

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

Executive Summary

- There were 2668 samples collected and analyzed for the PR/HACCP Verification program.
- From the previous quarter, the of slaughter plants in Category 3 for carcass sampling:
 - Decreased for Young Chicken plants (3.5% to 2.9%; from 6 out of 171 plants to 5 out of 175 plants)
 - Remained the same for Young Turkey plants (0%; 0 out of 29 plants to 0 of 32 plants)
- There were 2368 carcass samples co-analyzed for *Campylobacter*, with the following percent positive results:
 - Young Chicken – 6.5% (1783 samples analyzed)
 - Turkeys – 1.9% (585 samples analyzed)
- 88.4% of Young Chicken and Young Turkey establishments are in Category 1, while 2.4% are in Category 3. The remaining plants are either Category 2 or 2T.
- Not Ready-To-Eat (NRTE) Comminuted Poultry Sampling Project cumulative Results from June 1, 2013 through December 31, 2014 for all finished products are:
 - *Salmonella* positive– 46.8% (3311 out of 7081 samples), 59.9% of NRTE Comminuted Chicken (2756 out of 4603 samples), and 22.4% of NRTE Comminuted Turkey (555 out of 2478 samples).
 - *Campylobacter* positive – 7.3% (518 out of 7071 samples), 10.8% of NRTE Comminuted Chicken (498 out of 4600 samples), and 0.8% of NRTE Comminuted Turkey (20 out of 2471 samples).
- Small production volume beef establishments which were sampled under the MT43S program are now co-analyzed under the MT43 program for both *E. coli* O157:H7 and *Salmonella*.¹ A total of 2965 samples were analyzed in the raw ground beef sampling program. Of those, 58 (2.0%) were positive for *Salmonella*.
- Out of 1846 samples analyzed in the eight other domestic MT projects, 60 samples (3.3%) were *Salmonella* positive, while in imported raw beef products tested, only one sample was *Salmonella* positive (0.6%).

This report discusses the *Salmonella* and *Campylobacter* verification sampling results for the Fourth Quarter CY2014 as presented in Tables 1-7, Chart 1, and Figures 1-6.² It also includes sampling results from the NRTE Comminuted Poultry Sampling Project as presented in Tables 5a and 5b.³

¹ The MT43 raw ground beef sampling program began testing for *Salmonella* starting June 29, 2014 by [FSIS Notice FSIS 28-14](#).

Tables 1a and 1b

Tables 1a and 1b describe the *Salmonella* performance standards/guidance for 3 product classes and allowed positives for categories 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 October - December 2014 for all three product classes. Table 2b summarizes **quantitative (1 ml—regulatory)** *Campylobacter* verification samples including *Campylobacter* positive results, based on sample collection date, from October - December 2014 for young chicken and turkey carcasses.

Tables 3-4

Tables 3-4 report the proportion of young chicken and young turkey 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.

Tables 5a and 5b

Table 5a summarizes *Salmonella* positive results from June 2013 - December 2014 for the NRTE Comminuted Poultry Sampling Project. Table 5b summarizes *Campylobacter* positive results from June 2013 - December 2014 for chicken and turkey comminuted products for the NRTE Comminuted Poultry Sampling Project.³ Both tables also display the quartile distributions of percent positives among the sampled establishments for each type of product.

² 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.

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

Tables 6 and 7

Table 6 summarizes the *Salmonella* samples analyzed from all nine domestic raw beef projects, while Table 7 includes the samples taken from all raw beef products imported from other countries.⁴

A total of 4811 samples were analyzed from nine MT projects for *Salmonella* in fourth quarter CY2014, from which 118 samples were positive. A total of 2,965 samples were collected and analyzed for *Salmonella* in raw ground beef sampling program MT43. Of those, 58 (2.0%) were positive. In imported raw beef products from all other countries, FSIS found one sample positive out of 175 analyzed for *Salmonella*.

Chart 1

This chart represents the total percentage of establishments within product classes classified by category and sub-category for Young Chicken and Young Turkey. This chart indicates that as of December 31, 2014, 88.4% of establishments are in Category 1, 3.9% are in Category 2T, 5.3% are in Category 2, and 2.4% are in Category 3.

