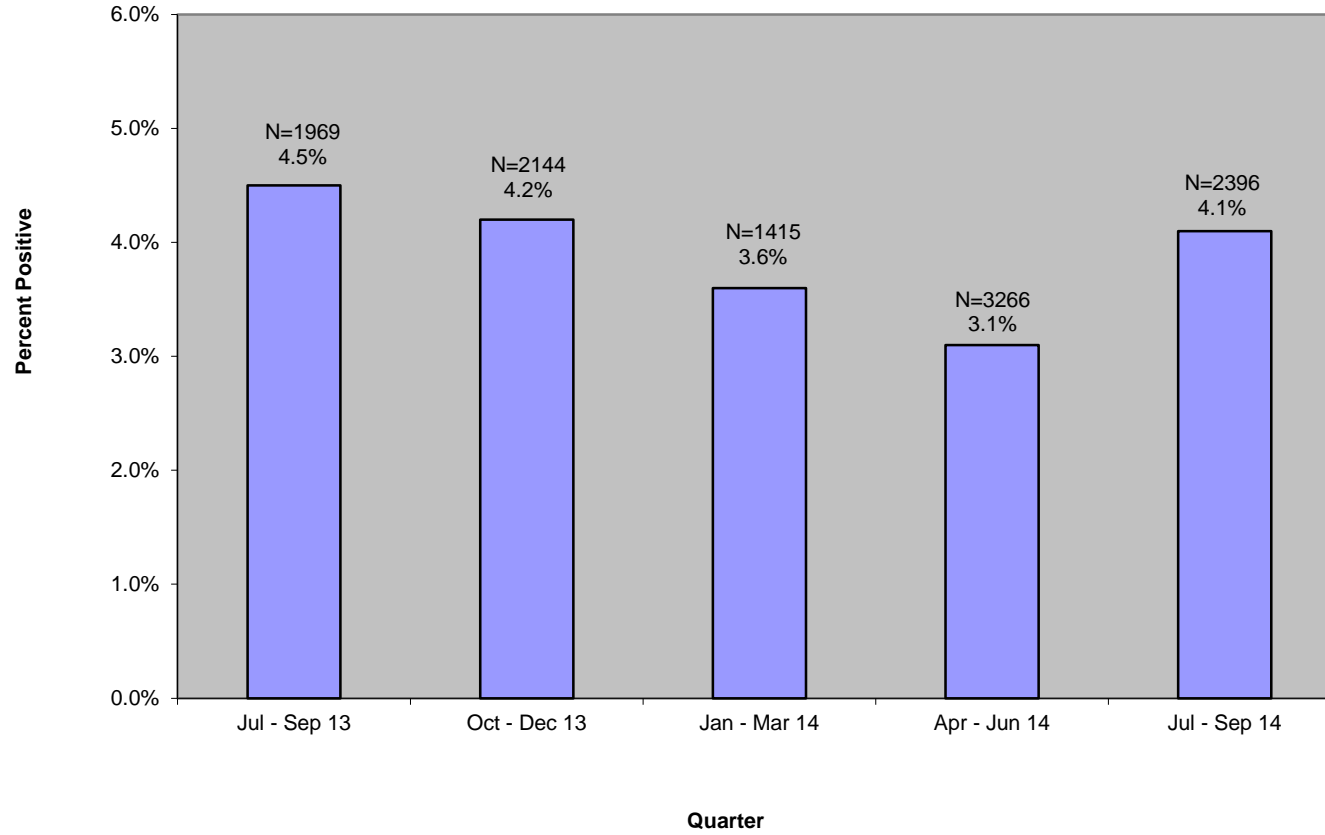
**Table 10: Percent Positive *Salmonella* Tests (All Samples) in Raw Imported Beef Products Sampling Projects – All Samples (July 1, 2014 through September 30, 2014)**

Product	Total Sample Analyzed	Total Sample Positive	Percent Positive
Import- Beef Products (Ground Beef and Trim & Components)	132	1	0.75%

