

# Foul Fowl

## *An Analysis of Salmonella Contamination in Broiler Chickens*

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Food & Water Watch

The bacteria *Salmonella* is the leading cause of food-borne illness in the United States<sup>1</sup> with nearly a million cases of salmonellosis attributed annually to meat and poultry consumption.<sup>2</sup> Of these, over 9,000 of the victims are hospitalized and over 250 die.<sup>3</sup> The annual cost of illnesses and premature death from *Salmonella* is estimated to be around \$1.5 billion.<sup>4</sup> There is also increasing concern about the potential for pathogens, including *Salmonella*, to become resistant to antibiotics. Infections caused by antibiotic-resistant bacteria are more frequently associated with illness and death than those caused by bacteria that are not antibiotic-resistant.<sup>5</sup>

Earlier this year, the U.S. Department of Agriculture (USDA) announced concern over an increase in *Salmonella* contamination of broiler chickens.

Food & Water Watch has obtained the *Salmonella* testing results through the Freedom of Information Act and is using this report to publicize data from 1998 through 2005. We report here on:

- 1) The performance trends in the broiler chicken industry
- 2) The relative performance of the largest seven broiler chicken companies
- 3) Identifying information for plants that failed to meet USDA's *Salmonella* standards between 1998 and 2005

We are releasing this information for several reasons. First, citizens have a right to information that indicates how effectively their government is ensuring the safety of products that carry the USDA seal of approval. Second, consumers have a right to public information concerning the relative performance of poultry-producing plants under government inspection. Third, publication of the names of plants that have failed to meet the regulatory standard may create additional incentive for plants to improve the safety of their processes.

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<sup>1</sup> [http://fsrio.nal.usda.gov/document\\_fsheet.php?product\\_id=58](http://fsrio.nal.usda.gov/document_fsheet.php?product_id=58)

<sup>2</sup> FSIS estimates that 63 percent of foodborne *Salmonella* cases (995,496) are due to the consumption of meat or poultry (USDA, 1996).

<http://www.ers.usda.gov/data/FoodBorneIllness/salmAssumptionDescriptions.asp#cases>

<sup>3</sup> [http://www.ers.usda.gov/Data/FoodBorneIllness/salm\\_Intro.asp?Pathogen=Salmonella&p=1&s=15302&y=2005&n=1397187](http://www.ers.usda.gov/Data/FoodBorneIllness/salm_Intro.asp?Pathogen=Salmonella&p=1&s=15302&y=2005&n=1397187)

<sup>4</sup> <http://www.ers.usda.gov/data/foodborneillness/>. The cost of salmonellosis from all sources is estimated to be \$2,387,251,191.

<sup>5</sup> <http://www.nmconline.org/articles/NARMS.pdf>

## **BACKGROUND**

USDA's Food Safety and Inspection Service (FSIS), the government agency responsible for inspecting meat and poultry, has established acceptable levels of *Salmonella* contamination for different types of meat and poultry. Of particular concern, the agency's testing has demonstrated an increase in the percentage of broiler chickens contaminated with *Salmonella*, from 9.09% in 2000 to 16.25% in 2005.<sup>6</sup>

In 1998, FSIS began enforcing a new *Salmonella* standard by testing raw and ground products for the presence of the pathogen. The purpose of the new program was to use microbial sampling to determine when plants were not controlling food safety hazards in their production processes. Testing was also supposed to serve as an objective indicator of when industry and/or government were not fulfilling their food safety responsibilities.

The acceptable level of contamination established for each product was based on the average level of *Salmonella* present for each class of product at the time that initial baseline tests were taken. Consequently, the USDA's acceptable percentage of *Salmonella* contamination varies greatly by product.

<b>Type of Product</b>	<b>Acceptable Level of <i>Salmonella</i> Contamination</b>
Steers and Heifers	1.2%
Cows and Bulls	3.5%
Ground Beef	9.5%
Hogs	10.9%
Broiler Chickens	23.5%
Fresh Pork Sausage	34.0%
Ground Chicken	49.1%
Ground Turkey	54.7%

To determine the contamination level for a particular plant, the USDA tests a sample of the finished product each day that the plant is operating until the requisite number of samples are taken. The number of required daily samples differs by species. So, for example, the testing period for a plant that slaughters steers and heifers would be as long as is necessary to collect 82 daily samples, whereas the testing period for a broiler chicken plant would be long enough to collect 51 daily samples. The length of the testing period is also affected by the frequency with which a plant produces the product. Some small plants do not produce every day, and therefore the testing period would be longer at these plants to collect the same number of samples. The "contamination rate" of a plant is the percentage of the daily samples that are contaminated with *Salmonella* during the testing period.