Figures 1-3

Figures 1-3 summarize *Salmonella* positive results by product class 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 these programs were taken in October 2013. Therefore, those figures are not included in this report. These products are now sampled in the Not-Ready-To-Eat (NRTE) Comminuted Turkey and Not-Ready-To-Eat Comminuted Chicken programs. The data from these newer programs are shown in Tables 5a and 5b.

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 the nine domestic 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.

⁴ Raw beef samples, including import MT08 and MT51 samples, collected for *E. coli* O157:H7 and/or non-O157 STEC analyses are also analyzed for *Salmonella* by [FSIS Notice 18-15, which was implemented on July 1, 2014](#).

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 these establishments 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 October, November and December 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/wps/wcm/connect/dab45316-44b2-4d75-a91e-a70f83b0cf7d/2006-0034.pdf?MOD=AJPERES>), turkey establishments in Categories 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◊	Category 1 [§]	Category 2T (T for Transitioning) [§]	Category 2 [§]	Category 3 [§]
Young Chicken*	7.5	51	5	recent two set results ≤ 2	last set ≤ 2 prior set NOT ≤ 2	Last set >2 w/o failing	last set ≥ 6
Ground Beef [Ⓢ]	7.5	53	5	most recent two set results set ≤ 2	last set ≤ 2 prior set NOT ≤ 2	Last set >2 w/o failing	last set ≥ 6
Turkey*	1.7	56	4	most recent two set results set ≤ 2	last set ≤ 2 prior set NOT ≤ 2	Last set >2 w/o failing	last set ≥ 5

◊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

§Establishment category, which is based on the most recent two sets completed

[Ⓢ] FSIS in the process of developing new performance standards and are not currently categorizing according to the existing standards because of sampling changes.

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 - Fourth Quarter CY2014 (October 1, 2014 through December 31, 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	1052	9	0.9%	474	17	3.6%	257	58	22.6%	1783	84	4.7%
Ground Beef	84	0	0.0%	141	4	2.8%	75	1	1.3%	300	5	1.7%
Turkeys	278	2	0.7%	280	3	1.1%	27	0	0.0%	585	5	0.9%

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 - Fourth Quarter CY2014 (October 1, 2014 to December 31, 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	1052	10	1.0%	474	24	5.1%	257	81	31.5%	1783	115	6.4%
Turkeys	278	5	1.8%	280	6	2.1%	27	0	0.0%	585	11	1.9%

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

Category	Quarter 1	Percent of TOTAL	Quarter 2	Percent of TOTAL	Quarter 3	Percent of TOTAL	Quarter 4	Percent of TOTAL
1	141	80.6%	146	82.0%	150	87.7%	154	88.0%
2T	16	9.1%	12	6.7%	8	4.7%	6	3.4%
2	12	6.9%	12	6.7%	7	4.1%	10	5.7%
3	6	3.4%	8	4.5%	6	3.5%	5	2.9%
TOTAL *	175	100.0%	178	100.0%	171	100.0%	175	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, Fourth Quarter CY2014

Category	Quarter 1	Percent of TOTAL	Quarter 2	Percent of TOTAL	Quarter 3	Percent of TOTAL	Quarter 4	Percent of TOTAL
1	26	74.3%	27	77.1%	26	89.7%	29	90.6%
2T	4	11.4%	5	14.3%	1	3.4%	2	6.3%
2	3	8.6%	3	8.6%	2	6.9%	1	3.1%
3	2	5.7%	0	0	0	0	0	0
TOTAL *	35	100.0%	35	100.0%	29	100.0%	32	100.0%