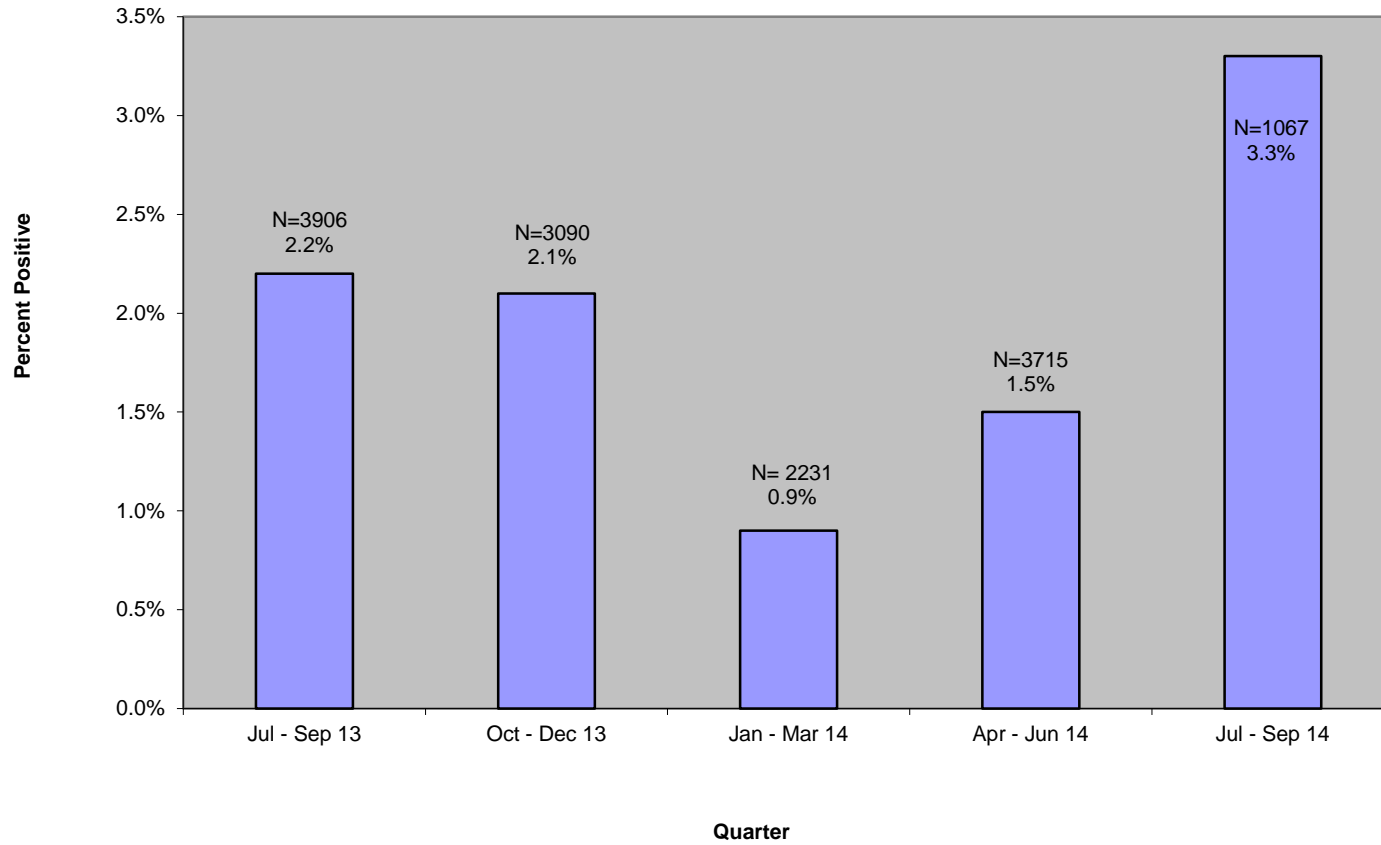
**Chart 1: Establishment *Salmonella* Categories for All Product Classes:  
July 2014 through September 2014**



