Food Safety and Inspection Service's Annual Sampling Program Plan

Fiscal Year 2016

United States Department of Agriculture

Food Safety and Inspection Service

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Introduction

The Food Safety and Inspection Service (FSIS) within the United States Department of Agriculture (USDA) inspects meat, poultry, and egg products establishments to ensure that the food produced in them is safe, wholesome, and properly labeled. The overall purpose of FSIS inspection activities is to verify that establishments meet requirements to control physical, chemical, and microbiological hazards in regulated product. Verification activities serve to protect the public from foodborne hazards. A key component of FSIS' inspection activities is the sampling of product to test for microbiological contaminants or chemical residues.

Sampling Plans

FSIS released the *Report on the Food Safety and Inspection Service Microbiological and Residue Sampling Programs* in December 2011, which identified all of FSIS' sampling programs and discussed the statistical and policy basis for the programs.[1] Subsequent to the release of the original report in 2011, FSIS has released a new Sampling Plan (Plan) for each fiscal year (FY).[2,3,4,5] These Plans continued FSIS' efforts to comprehensively identify the Agency's microbiological and chemical residue sampling activities and consider them in light of data-driven strategic planning efforts. The Plans also described FSIS' major activities related to microbiological and chemical residue sampling in domestic establishments, imports, and in-commerce facilities during the fiscal year and the Agency's overall strategy for directing its sampling resources for the following year.

This new FY2016 Plan seeks to accomplish the same goals, by describing FSIS' major activities related to microbiological and chemical residue sampling programs for domestic establishments,

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[1] Please see the following website for more information: http://www.fsis.usda.gov/wps/wcm/connect/0816b926-c7ee-4c24-9222-34ac674ec047/FSIS_Sampling_Programs_Report.pdf?MOD=AJPERES

[2] Please see the following website for more information: http://www.fsis.usda.gov/wps/wcm/connect/9a484b86-583d-4e2a-aa29-9fa208acd37d/Sampling_Program_Plan_FY2012.pdf?MOD=AJPERES

[3] Please see the following website for more information: http://www.fsis.usda.gov/wps/wcm/connect/7f3810da-cc8f-47a7-89a1-570438511130/Sampling_Program_Plan_FY2013.pdf?MOD=AJPERES

[4] Please see the following website for more information: http://www.fsis.usda.gov/wps/wcm/connect/62fad225-9052-47fa-9ffe-397f436dc96a/Sampling-Program-Plan-FY2014.pdf?MOD=AJPERES.

[5] Please see the following website for more information: http://www.fsis.usda.gov/wps/wcm/connect/62fad225-9052-47fa-9ffe-397f436dc96a/Sampling-Program-Plan-FY2014.pdf?MOD=AJPERES

imports, and in-commerce facilities in FY2015 and describing the Agency's overall strategy for directing its sampling resources in FY2016.

Background

The process of scheduling, collecting and analyzing routine domestic samples typically begins with a sampling task assigned to FSIS inspection program personnel (IPP) through the Agency's Public Health Information System (PHIS). The IPP then collect and ship the samples collected to one of three FSIS testing laboratories, where the sample is tested for microbiological contaminants or chemical residues. For imported product, the types of inspection assigned to the lot by PHIS inform IPP when samples are to be collected and sent for laboratory analysis.

The FSIS laboratories perform different tests depending on the type of sample and the sampling project for which the sample was collected. Some sampling projects are considered routine, while others are triggered by positive test results from other projects and so are not considered to be routine.

All tables in this Plan contain the following information:

1. Number of samples that were planned to be analyzed in FY2015,[6]
2. Number of samples actually analyzed in FY2015, and
3. Number of samples that are planned to be analyzed in FY2016.

Totals in the individual tables have been rounded. The FY2016 Plan is based on the number of samples analyzed because operational abilities allow FSIS to adjust the number of samples scheduled on a monthly basis to better target the number of samples collected and analyzed.[7]

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[6] The total number of samples planned to be scheduled in FY2015 was included in the *FSIS Annual Sampling Program Plan, Fiscal Year 2015*.

[7] FSIS targets the number of samples collected on an annual basis instead of focusing on specific collection rates. This is because not all establishments that produce products that are currently being sampled under FSIS sampling projects produce every eligible product every day. In order to optimize the number of samples collected and analyzed and to collect samples from infrequent producers, FSIS adjusts the number of samples being scheduled based on the average number of samples collected.