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

Table 5a: Percent Positive *Salmonella* Tests (All Samples) in the NRTE Comminuted Poultry Sampling Project by reported Finished Product Category – All Samples (June 1, 2013 to December 31, 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	1789	697	38.96%	83	21.55	12.50%	26.92%	58.33%
	B. Mechanically Separated Chicken	2150	1782	82.88%	55	39.09	66.67%	89.09%	95.71%
	C. Other Comminuted Chicken	664	277	41.72%	39	17.03	0.00%	36.84%	57.14%
	Chicken Subtotal	4603	2756	59.87%	134	34.35	20.63%	46.60%	83.10%
Turkey	D. Ground Turkey	1870	372	19.89%	55	34	0.00%	14.06%	28.57%
	E. Mechanically Separated Turkey	201	110	54.73%	25	8.04	33.33%	51.35%	100.00%
	F. Other Comminuted Turkey	407	73	17.94%	33	12.33	0.00%	5.00%	33.33%
	Turkey Subtotal	2478	555	22.40%	78	31.77	6.85%	19.14%	37.33%
<i>Salmonella</i> Grand Total		7081	3311	46.76%	179	39.56	16.13%	32.88%	71.43%

**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 5b: Percent Positive *Campylobacter* Tests (All Samples) in the NRTE Comminuted Poultry Sampling Project by reported Finished Product Category - All Samples (June 1, 2013 to December 31, 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	1787	54	3.02%	83	21.53	0.00%	0.00%	1.47%
	B. Mechanically Separated Chicken	2151	424	19.71%	55	39.11	0.00%	14.86%	26.00%
	C. Other Comminuted Chicken	662	20	3.02%	39	16.97	0.00%	0.00%	0.00%
	Chicken Subtotal	4600	498	10.83%	134	34.33	0.00%	0.00%	13.46%
Turkey	D. Ground Turkey	1863	13	0.70%	55	33.87	0.00%	0.00%	0.00%
	E. Mechanically Separated Turkey	201	7	3.48%	25	8.04	0.00%	0.00%	0.00%
	F. Other Comminuted Turkey	407	0	0.00%	33	12.33	0.00%	0.00%	0.00%
	Turkey Subtotal	2471	20	0.81%	78	31.68	0.00%	0.00%	0.00%
<i>Campylobacter</i> Grand Total		7071	518	7.33%	179	39.5	0.00%	0.00%	7.04%

**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 6: Percent Positive *Salmonella* Tests (All Samples) in Domestic Raw Beef Sampling Projects – All Samples (October 1, 2014 to December 31, 2014)

Project	Project Name	Total Samples Analyzed	Total Sample Positive	Percent Positive
MT05	Raw Ground Beef – Retail	123	5	4.06%
MT43	Risk-based Sampling for Raw Ground Beef	2965	58	1.95%
MT44	Raw Ground Beef – Follow-up testing to a raw ground beef positive*	24	4	16.66%
MT44T	Raw Ground Beef – Trace back	105	2	1.90%
MT52	Follow-up testing at supplier establishments following MT43, MT44, or MT55 positive*	44	15	34.09%
MT53	Follow-up testing to an MT60, MT54, MT55, or MT52 positive*	233	4	1.71%
MT54	Raw ground beef components other than trim	133	7	5.26%
MT55	Bench Trim	359	4	1.11%
MT60	Beef manufacturing trim	825	19	2.30%
Total	Domestic Raw Beef Sampling Projects	4811	118	2.45%

* Dependent on positive findings from other E. coli O157:H7 or non-O157 (STEC) sampling projects.

Table 7: Percent Positive *Salmonella* Tests (All Samples) in Imported Raw Beef Products Sampling Projects – All Samples (October 1, 2014 to December 31, 2014)

Product	Total Sample Analyzed	Total Sample Positive	Percent Positive
Imported raw ground beef and imported trim/other raw ground beef components (MT08 + MT51)	175	1	0.57%

Chart 1:
Establishment Categories for Young Chicken and Turkey Classes from October 2014 to December 2014