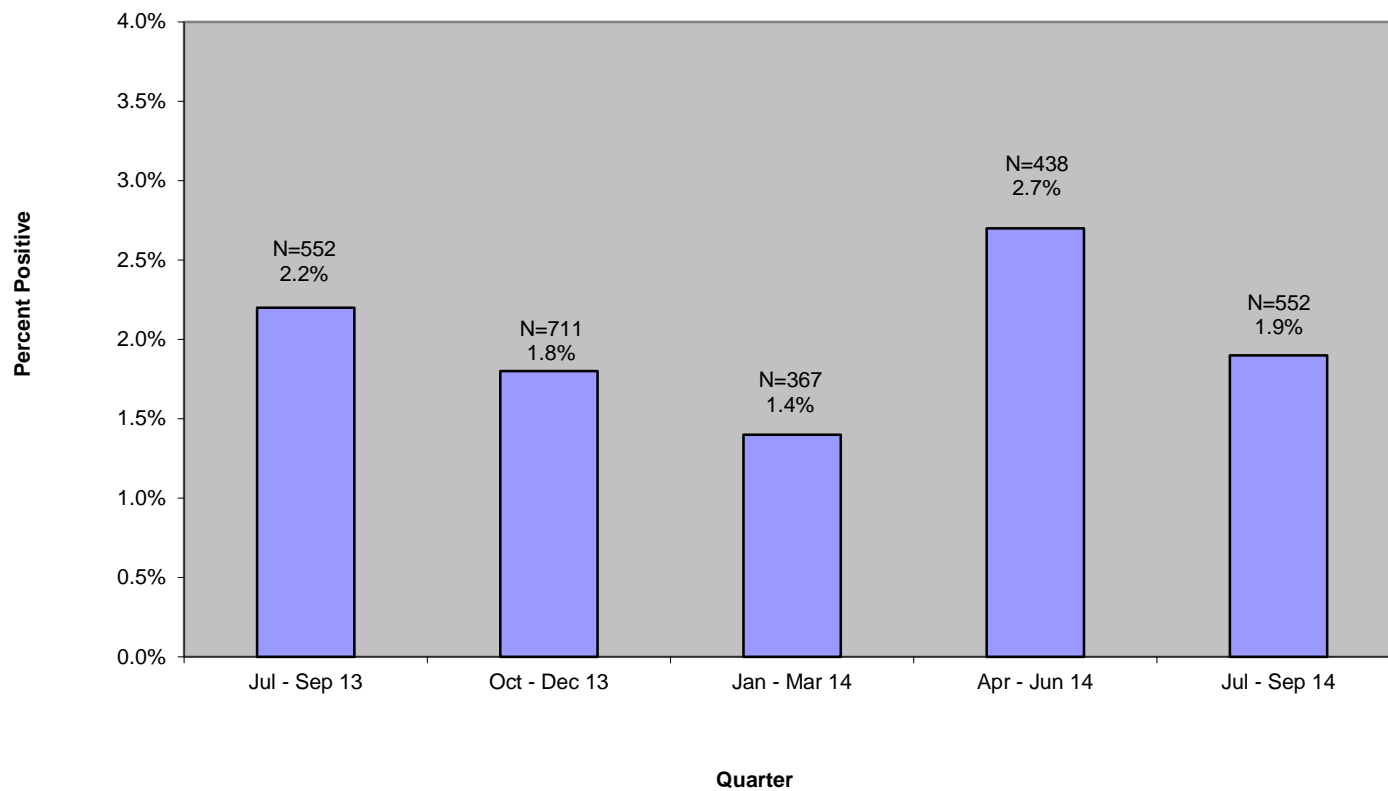
**Figure 1**  
**Microbiological Results of Young Chicken Carcasses (All Samples) Analyzed for *Salmonella***  
**in the PR/HACCP Verification Testing Program Summarized**  
**by Quarter from July 2014 through September 2014**