In FY2016, FSIS plans to collect and analyze approximately 80,000 microbiological samples, 10,000 chemical residue samples, 5,000 other samples. Totals have been rounded to reflect that they are approximations. The estimates for each sampling project are based on current plans, FSIS policies, and industry practices and therefore are subject to change over the course of the fiscal year. Sections are included to describe significant changes to sampling programs or projects that occurred in FY2015 and what changes are planned for FY2016.

Finally, it is important to note that the number of samples that were anticipated to be analyzed in FY2015 may differ from the total number of samples actually analyzed over the same period. This discrepancy occurs for a variety of reasons, including improved sampling frames due to updates to establishment profiles in PHIS (which could lead to more samples being analyzed than previously planned), emergencies, lack of production at the establishment level, and other unforeseen circumstances (which could lead to fewer samples being analyzed than previously planned). When these discrepancies occur, IPP may not be able to collect samples for all sampling tasks originally assigned. This same discrepancy may exist moving forward for samples scheduled in FY2016.

General FY2015 Accomplishments

On January 26, 2015, FSIS announced and requested comment on new pathogen reduction performance standards for *Salmonella* and *Campylobacter* in raw chicken parts and not-ready-to-eat (NRTE) comminuted chicken and turkey products (80 FR 3940).

The Agency also announced that it would begin sampling raw chicken parts to gain additional information on the prevalence and the microbiological characteristics of *Salmonella* and *Campylobacter* in those products. In addition, FSIS announced that it would begin exploratory sampling of raw pork products for pathogens of public health concern, as well as for indicator organisms, and begin sampling imported poultry carcasses, imported raw chicken parts, and imported NRTE comminuted chicken and turkey for *Salmonella* and *Campylobacter*.

Finally, for products that are currently subject to *Salmonella* or *Campylobacter* performance standards, FSIS announced that it will begin using routine sampling throughout the year rather

than the current set-based approach. FSIS stated that it would perform this assessment using a moving window of sampling results.

In FY15, FSIS started an exploratory raw pork sampling initiative. In contrast to previous FSIS pork sampling which was on carcasses, the new initiative is looking at several different product classes that are closer to the consumer, intact and non-intact cuts, comminuted, and other raw pork products. After collecting approximately 1,200 samples FSIS intends to analyze the sampling results to determine the need to focus on specific product types.

In FY15, FSIS began performing whole genome sequencing (WGS) in positive isolates from verification testing programs. FSIS is collaborating with the CDC, FDA, NIH, and State agencies on the rapid adoption of technology for bacterial characterization and comparison purposes. These agencies are working together to develop analyses that could replace several current routine laboratory analyses to improve overall speed and efficiency, including pulsed-field gel electrophoresis (PFGE), antimicrobial susceptibility testing, serotyping, and identification of know virulence characteristics. Expected outcomes that will benefit FSIS are as follow:

- WGS will provide improved discrimination between bacterial isolates. FSIS expects to use this information to identify environmental harborage and recurrences of pathogens in FSIS-regulated establishments which can further support FSIS HACCP inspection verification and decisions regarding enforcement actions.
- FSIS will make WGS data available in addition to serotype, PFGE, and antimicrobial susceptibility results to establishment owners and operators to further assist them in developing supportable HACCP systems, taking effective corrective actions and performing adequate reassessments.
- In the context of outbreaks and special investigations WGS will:
    - Provide information on pathogen resistance to antimicrobial agents and sanitizers, and known virulence attributes.
    - Supplement current methods (i.e. serotype, PFGE, MVLA) to help differentiate case-patients from background, sporadic, and non-outbreak patients.
    - Allow FSIS and other public health partners to focus investigative efforts on exposure, purchase histories, and traceback of persons/products more likely to be part of an outbreak, which will help reduce time to source implication and possible public health actions.
    - Aid in the selection of isolates for conducting special studies to understand specific phenotypic characteristics that may make bacteria better able to survive

throughout processes associated with FSIS-regulated products (i.e. heat tolerance, acid tolerance, and other environmental adaptation factors).

In August 2014 FSIS launched a 12-month Nationwide Beef and Veal Carcass Baseline Survey (BVCBS) to sample establishments that slaughter and process beef and veal carcasses. During this survey, FSIS is collecting samples from the carcasses of steers, heifers, cows, bulls, stag, dairy cows, and veal at two locations in the slaughter process, immediately after hide removal (pre-evisceration) and at pre-chill (after all anti-microbial interventions). This study will provide FSIS the data on percent positives and quantitative levels of select foodborne bacterial pathogens such as *Salmonella* sp., *E. coli* O157:H7, non-O157 Shiga-toxin producing *E. coli* (STEC) and levels of indicator bacteria, including total bacteria (aerobic plate count), generic *E. coli*, coliforms and Enterobacteriaceae. Data obtained from the BVCBS will be used for the estimation of the national prevalence of select pathogens, assessment of slaughter dressing procedures and process control, development of performance guidelines and for other policy considerations.