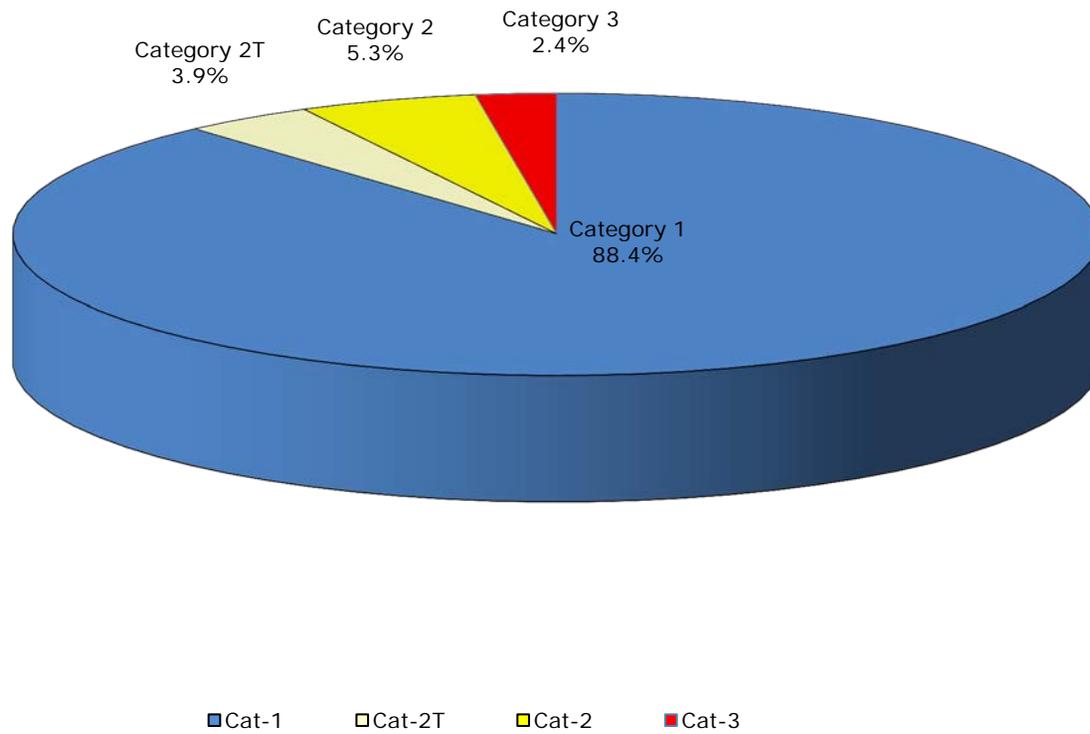


Figure 1
Microbiological Results of Young Chicken Carcasses (All Samples) Analyzed for *Salmonella*
in the PR/HACCP Verification Testing Program Summarized
by Quarter from October 2013 to December 2014

