



## Progress Report on *Salmonella* Testing of Raw Meat and Poultry Products, 1998-2008<sup>1</sup>

### Executive Summary

In calendar year 2008, FSIS analyzed 36,203 verification samples across eight meat and poultry product classes with the following percent positive rate of *Salmonella* per product class: broilers (7.3%), market hog (2.6%), cow/bull (0.5%), steer/heifer (0.2%), ground beef (2.4%), ground chicken (25.5%), ground turkey (15.4%) and turkey (6.2%). The Agency believes that the higher the percent positive rate, the greater the potential for the public to consume a product that can be attributed to foodborne illness. FSIS schedules approximately 75 sample sets monthly using a risk-based algorithm to target establishments demonstrating variable or poor process control (i.e, establishments with high percent positive rates). Previous *Salmonella* Annual Reports can be found on the FSIS website.

The Agency has determined that by 2010, 90% of establishments eligible for *Salmonella* testing should be in Category 1 i.e. demonstrate consistent process control. Since 2006, FSIS has focused sampling on raw carcass product classes believing that improvement in process control in these product classes will result in improvement in process control in raw ground product classes. As of December 2008, 81% of establishments are in Category 1. Based on eight product classes, the following percentages of establishments are in Category 1: broilers (82%), market hog (86%) cow/bull (81%), steer/heifer (86%), ground beef (76%), ground chicken (50%), ground turkey (71%), and turkey (97%).

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<sup>1</sup> All years listed are calendar years (CY)

Three new policies were introduced in CY2008:

1) A subcategory (2T) was created to represent establishments with a most recent set at  $\leq 50\%$  of the performance standard or guidance and a prior set at  $>50\%$  of the performance standard or guidance. The Agency considers these establishments to be transitioning to Category 1.

2) FSIS started rounding down the allowable positives for Category 1 for product classes having odd numbered performance standards or guidance (turkey, ground turkey, and ground beef). The Agency believes that this more stringent policy is necessary and an important incentive to improve performance in controlling *Salmonella*.

3) To better allocate testing resources towards higher risk establishments, beginning in the 2<sup>nd</sup> quarter, FSIS began sampling very low volume producing raw ground beef establishments for *Salmonella* when they were scheduled for *E coli O157:H7* testing (one sample two tests). FSIS no longer schedules these establishments under the traditional verification sampling program.

### **2008 Annual Report**

The Food Safety and Inspection Service (FSIS) uses data from its regulatory testing programs to monitor the effectiveness of its Pathogen Reduction: Hazard Analysis and Critical Control Point (PR/HACCP) rule and to assess process control in individual establishments. The U.S. Department of Health and Human Services has incorporated the target of 6.8 cases of salmonellosis/100,000 persons into the Healthy People 2010 objectives, which FSIS recognizes as appropriate guidance for the Agency's strategic planning to strengthen public health protection.

In 1996, FSIS established PR/HACCP to verify that establishments demonstrate consistent process control for preventing, eliminating, or reducing the contamination of raw meat and poultry products with disease-causing bacteria, by setting *Salmonella* performance standards that slaughter establishments and establishments that produce raw ground products should meet. Raw products with established performance standards or guidance include: carcasses of cows/bulls, steers/heifers,

market hogs, broilers, and turkeys. Processed products measured by performance standards include: ground beef, ground chicken, and ground turkey. The performance standards are based on the prevalence of *Salmonella* as determined from the Agency's nationwide microbiological baseline studies conducted prior to PR/HACCP implementation. The performance standards and guidance are expressed in terms of the maximum number of *Salmonella*-positive samples acceptable per sample set. The number of samples in a sample set varies by product, and the maximum number of positive samples acceptable in a set provides an 80% probability of an establishment passing when it is operating at the standard.

Prior to 2006, there were two phases of the FSIS regulatory program for *Salmonella* in raw products: non-targeted and targeted testing. Non-targeted or "A" set tests were collected at establishments randomly selected from the population of eligible establishments, with a goal of scheduling every eligible establishment at least once a year. Other codes (such as "B", "C", and "D") represented sample sets collected from establishments targeted for follow-up testing following a failed set. Beginning with the third 2006 quarterly report, reports have data summarized from all sets collected. (Note: Earlier reports have not been retrospectively changed). Consequently, under Table A1, the annual reports from 2005 and earlier reflect results from only the "A" set samples.

In February 2006, FSIS issued a [federal register notice](#): "*Salmonella* Verification Sample Result Reporting: Agency Policy and use in Public Health Protection" announcing how FSIS would report and use results from its *Salmonella* verification sampling program for meat and poultry establishments. In this Notice the Agency announced its intention to redirect its *Salmonella* verification sampling program and announced eleven new initiatives to encourage establishments to reassess their food safety systems to achieve and maintain consistent process control. As one of these new initiatives, FSIS increased testing frequency in establishments with variable or highly variable process control compared to those showing consistent process control.