Overview

Salmonella and *Campylobacter*

FSIS conducts *Salmonella* testing on a broad array of products both in domestic establishments and on imported products.

- Raw Poultry
  - Chicken Carcasses
  - Turkey Carcasses
  - Chicken Parts
  - Comminuted[8] Chicken
  - Comminuted Turkey
- Raw Ground Beef and its components
  - Raw ground beef
  - Bench (purchased) and manufacturing trim
  - Raw ground beef components other than trim
- Ready-to-Eat (RTE) Products
- Processed Egg Products

In raw poultry, sampling is conducted for the *Salmonella* and *Campylobacter* for young chicken and turkey carcasses, raw comminuted chicken and turkey, and chicken parts. In raw beef, FSIS tests for *Salmonella* on raw ground beef, bench and manufacturing trim, and components for raw ground beef. Ready-to-Eat and processed egg products are tested for *Listeria monocytogenes* and *Salmonella*.

Major Activities in *Salmonella* and *Campylobacter* Sampling Projects in FY2015

1. FSIS continued implementing the *Salmonella* Action Plan (SAP), which outlined several actions FSIS will take to drive innovations that will lower *Salmonella* contamination rates, including implementing the New Poultry Inspection System (NPIS), establishing

[8] Comminuted is defined as a product "that has been ground, mechanically separated, or hand- or mechanically deboned and further chopped, flaked, minced or otherwise processed to reduce particle size" as per 9 CFR 417.

new performance standards; developing new strategies for inspection and throughout the full farm-to-table continuum; addressing all potential sources of *Salmonella;* and focusing the Agency's education and outreach tools on *Salmonella*.

2. FSIS implemented continuous sampling for chicken and turkey carcasses.
3. FSIS began sampling raw chicken parts, including legs, breasts and wings.
4. FSIS began implementing the New Poultry Inspection System (NPIS). FSIS anticipates the NPIS will prevent at least 5,000 illnesses from *Salmonella* and *Campylobacter* annually by focusing inspectors' duties solely on food safety.
5. FSIS started testing imported poultry for *Salmonella* and *Campylobacter*.
6. FSIS began reporting positive rates in raw ground beef, bench (purchased) and manufacturing trimmings and raw ground beef components other than trim. This information is posted on the FSIS website.

Changes to *Salmonella* and *Campylobacter* Sampling Projects Planned for FY2016

1. FSIS intends to implement new performance standards for *Salmonella* and *Campylobacter* in raw chicken parts and raw comminuted poultry.
2. FSIS plans to announce a new performance standard for *Salmonella* in ground beef and intends to develop performance standards for beef manufacturing trim as well as beef carcasses.
3. FSIS is planning to implement a *Salmonella* sampling program for other raw chicken parts not included in the current chicken parts sampling (necks, hearts, livers, gizzards, and half and quarter carcasses).
4. FSIS will compute estimates for the levels of *Salmonella* in young chickens, turkeys, chicken parts, comminuted chicken, comminuted turkey, raw ground beef, and beef manufacturing trimmings. Those estimates will be posted on the FSIS website.
5. FSIS will compute estimates for the levels of *Campylobacter* in young chickens, turkeys, chicken parts, comminuted chicken, and comminuted turkey. Those estimates will be posted on the FSIS website.
6. FSIS intends to begin testing low volume and religious exempt poultry establishments for *Salmonella* and *Campylobacter*.

Shiga Toxin-producing *E. coli* (STEC)

FSIS maintains many STEC sampling projects for domestic establishments, imported products, and raw ground beef in retail. All STEC sampling is of raw ground beef or raw ground beef

components. “Bench trim” is trim derived from cattle not slaughtered onsite (i.e., purchased product). “Beef manufacturing trimmings” are trimmings produced from cattle slaughtered onsite.