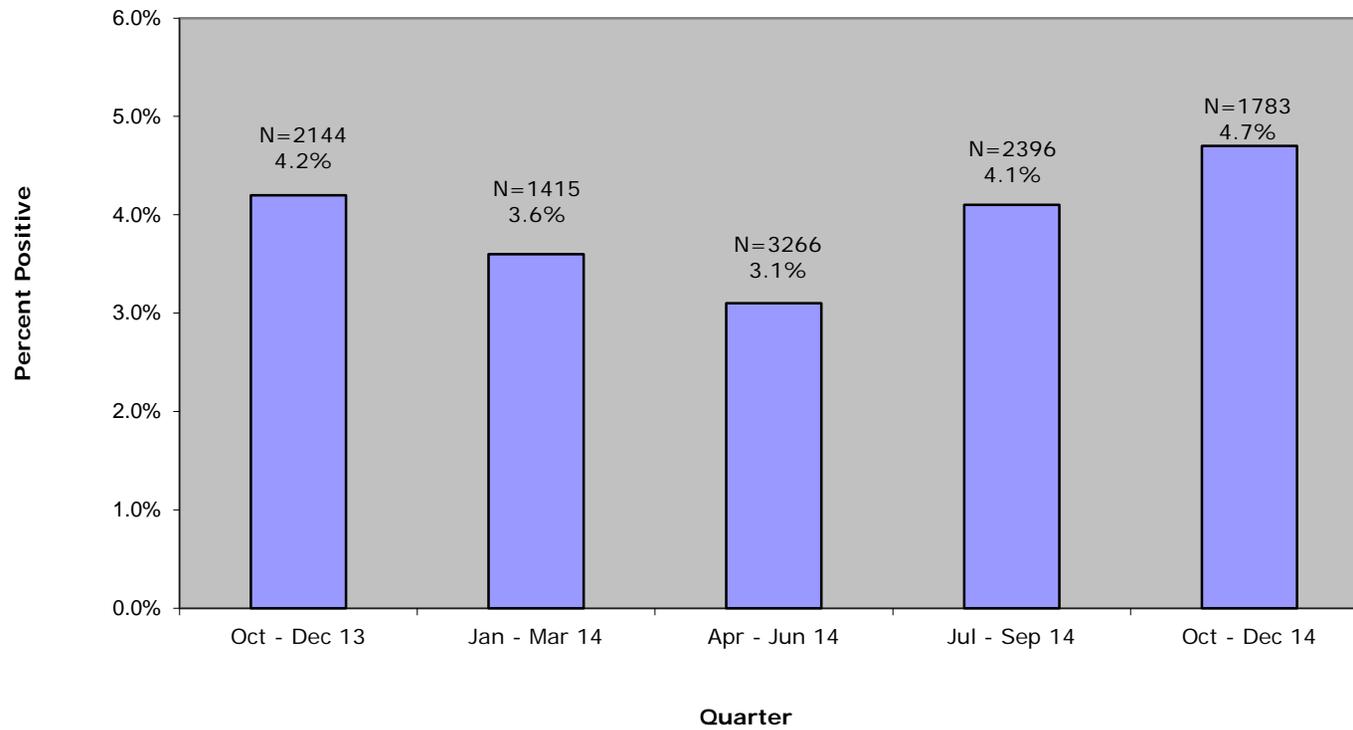


Figure 2
Microbiological Results of Ground Beef (All Samples) Analyzed for *Salmonella*
in the PR/HACCP Verification Testing Program Summarized by Quarter
from October 2013 to December 2014