Since June 2006, establishments have been scheduled based on [risk-based criteria](#) designed to focus FSIS resources on establishments with the most samples positive for *Salmonella* and the greatest number of samples with [serotypes most frequently associated with human salmonellosis](#), (relative to each product class) as defined by CDC<sup>2</sup>.

Furthermore, establishments are grouped into one of three categories. Category 1 includes establishments whose two most recent *Salmonella* set results are equal to or less than 50% of the performance standard or guidance. The Agency considers these establishments to demonstrate consistent process control. Category 2 includes establishments where at least one of their two most recent set results was greater than 50% of the performance standards or guidance without exceeding it, or they have passed their most recent set but failed the one prior to that one. These establishments are considered to have variable process control. An additional subcategory 2T was created in 2008 under Category 2 (reported in 2008 2<sup>nd</sup> quarterly report and onwards). An establishment with its last set  $\leq 50\%$  of the performance standard or guidance and the prior set at  $> 50\%$  of the performance standard will now be sub-categorized as 2T, with T standing for transitioning to Category 1. Category 3 includes establishments whose most recent *Salmonella* set result has exceeded the performance standard for its product class. The Agency considers these establishments to display highly variable process control.

In 2008 in addition to creating subcategory 2T two additional policy changes were introduced:

1. 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: Turkey (Category 1:  $\leq 6$  vs  $\leq 7$  *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). FSIS recognizes that an establishment with highly effective process control should

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<sup>2</sup> **Note:** Restructuring how *Salmonella* sets are scheduled means that comparison of results from 2006 onwards to previous years will be less meaningful in terms of trends. Similarly, the changes to the verification program will prevent valid comparisons of testing results over time (e.g., quarter-to-quarter or year-to-year trends).

strive to operate over time at a relatively low level of *Salmonella* positive samples if it is to maintain its Category 1 status. The Agency views this more stringent policy as a necessary and important incentive to improve performance in controlling *Salmonella*.

2. In the second quarter CY 2008, FSIS began testing very low volume establishments (producing < 1,000 pounds/day) for *Salmonella* in the same manner as they are scheduled and tested for *E coli* O157:H7. In this way, the Agency can better allocate testing resources towards higher risk establishments.

### **Results:**

This report presents percent positive *Salmonella* sample results and percent sample sets meeting the *Salmonella* performance standards listed by product class and PR/HACCP establishment size for 2008 and previous years (Table A1 and A2). Data is presented in aggregate form for the periods 1998-2003 and 1998-2008.

Individual sample results (Table A1) are counted in the year the sample is collected. Sample sets (Table A2) are counted in the year they are completed. For example, samples from a broiler set collected in 2007 are counted in the 2007 results (Table A1). However if the sample set was completed in 2008, the set was counted in 2008 (Table A2)

In Table 3 establishments are listed by product classes and percentage within categories 1, 2T, 2, and 3 for each product class.

Figure 1 compares *Salmonella* percent positive results from 1998 to 2008 with baseline prevalence by product class and year. Percentages of sample sets meeting *Salmonella* performance standards by product class from 1998 to 2008 are presented in Figure 2.

### **Broilers:**

FSIS continues to direct resources toward testing broiler establishments. In 2008 (Table A1), 6,514 *Salmonella* samples were analyzed from broiler establishments. The total percentage of positive samples was 7.3% in 2008, down from 8.5%, 11.4% and 16.3% in 2007, 2006, and 2005, respectively. In addition, of the 149 sets completed in 2008 at broiler establishments, 97.3%

met the *Salmonella* performance standard compared to 97.2% (215 sets completed) in 2007 and 88.6% (184 sets completed) in 2006 (Table A2) .

By the end of 2008, 144 broiler establishments eligible for federal testing were in Category 1, comprising 82% of all broiler establishments (Table A3) compared to 74% in 2007. Furthermore in 2008, thirteen broiler establishments (7%) were in Category 2T. Seventeen broiler establishments were in Category 2 (10%). Two broiler establishments were in Category 3, making up 1% of all broiler establishments. In 2007, 74% of broiler establishments eligible for *Salmonella* sampling were in Category 1.

#### **Market Hog:**

In 2008, 4,244 samples were analyzed. The total percent of *Salmonella* positive sample tests was the same as 2007 (2.6%) and was down from 4.0% in 2006 (Table A1). Of the 90 sets completed in 2008, 93.3% met the *Salmonella* performance standard for this product class.

Eighty-six percent of market hog establishments were in Category 1, representing 181 establishments. Eight percent of the establishments (17) were in 2T. Six percent establishments were in Category 2, representing 12 establishments. One establishment exceeded the performance standard (Category 3). In 2007, 69% of all market hog establishments eligible for *Salmonella* testing were in Category 1.