**Figure 2**  
**Microbiological Results of Ground Beef (All Samples) Analyzed for *Salmonella***  
**in the PR/HACCP Verification Testing Program Summarized by Quarter**  
**from July 2014 through September 2014**

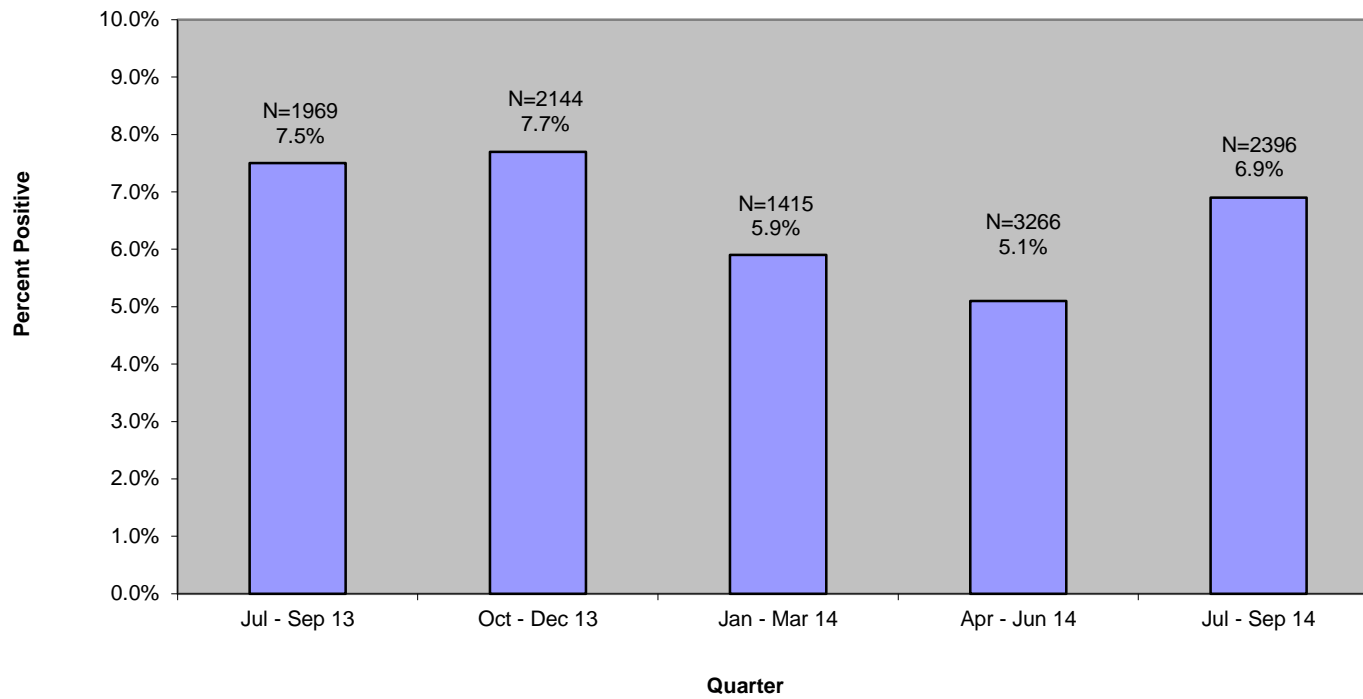


**Figure 3**  
**Microbiological Results of Turkey (All Samples) Analyzed for *Salmonella***  
**in the PR/HACCP Verification Testing Program Summarized by Quarter**  
**from July 2014 through September 2014**