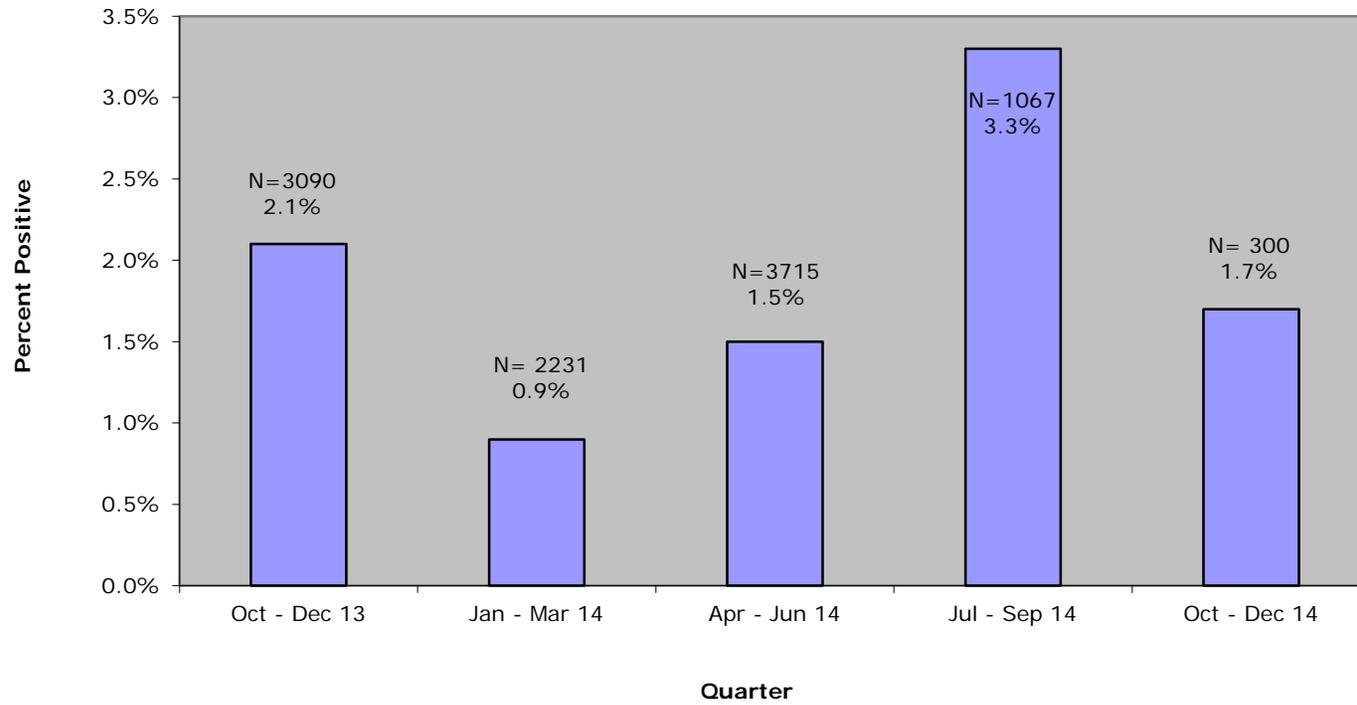


Figure 3
Microbiological Results of Turkey Carcasses (All Samples) Analyzed for *Salmonella*
in the PR/HACCP Verification Testing Program Summarized by Quarter
from October 2013 to December 2014

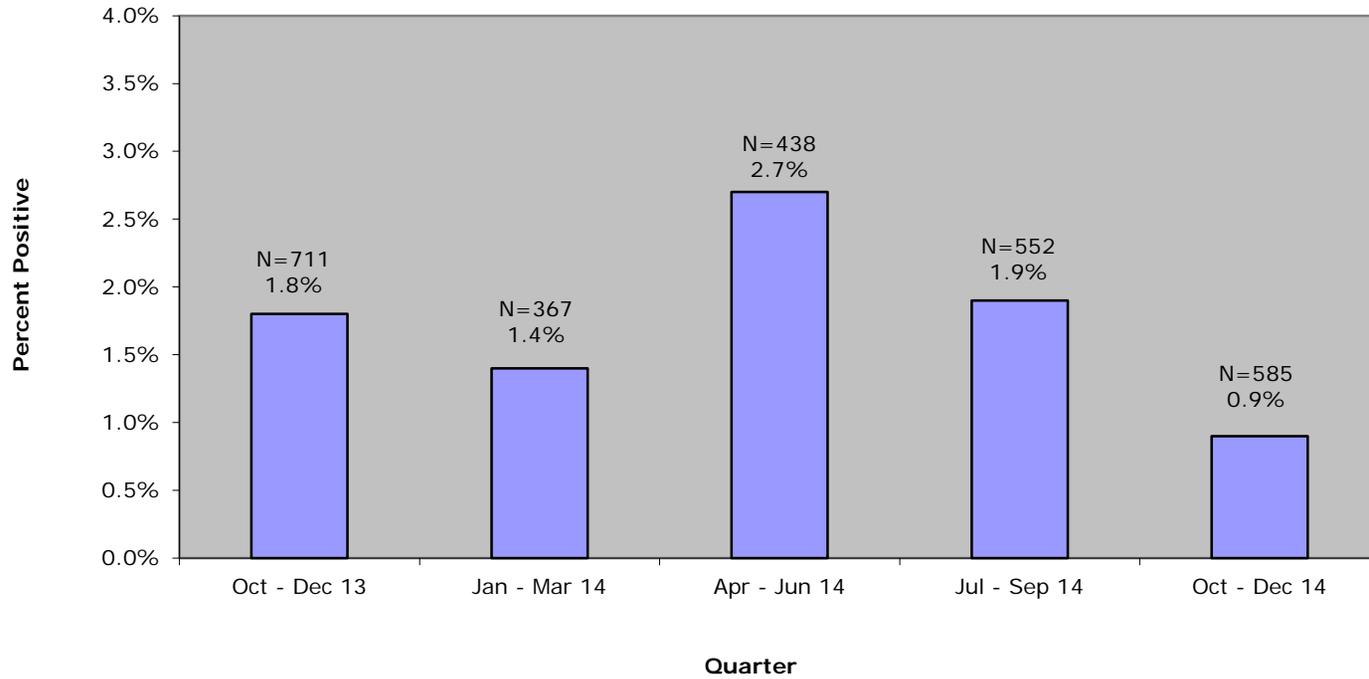


Figure 4
Microbiological Results of Young Chicken Carcasses (All Samples) Analyzed for *Campylobacter*
in the PR/HACCP Verification Testing Program Summarized
by Quarter from October 2013 to December 2014