#### **Cows/Bulls:**

In 2008, 2,301 samples were analyzed at eligible establishments with 0.5% of the samples positive for *Salmonella*. This compared to 3,969 samples analyzed in 2007, (1.1% positive) and 2,246 samples analyzed (0.8% positive) in 2006. Forty-eight sets were completed in 2008 with 97.9% meeting the *Salmonella* performance standard for this product class.

Eighty-one percent of cow bull establishments (69 establishments) were in Category 1, 14% (12 establishments) were in Category 2T, 5% (4 establishments) in Category 2, and no establishments were in Category 3. In 2007, 65% of cow/bull establishments eligible for *Salmonella* testing were in Category 1.

**Steers/Heifers:**

During 2008, 4,965 samples were analyzed with 0.2% positive for *Salmonella*. In 2007, 4,355 samples were analyzed (0.2% positive) and in 2006, 3,674 samples were analyzed (0.3% positive). In 2008, 64 sets were completed, with 92.2% of these meeting the performance standard. This compares to 2007, when 57 *Salmonella* sets were completed and 94.7% met the performance standard and to 2006 when 33 sets were completed and 93.9% met the performance standard.

Eighty-six percent (75 establishments) were in Category 1 at the end of 2008, 6% (5 establishments) were in Category 2T with 7% (6 establishments) in Category 2 and 1% (1 establishment) in Category 3. In 2007, 56% of Steer/Heifer establishments eligible for *Salmonella* testing were in Category 1.

**Ground Beef:**

In 2008, 16,763 ground beef samples were analyzed and 2.4% tested positive for *Salmonella*. This compares to 2007, when 13,695 samples were analyzed (2.7% positive) and to 2006 when 17,849 samples were analyzed (2.0% positive). Three hundred sixty three sets were completed, 87.3% meeting the performance standard, compared to 2007 when 253 sets were completed (96.0% met the performance standard) and to 2006 when 371 sets were completed (97.6% met the performance standard).

Seventy-six percent (223 establishments) were in Category 1, seven percent (21 establishments) were in Category 2T, 13% (38 establishments) in Category 2, and 4% (10 establishments) in Category 3. In 2007, 77% of ground beef establishments eligible for *Salmonella* testing were in Category 1.

**NOTE:** Some of the samples and completed sets reported here are from establishments currently in the low volume sampling program described earlier in this report. These samples were collected and analyzed prior to initiation of the low volume sampling program which began in April.

**Ground Chicken:**

In 2008, 411 samples were analyzed, with a total of 25.5% percent positive. The total percent of sample sets meeting the performance standard was 88.9% with nine sets completed.

Fifty percent (4 establishments) of ground chicken establishments were in Category 1 at the end of 2008, 25% (2 establishments) were in Category 2T with 25% (2 establishments) in Category 2 and no establishments in Category 3. In 2007, 29% of ground chicken establishments eligible for *Salmonella* sampling were in Category 1.

**Ground Turkey:**

In 2008, 876 samples were analyzed with a total percent at 15.4%, compared to 17.4% in 2007 (820 sample) and 20.3% in 2006 (444 samples). Eighteen sets were completed and all 18 passed for 2008, similar to 2007, when all 15 sets completed passed and to 2006 when all 12 sets completed passed.

Seventy one percent (17 establishments) of ground turkey establishments were in Category 1, 21% (5 establishments) were in Category 2T, with the remaining 8% (2 establishments) in Category 2 and none in Category 3. In 2007, 64% of ground turkey establishments eligible for *Salmonella* sampling were in Category 1.

**NOTE:** The sampling frames for ground chicken and turkey are being re-examined. FSIS is considering redefining ground poultry product eligible for testing as all raw comminuted chicken, turkey, or chicken/turkey/beef/lamb/pork mix including mechanically separated poultry produced at federally-regulated establishments that is not further processed into RTE product.

**Turkeys:**

In 2008, 129 turkey samples were analyzed, with a total percent at 6.2%, and total percentage positive was same as that in 2007. Of the 5 sets completed in 2008, all sets (i.e. 100% of establishments) met the *Salmonella* performance standard.

Ninety-seven percent (31 establishments) were in Category 1, with one establishment (3%) in Category 2T. In 2007, 87% of turkey establishments eligible for *Salmonella* testing were in Category 1.

This report reflects data collected during 2008. The Agency has reviewed the progress made since 2006 and will issue a report this year.