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<sup>6</sup> [http://www.fsis.usda.gov/PDF/Serotypes\\_Profile\\_Salmonella\\_Tables\\_&\\_Figures.pdf](http://www.fsis.usda.gov/PDF/Serotypes_Profile_Salmonella_Tables_&_Figures.pdf)

As a matter of practice, if the plant's contamination rate does not exceed the regulatory standard, it will not typically undergo another testing period for approximately one year. On June 29, 2006, the agency released a notice to its inspectors that plants which had half or less of the allowable number of positive samples in their last two testing periods would not be scheduled for another testing period for 12 to 24 months.<sup>7</sup>

Initially, the agency established an enforcement program for its *Salmonella* program with actions getting progressively more serious with each additional failed testing period and culminating in withdrawal of inspection if the plant failed to comply with the *Salmonella* regulation for three consecutive testing periods. In 2001, however, a federal District Court ruled that the agency could not withdraw inspection solely based on a plant's failure to meet the requirements of the *Salmonella* regulation. Since then, the agency reportedly increases the level of scrutiny at a plant with each successive *Salmonella* failure and may take enforcement action after considering the results of those investigations. No plant has been shut down for failing to meet the performance standard since the court decision.

### *Salmonella* Testing in Broiler Chickens

To determine the contamination level for a particular broiler chicken plant, the agency collects daily samples until 51 samples have been collected. For high volume plants that are producing five to seven days each week, this testing period usually takes between two and three months.

To collect a single sample, a FSIS inspector takes a carcass from the end of the plant's production line, puts it in a sterile plastic bag with a chemical solution and agitates it for one minute. This solution is then sent to an FSIS lab to determine if the carcass was contaminated with *Salmonella*.

Since 1998, the agency has published only generalized data from its *Salmonella* program, generally on an annual basis. Several months ago, the agency announced it would begin publishing quarterly data and it issued the first quarterly report on June 23, 2006.<sup>8</sup> The agency also announced that, to increase incentives for plants to produce safe food, it would begin categorizing plants based on their success in meeting the regulatory standard and would begin reporting the status of individual plants on its Web site. The agency did not specify when this reporting would begin. Category 3 plants would be those that failed the regulatory standard, with higher than 24% contamination rate; Category 2 plants would be those with a contamination rate of 13-24%; and Category 1 plants would be those with less than a 12% contamination rate. Apparently the agency will consider more than the result of one test period when assessing plants, but has not yet made clear exactly what results will be aggregated. Finally, the agency also announced that it is considering publishing future individual test results by plant because research suggests this might create added incentives for plants to produce safe food.

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<sup>7</sup> <http://www.fsis.usda.gov/OPPDE/rdad/FSISNotices/36-06.pdf>

<sup>8</sup> [http://www.fsis.usda.gov/Science/Q1\\_2006\\_Salmonella\\_Testing/index.asp](http://www.fsis.usda.gov/Science/Q1_2006_Salmonella_Testing/index.asp)

## **METHODS**

The *Salmonella* testing results for 1998 through 2003 were acquired using the Freedom of Information Act. We have analyzed numerous FSIS testing databases over the past ten years and routinely discovered errors or gaps in the data. In the data available here, we discovered that up to three percent of the tests may missing from the database. All of our calculations are based on the data available in the records we received.

## **FINDINGS**

### **Overall**

Our analysis found that 106 broiler chicken plants in 27 states and Puerto Rico failed to meet the performance standard in at least one *Salmonella* testing period. These plants are listed in Attachment 1. A more detailed chart, including states and dates of testing can be found in Attachment 2.

Our analysis of the data also confirms that the *Salmonella* contamination rate has risen in the past two years. Using a modified version of the performance categories the agency plans to use, we analyzed the number of test periods in each of the categories rather than the number of plants (which might have more than one test period per year.)