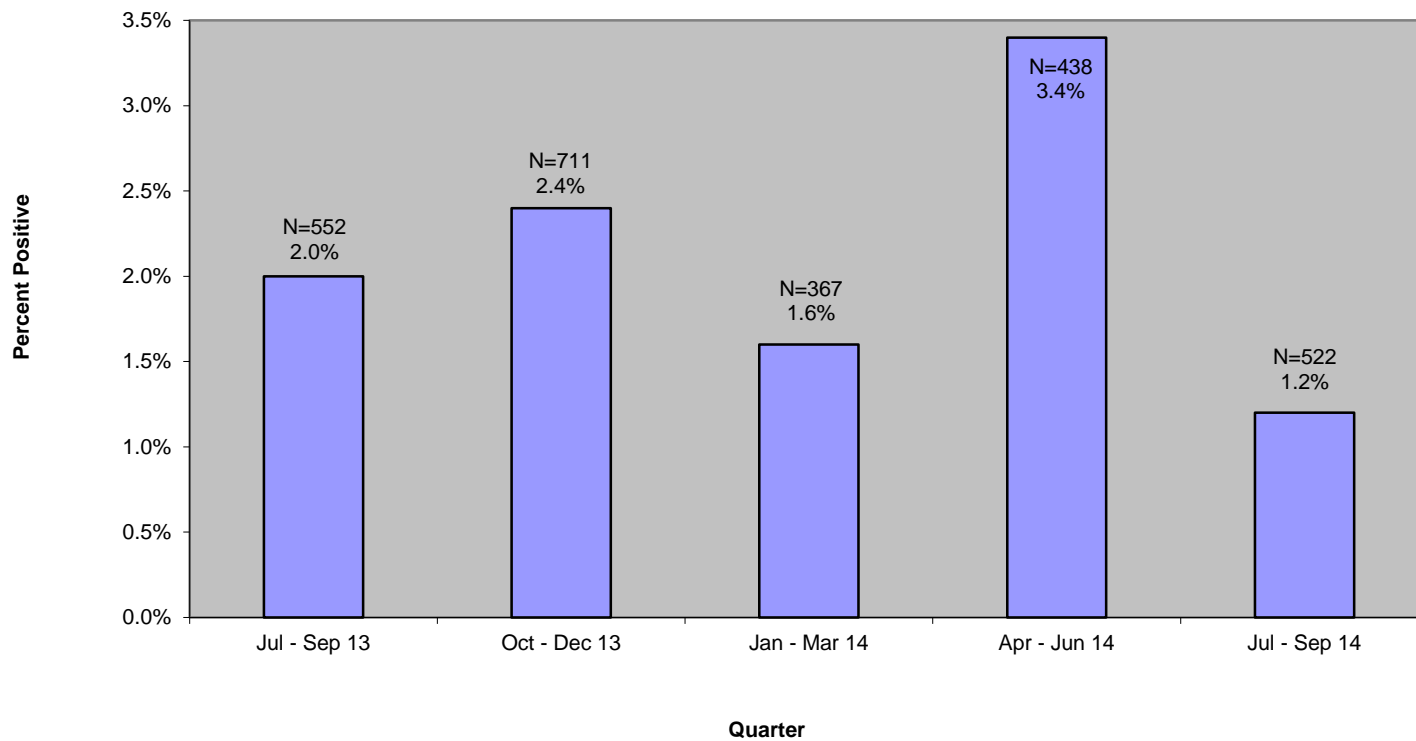




**Figure 4**  
**Microbiological Results of Young Chicken Carcasses (All Samples) Analyzed for *Campylobacter***  
**in the PR/HACCP Verification Testing Program Summarized**  
**by Quarter from July 2014 through September 2014**



**Figure 5**  
**Microbiological Results of Turkeys Carcasses (All Samples) Analyzed for *Campylobacter***  
**in the PR/HACCP Verification Testing Program Summarized**  
**by Quarter from July 2014 through September 2014**



**Figure 6**  
**Microbiological Results of Other Seven Raw Beef Projects (All Samples) Analyzed for Salmonella**  
**in the PR/HACCP Verification Testing Program Summarized**  
**from July 2014 to September 2014**