**Table A1**  
**Percent Positive *Salmonella* Tests in the PR/HACCP Verification Testing Program**  
**by Product Class and Calendar Year, 1998 - 2008**

**All Samples**

CY 2008											
Product	Baseline Prevalence (%)	Large		Small		Very Small		Unknown		All Sizes	
		# Samp	% Pos	# Samp	% Pos	# Samp	% Pos	# Samp	% Pos	# Samp	% Pos
Broilers	20.0	4,694	5.9%	1,644	10.0%	125	21.6%	51	7.8%	6,514	7.3%
Market Hogs	8.7	538	1.5%	1,686	3.8%	2,020	1.8%	0		4,244	2.6%
Cows/Bulls	2.7	33	0.0%	1,628	0.4%	640	0.9%	0		2,301	0.5%
Steers/Heifers	1.0	1,151	0.0%	1,504	0.1%	2,228	0.3%	82	0.0%	4,965	0.2%
Ground Beef	7.5	1,261	4.0%	10,673	2.2%	4,720	2.6%	109	0.0%	16,763	2.4%
Ground Chicken	44.6	145	32.4%	213	19.2%	53	32.1%	0		411	25.5%
Ground Turkey	49.9	764	16.9%	84	7.1%	28	0.0%	0		876	15.4%
Turkeys	19.6	77	3.9%	52	9.6%	0		0		129	6.2%

**NOTE:** The calendar year total for samples analyzed is not always the simple addition of the totals from all 4 quarters. On occasion, appealed sample results are removed from the totals for verification results.

CY 2007											
Product	Baseline Prevalence (%)	Large		Small		Very Small		Unknown		All Sizes	
		# Samp	% Pos	# Samp	% Pos	# Samp	% Pos	# Samp	% Pos	# Samp	% Pos
Broilers	20.0	6,306	7.6%	2,657	9.6%	445	15.3%	0		9,408	8.5%
Market Hogs	8.7	1,614	1.2%	2,435	3.9%	3,259	2.8%	0		7,308	2.8%
Cows/Bulls	2.7	460	0.0%	2,214	1.4%	1,295	0.8%	0		3,969	1.1%
Steers/Heifers	1.0	1,755	0.0%	1,395	0.2%	1,205	0.5%	0		4,355	0.2%
Ground Beef	7.5	883	4.8%	7,659	3.1%	5,153	1.6%	0		13,695	2.7%
Ground Chicken	44.6	67	61.2%	373	19.6%	66	28.8%	0		506	26.3%
Ground Turkey	49.9	631	18.4%	153	17.0%	36	2.8%	0		820	17.4%
Turkeys	19.6	1,334	7.2%	410	2.9%	0		0		1,744	6.2%

CY 2006											
Product	Baseline Prevalence (%)	Large		Small		Very Small		Unknown		All Sizes	
		# Samp	% Pos	# Samp	% Pos	# Samp	% Pos	# Samp	% Pos	# Samp	% Pos
Broilers	20.0	6,856	10.4%	2,962	12.7%	388	19.8%	0		10,206	11.4%
Market Hogs	8.7	895	1.3%	2,091	4.9%	4,256	4.2%	0		7,242	4.0%
Cows/Bulls	2.7	235	0.0%	1,338	0.9%	673	1.0%	0		2,246	0.8%
Steers/Heifers	1.0	1,142	0.1%	1,277	0.6%	1,255	0.1%	0		3,674	0.3%
Ground Beef	7.5	605	3.3%	9,584	2.3%	7,660	1.4%	0		17,849	2.0%
Ground Chicken	44.6	89	60.7%	101	41.6%	32	12.5%	0		222	45.0%
Ground Turkey	49.9	296	19.9%	145	21.4%	3	0.0%	0		444	20.3%
Turkeys	19.6	2,024	7.7%	761	5.5%	0		0		2,785	7.1%

## “A” Set Samples

CY 2005											
Product	Baseline Prevalence (%)	Large		Small		Very Small		Unknown		All Sizes	
		# Samp	% Pos	# Samp	% Pos	# Samp	% Pos	# Samp	% Pos	# Samp	% Pos
Broilers	20.0	6,853	14.7%	2,458	18.6%	280	32.9%	1	0.0%	9,592	16.3%
Market Hogs	8.7	1,410	2.2%	1,750	5.2%	3,488	3.6%	0		6,648	3.7%
Cows/Bulls	2.7	229	0.0%	975	1.5%	745	1.5%	0		1,949	1.3%
Steers/Heifers	1.0	788	0.0%	552	0.9%	750	0.9%	0		2,090	0.6%
Ground Beef	7.5	544	2.2%	9,070	1.4%	9,751	0.8%	0		19,365	1.1%
Ground Chicken	44.6	0		133	33.1%	12	25.0%	0		145	32.4%
Ground Turkey	49.9	799	24.8%	86	14.0%	40	12.5%	0		925	23.2%

CY 2004											
Product	Baseline Prevalence (%)	Large		Small		Very Small		Unknown		All Sizes	
		# Samp	% Pos	# Samp	% Pos	# Samp	% Pos	# Samp	% Pos	# Samp	% Pos
Broilers	20.0	5,023	11.7%	1,871	18.2%	178	17.4%	0		7,072	13.5%
Market Hogs	8.7	1,274	2.2%	1,989	4.8%	4,597	2.7%	0		7,860	3.1%
Cows/Bulls	2.7	522	0.0%	1,801	0.6%	852	1.5%	0		3,175	0.8%
Steers/Heifers	1.0	1,471	0.0%	1,287	0.3%	1,469	0.5%	0		4,227	0.3%
Ground Beef	7.5	840	2.4%	15,336	2.0%	14,808	1.2%	0		30,984	1.6%
Ground Chicken	44.6	53	5.7%	254	29.1%	81	27.2%	0		388	25.5%
Ground Turkey	49.9	835	20.7%	177	19.2%	32	3.1%	0		1,044	19.9%