Major Activities in STEC Sampling Projects in FY2015

1. FSIS implemented its redesigned bench trim and non-trim components sampling projects to improve detection of *E. coli* O157:H7 in regulated product using a data-driven approach; the new sampling design is nationally representative and comparable to the existing MT60 and MT43 sampling designs. This was implemented in September 2015.
2. FSIS published the completed analysis on the estimated costs and benefits associated with the implementation of its non-O157 STEC testing on beef manufacturing trimmings and the costs and benefits associated with the potential expansion of its non-O157 STEC testing to raw ground beef and raw ground beef components other than beef manufacturing trimmings.
3. FSIS reissued FSIS Directive 10,010.1, entitled “Sampling Verification Activities for Shiga Toxin-producing *Escherichia coli* (STEC) in Raw Beef Products” (Dir. 10,010.1, Revision 4).[9]

Changes Planned to STEC Sampling Projects for FY2016

1. FSIS plans to publish beef slaughter guidance.
2. FSIS plans to address recommendations made by the Agency Strategic Performance Working Group (SPWG) especially those relating to sanitary dressing procedures.
3. FSIS plans to publish prevalence calculations for *E. coli* O157:H7 in raw ground beef and beef manufacturing trimmings.
4. FSIS plans to publish prevalence estimates for non-O157 (STEC) in beef manufacturing trim.
5. FSIS is considering beginning analyzing raw ground beef, raw ground beef components, and bench (purchased) trimmings for non-O157 (STEC).
6. FSIS is considering a veal carcass sampling program.

Listeria monocytogenes (*Lm*)

[9] http://www.fsis.usda.gov/wps/wcm/connect/c100dd64-e2e7-408a-8b27-ebb378959071/10010.1.pdf?MOD=AJPERES

FSIS conducts microbiological testing of RTE meat and poultry products for *Listeria monocytogenes* and *Salmonella* in both domestically produced and imported ready-to-eat products as well as in domestically produced and imported processed egg products.

Routine product sampling is scheduled every month under both a random sampling project and risk-based sampling project. Under RLm, establishments producing RTE product are scheduled on a rotating basis, and samples of product, contact surfaces, and the processing environment are collected and tested for *Lm*. Intensified Verification Testing (IVT) is carried out whenever an establishment has a positive sample collected under RLm or routine RTE sampling projects.

Major Activities in Sampling Projects for *Lm* and *Salmonella* in FY2015

1. FSIS began reviewing the sampling methodology for the RLm sampling project.
2. FSIS began reviewing the sampling methodology for the processed egg sampling projects.

Changes Planned to RTE Sampling Projects for *Lm* and *Salmonella* for FY2016

1. FSIS is considering implementing a follow-up sampling project to begin immediately collecting product samples after a positive sampling result.
2. FSIS intends to implement modifications to the processed egg product sampling projects.
3. FSIS intends to review and update the risk factors associated with the scheduling algorithm for the RTEPROD_RAND and RTEPROD_RISK sampling projects.
4. FSIS will continue to review the current scheduling methodology for RLm.

Chemical Residues

FSIS conducts sampling for chemical residues in regulated meat, poultry and egg products. Domestic sampling projects are summarized in Table 4.

Major Activities in Chemical Residue Sampling Programs in FY2015

1. FSIS continued Tier 2 sampling projects for sheep and goats.
2. FSIS began a Tier 2 sampling project for Old Breeder Turkeys.
3. FSIS began routinely using a new hormone method for beef muscle.

Changes Planned for Chemical Residue Sampling Programs for FY2016

1. FSIS intends to evaluate the creation of residue sampling projects for both domestically produced and imported further processed raw meat and poultry products.
2. FSIS intends to evaluate the creation of a residue sampling project for both domestically produced and imported ready-to-eat and not-ready-to-eat (combination) products.
3. FSIS is considering modifying directions for in-plant KIS tests. To get additional information, FSIS is planning a pilot with dairy cows and bob veal.
4. FSIS is starting a Tier 2 sampling project for market swine.
5. FSIS is considering adding one more animal class.
6. FSIS is continuing Tier 2 sampling projects for sheep, goats, and old breeder turkeys.

Exploratory and Baseline Studies

FSIS conducts exploratory and baseline studies to estimate the national prevalence levels of bacteria or indicator bacteria of public health concern. Each report produced after the completion of a baseline or exploratory study is a compilation of data obtained for a particular species or type of animal or product. FSIS uses this information to determine if routine sampling projects are needed and how they should be structured.

Major Activities in Exploratory and Baseline Studies in FY2015

1. FSIS continued the beef and veal carcass baseline survey.
2. FSIS began sampling raw pork products for *Salmonella* and *Campylobacter*; this includes both intact and non-intact raw pork products. Results from this sampling may be used to establish performance standards in these products.