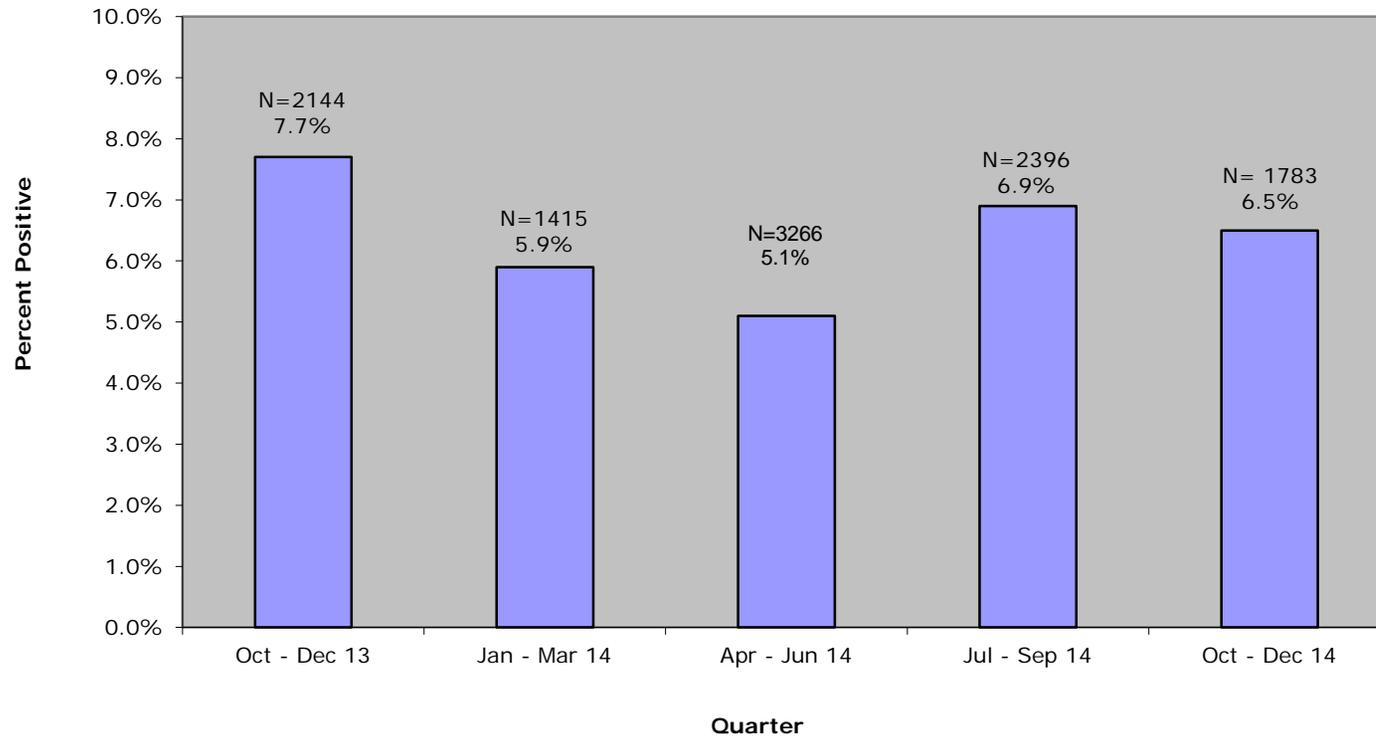


Figure 5
Microbiological Results of Turkeys Carcasses (All Samples) Analyzed for *Campylobacter*
in the PR/HACCP Verification Testing Program Summarized
by Quarter from October 2013 to December 2014