<b>CY 1998-2003</b>											
<b>Product</b>	<b>Baseline Prevalence (%)</b>	<b>Large</b>		<b>Small</b>		<b>Very Small</b>		<b>Unknown</b>		<b>All Sizes</b>	
		<b># Samp</b>	<b>% Pos</b>	<b># Samp</b>	<b>% Pos</b>	<b># Samp</b>	<b>% Pos</b>	<b># Samp</b>	<b>% Pos</b>	<b># Samp</b>	<b>% Pos</b>
Broilers	20.0	34,206	9.9%	12,102	13.7%	782	24.3%	0		47,090	11.2%
Market Hogs	8.7	8,763	3.2%	7,382	6.8%	13,723	3.7%	108	0.9%	29,976	4.3%
Cows/Bulls	2.7	1,276	0.4%	8,038	1.7%	3,570	2.9%	0		12,884	1.9%
Steers/Heifers	1.0	3,648	0.2%	3,995	0.6%	5,175	0.4%	17	0.0%	12,835	0.4%
Ground Beef	7.5	5,800	4.4%	79,251	3.3%	49,624	1.9%	113	7.1%	134,788	2.8%
Ground Chicken	44.6	567	16.2%	1,065	26.3%	90	16.7%	0		1,722	22.5%
Ground Turkey	49.9	4,367	28.0%	1,225	22.4%	199	17.1%	0		5,791	26.4%

<b>All Years 1998 - 2008</b>											
<b>Product</b>	<b>Baseline Prevalence (%)</b>	<b>Large</b>		<b>Small</b>		<b>Very Small</b>		<b>Unknown</b>		<b>All Sizes</b>	
		<b># Samp</b>	<b>% Pos</b>	<b># Samp</b>	<b>% Pos</b>	<b># Samp</b>	<b>% Pos</b>	<b># Samp</b>	<b>% Pos</b>	<b># Samp</b>	<b>% Pos</b>
Broilers	20.0	63,938	10.1%	23,694	13.7%	2,198	22.1%	52	7.7%	89,882	11.4%
Market Hogs	8.7	14,494	2.6%	17,333	5.5%	31,343	3.4%	108	0.9%	63,278	3.8%
Cows/Bulls	2.7	2,755	0.2%	15,994	1.3%	7,775	1.9%	0		26,524	1.4%
Steers/Heifers	1.0	9,955	0.1%	10,010	0.4%	12,082	0.4%	99	0.0%	32,146	0.3%
Ground Beef	7.5	9,933	4.0%	131,573	2.9%	91,716	1.6%	222	3.6%	233,444	2.4%
Ground Chicken	44.6	921	25.7%	2,139	25.9%	334	24.0%	0		3,394	25.7%
Ground Turkey	49.9	7,692	24.7%	1,870	20.5%	338	12.1%	0		9,900	23.4%
Turkeys	19.6	3,435	7.4%	1,223	4.8%	0		0		4,658	6.7%

**Table A2**

**Percent of Sample Sets Meeting the *Salmonella* Performance Standards \*  
by Product Class and Calendar Year, 1998 – 2008**

**All Sets**

<b>CY 2008</b>										
<b>Product</b>	<b>Large</b>		<b>Small</b>		<b>Very Small</b>		<b>Unknown</b>		<b>All Sizes</b>	
	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>
Broilers	105	99.0%	37	94.6%	6	83.3%	1	100.0%	149	97.3%
Market Hogs	12	66.7%	35	97.1%	43	97.7%	0		90	93.3%
Cows/Bulls	2	100.0%	32	96.9%	12	100.0%	2	100.0%	48	97.9%
Steers/Heifers	15	100.0%	24	91.7%	25	88.0%	0		64	92.2%
Ground Beef	26	92.3%	225	90.7%	109	78.9%	3	100.0%	363	87.3%
Ground Chicken	3	66.7%	5	100.0%	1	100.0%	0		9	88.9%
Ground Turkey	16	100.0%	1	100.0%	1	100.0%	0		18	100.0%
Turkeys	3	100.0%	2	100.0%	0		0		5	100.0%

**NOTE:** The calendar year total for samples analyzed is not always the simple addition of the totals from all 4 quarters. On occasion, appealed sample results are removed from the totals for verification results.