<b>Test Periods by Contamination Rate and Year</b>				
<b>Year</b>	<b>Zero Contamination</b>	<b><u>Category 1</u> Less than 12% Contamination</b>	<b><u>Category 2</u> 13-24% Contamination</b>	<b><u>Category 3</u> 25% or more Contamination (Failed to meet USDA standard)</b>
1998 - 2003	9.7%	54.2%	24.4%	11.8%
2004	4.3%	53.1%	30.3%	12.4%
2005	4.6%	47.2%	30.3%	18.0%

Finally, our analysis shows that a recent change to the policy on testing frequency, which would delay testing for some plants, could cause plants with troubling rates of contamination to escape testing.

The USDA notice, released June 29, 2006, states that plants that had two testing periods with contamination rates less than half the acceptable level (less than 12 percent), would not likely be

scheduled for more testing for 12 to 24 months because of their above average performance. This reliance on previous performance is misguided, as circumstances in a plant can change very quickly. This is indicated in the testing database, which reveals dramatic changes in contamination rates in plants from one testing period to another.

If this new standard had been in effect during the 1998 to 2005 period we examined, up to 22 plants which failed to meet the *Salmonella* standard would have likely not have been tested because they had less than 12 percent contamination in two previous testing periods.

## The Top 7 Companies

The following is the analysis of all testing data from 1998 through 2005 of the seven companies operating the most broiler chicken plants.

***NOTE: A contamination rate below 24% meets the USDA's standard.***

**Tyson Foods, Inc.** operates 36 broiler-producing plants and FSIS recorded 253 test periods at those plants. *(The government data appears to be missing seven test period results.)*

10 of the 36 plants (27.8%) failed at least one test period.

5.1% of the company's total test periods resulted in failure.

The average contamination rate of failing test periods was 33.0%.

The average contamination rate of passing test periods was 7.7%.

**Pilgrim's Pride Corporation** operates 22 broiler-producing plants and FSIS recorded 164 test periods at those plants. *(The government data appears to be missing six test period results.)*

7 of the 22 plants (31.8%) failed at least one test period.

9.2% of the company's total test periods resulted in failure.

The average contamination rate of failing test periods was 35.0%.

The average contamination rate of passing test periods was 8.8%.

**Goldkist Inc.** operates 11 broiler-producing plants and FSIS recorded 78 testing periods at those plants. *(The government data appears to be missing four test period results.)*

5 of the 11 plants (45.5%) failed at least one test period.

9.0% of the company's total test periods resulted in failure.

The average contamination rate of failing test periods was 40.9%.

The average contamination rate of passing test periods was 10.2%.

**Perdue Farms** operates ten broiler-producing plants and FSIS recorded 66 test periods at those plants. *(The government data appears to be missing one test period result).*

5 of the 10 plants (50%) failed at least one test period.

9.1% of the company's total test periods resulted in failure.

The average contamination rate of failing test periods was 36.0%.

The average contamination rate of failing test periods was 11.2%.

**Wayne Farms** operates seven broiler-producing plants and FSIS recorded 56 test periods at those plants. *(The government data appears to be missing two test period results).*

5 of the 7 plants (71.4%) failed at least one test period.

14.3% of the company's total test periods resulted in failure.

The average contamination rate of failing test periods was 32.0%.

The average contamination rate of passing test periods was 10.7%.

**Sanderson Farms, Inc.** operates six broiler-producing plants and FSIS recorded 43 test periods at those plants. *(The government data appears to be missing one test period result).*

None of the plants failed any test period.

The average contamination rate of passing test periods was 6.3%.

**Foster Farms** operates four broiler-producing plants and FSIS recorded 22 test periods at those plants. *(No test periods appear to be missing from the government data.)*

2 of the 4 plants (50%) failed at least one test period.

13.7% of the company's total test periods resulted in failure.

The average contamination rate of failing test periods was 32.0%.

The average contamination rate of passing test periods was 9.18%.

## **RECOMMENDATIONS**

In light of these findings, Food & Water Watch recommends that:

- The USDA should seek legislation that makes performance standards enforceable under the meat and poultry inspection statutes.
- The USDA should publish on its website *Salmonella* testing results for each plant on a quarterly basis, including the number of samples taken at the plant and the number that tested positive for *Salmonella*.
- The USDA should abandon a new policy that plants which had less than half the acceptable rate of *Salmonella* in their last two testing periods will not be scheduled for another testing period for 12 to 24 months.