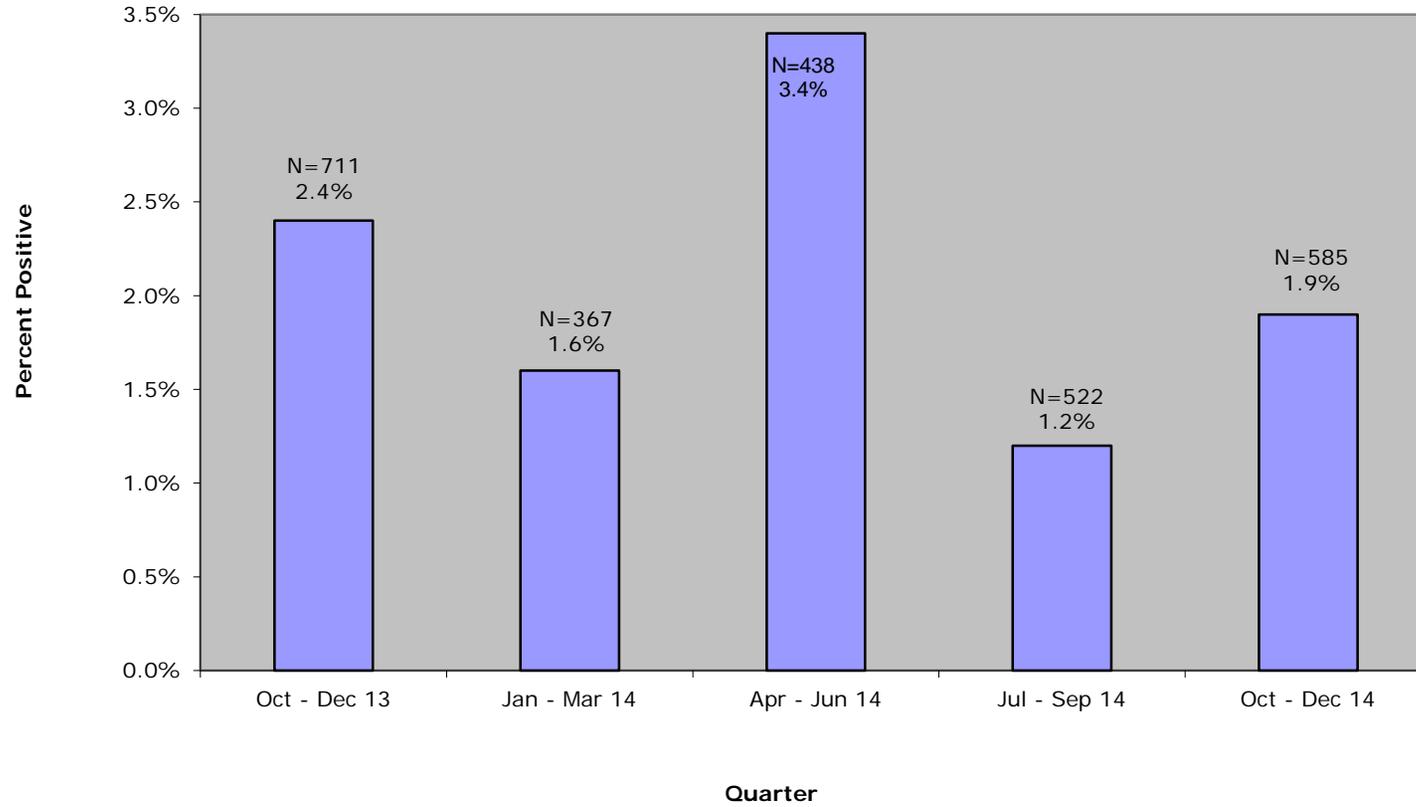


Figure 6
Microbiological Results of Domestic Raw Beef Projects (All Samples) Analyzed for *Salmonella*
in the MT Monitoring Program Summarized for the Fourth Quarter of CY2014
(from October 2014 to December 2014)