<b>CY 2007</b>										
<b>Product</b>	<b>Large</b>		<b>Small</b>		<b>Very Small</b>		<b>Unknown</b>		<b>All Sizes</b>	
	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>
Broilers	147	98.0%	63	96.8%	5	80.0%	0		215	97.2%
Market Hogs	29	100.0%	46	97.8%	72	95.8%	0		147	97.3%
Cows/Bulls	7	100.0%	34	94.1%	22	95.5%	0		63	95.2%
Steers/Heifers	24	100.0%	16	87.5%	17	94.1%	0		57	94.7%
Ground Beef	16	93.8%	144	95.1%	93	97.8%	0		253	96.0%
Ground Chicken	1	0.0%	7	100.0%	2	100.0%	0		10	90.0%
Ground Turkey	11	100.0%	4	100.0%	0		0		15	100.0%

Turkeys	35	100.0%	10	100.0%	0		0		45	100.0%
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CY 2006										
Product	Large		Small		Very Small		Unknown		All Sizes	
	# Sets	% Pass	# Sets	% Pass	# Sets	% Pass	# Sets	% Pass	# Sets	% Pass
Broilers	126	92.9%	52	82.7%	6	50.0%	0		184	88.6%
Market Hogs	26	100.0%	45	93.3%	74	93.2%	0		145	94.5%
Cows/Bulls	5	100.0%	20	95.0%	9	77.8%	0		34	91.2%
Steers/Heifers	11	100.0%	11	81.8%	11	100.0%	0		33	93.9%
Ground Beef	12	91.7%	186	96.8%	173	98.8%	0		371	97.6%
Ground Chicken	1	0.0%	1	100.0%	0		0		2	50.0%
Ground Turkey	9	100.0%	2	100.0%	1	100.0%	0		12	100.0%
Turkeys	23	95.7%	10	90.0%	0		0		33	93.9%

**“A” Sets**

CY 2005										
Product	Large		Small		Very Small		Unknown		All Sizes	
	# Sets	% Pass	# Sets	% Pass	# Sets	% Pass	# Sets	% Pass	# Sets	% Pass
Broilers	121	86.0%	45	73.3%	5	40.0%	0		171	81.3%
Market Hogs	16	100.0%	24	83.3%	73	97.3%	0		113	94.7%
Cows/Bulls	3	100.0%	18	88.9%	17	100.0%	0		38	94.7%
Steers/Heifers	7	100.0%	8	87.5%	9	88.9%	0		24	91.7%
Ground Beef	11	100.0%	181	98.3%	199	98.5%	0		391	98.5%
Ground Chicken	0		5	80.0%	0		0		5	80.0%
Ground Turkey	12	100.0%	1	100.0%	0		0		13	100.0%

<b>CY 2004</b>										
<b>Product</b>	<b>Large</b>		<b>Small</b>		<b>Very Small</b>		<b>Unknown</b>		<b>All Sizes</b>	
	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>
Broilers	106	94.3%	36	77.8%	2	100.0%	0		144	90.3%
Market Hogs	25	96.0%	35	85.7%	70	92.9%	0		130	91.5%
Cows/Bulls	9	100.0%	36	97.2%	16	81.3%	0		61	93.4%
Steers/Heifers	24	100.0%	19	94.7%	29	96.6%	0		72	97.2%
Ground Beef	16	93.8%	287	97.6%	268	97.0%	0		571	97.2%
Ground Chicken	1	100.0%	3	100.0%	1	100.0%	0		5	100.0%
Ground Turkey	18	94.4%	3	100.0%	0		0		21	95.2%

<b>CY 1998-2003</b>										
<b>Product</b>	<b>Large</b>		<b>Small</b>		<b>Very Small</b>		<b>Unknown</b>		<b>All Sizes</b>	
	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>
Broilers	660	92.1%	229	84.7%	12	50.0%	0		901	89.7%
Market Hogs	156	94.9%	126	83.3%	202	91.1%	1	100.0%	485	90.3%
Cows/Bulls	22	95.5%	128	85.9%	49	77.6%	0		199	84.9%
Steers/Heifers	37	100.0%	40	95.0%	36	88.9%	0		113	94.7%
Ground Beef	105	88.6%	1,411	92.6%	813	97.3%	3	66.7%	2,332	94.0%
Ground Chicken	9	100.0%	18	88.9%	1	100.0%	0		28	92.9%
Ground Turkey	74	94.6%	20	90.0%	3	100.0%	0		97	93.8%

<b>All Years 1998-2008</b>										
<b>Product</b>	<b>Large</b>		<b>Small</b>		<b>Very Small</b>		<b>Unknown</b>		<b>All Sizes</b>	
	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>	<b># Sets</b>	<b>% Pass</b>
Broilers	1,265	93.0%	462	85.3%	36	61.1%	1	100.0%	1,764	90.4%
Market Hogs	264	95.1%	311	88.7%	534	93.6%	1	100.0%	1,110	92.6%
Cows/Bulls	48	97.9%	268	90.7%	125	86.4%	2	100.0%	443	90.3%
Steers/Heifers	118	100.0%	118	91.5%	127	92.1%	0		363	94.5%
Ground Beef	186	90.9%	2,434	93.9%	1,655	96.4%	6	83.3%	4,281	94.7%
Ground Chicken	15	80.0%	39	92.3%	5	100.0%	0		59	89.8%
Ground Turkey	140	96.4%	31	93.5%	5	100.0%	0		176	96.0%
Turkeys	61	98.4%	22	95.5%	0		0		83	97.6%

**\* Includes sample sets that completed during the indicated calendar year (sample sets may have started during an earlier year).**

**Table 3**  
**Establishments listed by product class and by percentage per category, 2008**

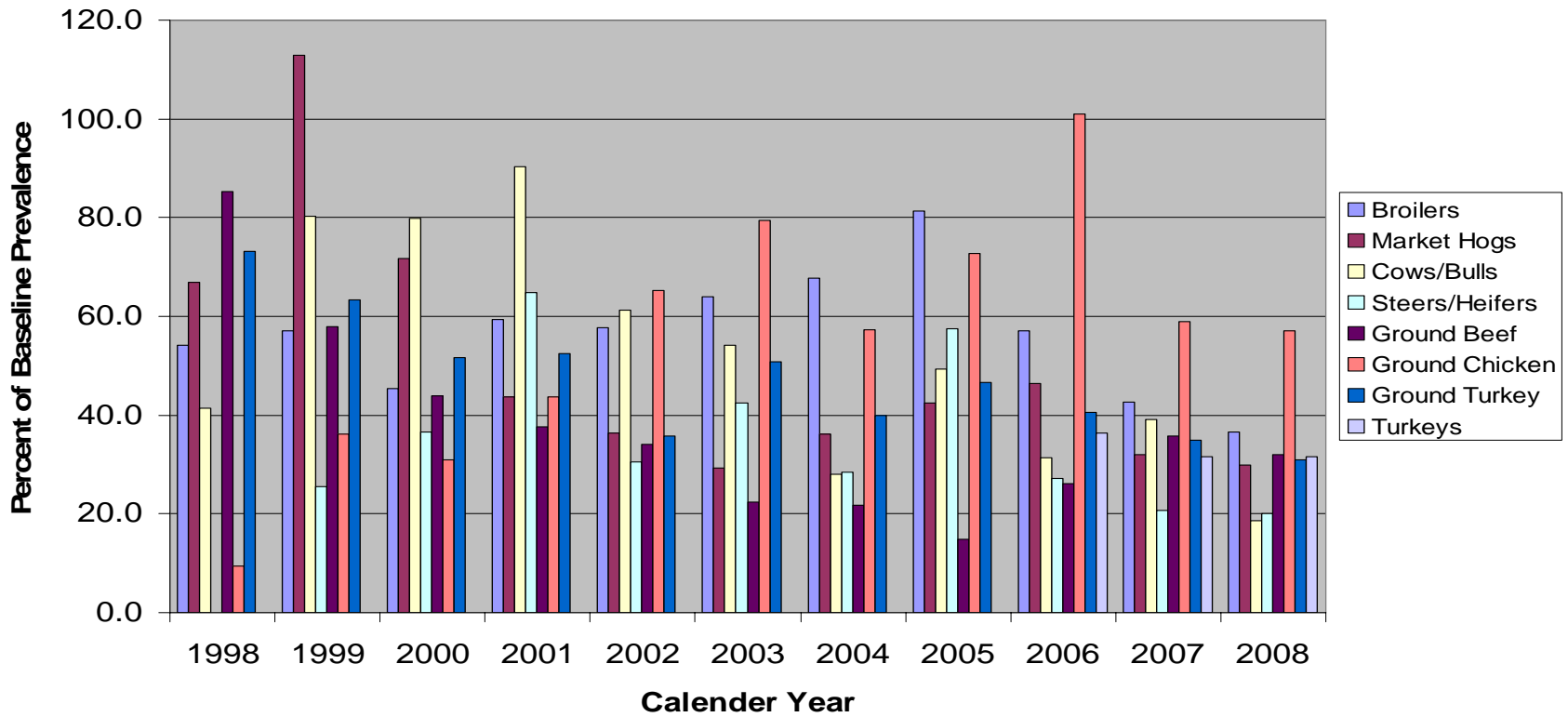
<b>Category</b>	<b>Broilers (n)</b>	<b>Cow/bull (n)</b>	<b>Ground Beef (n)</b>	<b>Ground Chicken (n)</b>	<b>Ground Turkey (n)</b>	<b>Market Hogs (n)</b>	<b>Steer/ Heifer (n)</b>	<b>Turkeys (n)</b>
1	82% (144)	81% (69)	76% (223)	50% (4)	71% (17)	86% (181)	86% (75)	97% (31)
2T	7% (13)	14% (12)	7% (21)	25% (2)	21% (5)	8% (17)	6% (5)	3% (1)
2	10% (17)	5% (4)	13% (38)	25% (2)	8% (2)	6% (12)	7% (6)	0% (0)
3	1% (2)	0% (0)	4% (10)	0% (0)	0% (0)	0% (1)	1% (1)	0% (0)
<b>Total</b>	<b>176</b>	<b>85</b>	<b>292</b>	<b>8</b>	<b>24</b>	<b>211</b>	<b>87</b>	<b>32</b>

Number of Establishment recently sampled for at least two sets.

*(Last Modified by Gurinder Saini on March 13, 2009)*

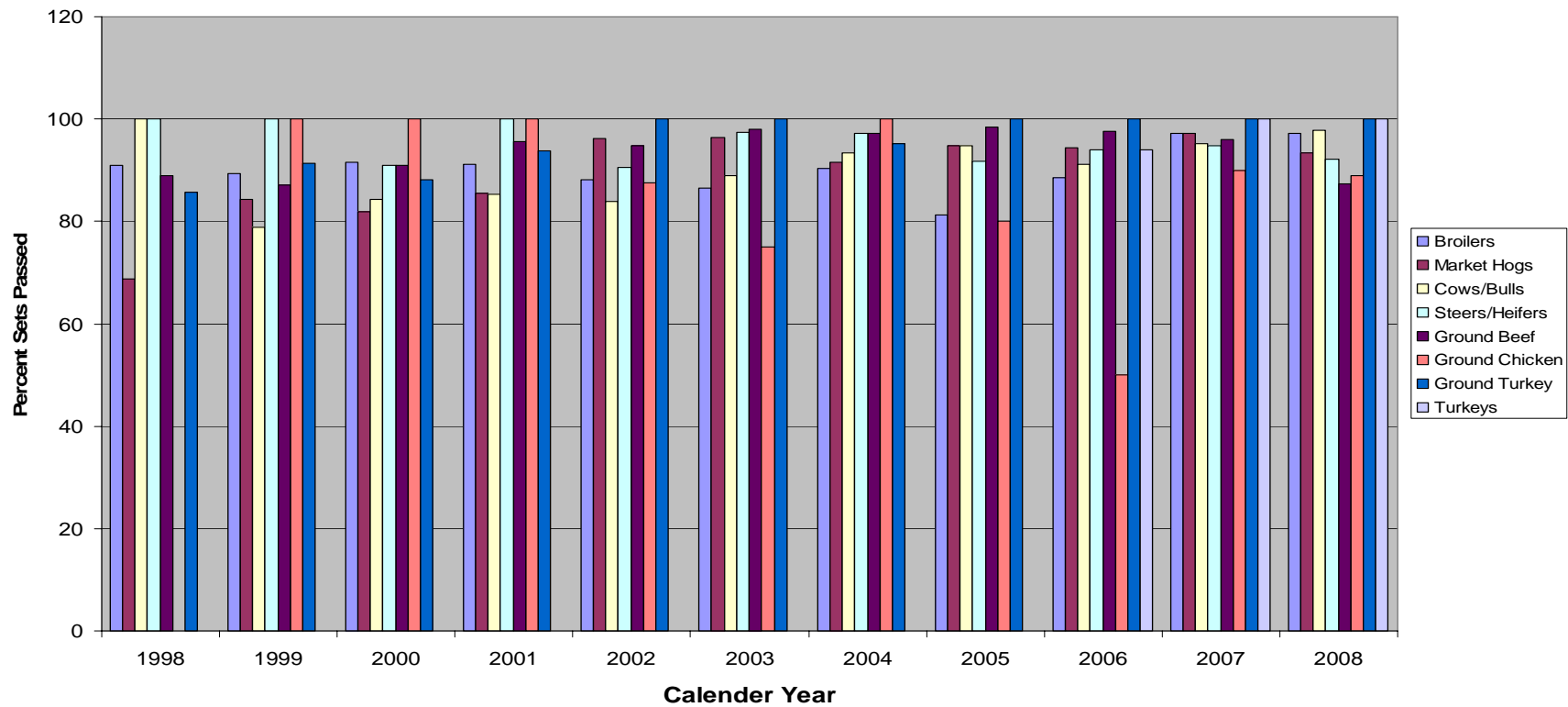
**Figure A1**  
**Comparison of Percent Positive *Salmonella* Tests in the PR/HACCP Verification Testing Program with Baseline Prevalence,**  
**by Calendar Year and Product Class, 1998 – 2008 \***

“A” Set Samples 1998 – 2005  
 All Samples 2006 - 2008



\* Bars represent percent positive *Salmonella* tests divided by product class-specific baseline *Salmonella* prevalence

**Figure A2**  
**Overall Percentages of Sample Sets Meeting *Salmonella* Performance Standards**  
**By Calendar Year and Product Class, 1998 – 2008 \***  
**“A” Sets 1998 – 2005**  
**All Sets 2006 - 2008**



\* Includes samples sets from establishments of all sizes that were completed during the indicated calendar year (sets may have started during an earlier year).