Changes Planned for Exploratory and Baseline Studies in FY2016

1. FSIS will continue the Nationwide Beef and Veal Carcass Microbiological Baseline Data Collection Program.
2. FSIS will use the exploratory raw pork products sampling results to focus sampling on specific pork products.
3. FSIS is considering implementing a *Salmonella* sampling program for imported raw pork products.
4. FSIS intends to compute *Salmonella* percent positive rates in raw pork products and imported raw pork. Those estimates will be posted on the FSIS website.

5. FSIS intends to initiate a sampling project for not-ready-to-eat (NRTE) poultry products (combination products).
6. FSIS intends to begin planning a Tier II microbiological sampling program that will have a pool of sampling resources available each year to rotate among different species (including minor species), product, and hazard combinations as needed.

Other Sampling Programs

FSIS also conducts sampling in other areas both on domestically produced and imported products.[10] These projects include:

1. AMR - FSIS tests meat from advanced meat recovery (AMR) processes to help prevent beef spinal cord material from entering the food supply and being misrepresented as meat. If an AMR sample is positive, additional samples are assigned to the establishment in PHIS.
2. NARMS – NARMS is a national public health surveillance system that tracks antibiotic resistance in foodborne bacteria. NARMS monitors antimicrobial resistance among enteric bacteria from humans, retail meats, and food animals. The major bacteria currently under surveillance are *Salmonella*, *Campylobacter*, *E. coli*, and Enterococcus.
3. Foodborne Illness and Outbreak Sampling – FSIS collects and analyzes food samples potentially related to human disease outbreaks. Analyses include both cultural and characterization methods such as PFGE, antimicrobial susceptibility testing and molecular serotyping.
4. Food Chemistry – FSIS performs food chemistry analyses such as moisture, protein, fat and testing for the presence of food additives to identify mislabeling, economic fraud, and adulteration of meat, poultry, and egg products.
5. Species Identification – FSIS conducts species verification on both imported and domestic samples

[10] The USDA Animal and Plant Health Inspection Service (APHIS) conducts an on-going surveillance program for bovine spongiform encephalopathy (BSE) where approximately 40,000 animals are sampled each year. Under the program, either APHIS or FSIS collect samples from the cattle populations where the disease is most likely to be detected, similar to the enhanced surveillance program procedures. Laboratory analysis of collected samples is handled exclusively by APHIS. For more information about FSIS' role in sample collection for BSE, please see FSIS Directive 10,400.1, http://www.fsis.usda.gov/wps/wcm/connect/09bf6ed8-1e4b-4ef5-a3e1-fa454b116b8e/10400.1.pdf?MOD=AJPERES.

6. Pathology - FSIS carries out diagnostic and consultative pathology services to identify diseases, parasites and related conditions in response to the needs of field operations.
7. Compliance Testing - FSIS investigators collect compliance samples at in-commerce businesses on a "for-cause" basis in response to complaints, allegations, and their own observations during routine or for-cause surveillance activities

Major Activities in Other Sampling Programs in FY2015

1. FSIS conducted intensified testing of a variety of products in response to foodborne illnesses investigations and recalls.

Changes Planned for Other Sampling Programs for FY 2016

1. FSIS intends to begin microbiological and chemical residue sampling for products from fish in the order of *Siluriformes* after the final rule has published.
2. FSIS intends to increase nutritional analysis sampling in raw ground beef

Sampling Numbers by Product

Meat

Raw Beef

Product Class	Sampling Project	Pathogen(s)	Planned Number of Samples to Analyze FY2015	Actual Number of Samples Analyzed in FY2015	Planned Number of Samples to Analyze in FY2016
Raw ground beef	MT43	*E. coli* O157:H7 & *Salmonella*	12,500	11,688	12,500
Raw ground beef +	HC01_GB	*Salmonella*	0	430	0
Follow-Up testing to a ground beef *E. coli* positive *	MT44 & MT44T	*E. coli* O157:H7 & *Salmonella*	N/A	211	N/A
Raw ground beef components other than trim^	MT54/MT64	*E. coli* O157:H7 & *Salmonella*	1,000	518	1,000
Bench trim^	MT55/MT65	*E. coli* O157:H7 & *Salmonella*	2,000	1,373	2,000
Beef manufacturing trim	MT60	*E. coli* O157:H7, Non-O157 (STEC) & *Salmonella*	4,200	3,278	4,500
Follow-up testing at supplier establishments following MT43, MT44, or MT55 positive*	MT52	*E. coli* O157:H7, Non-O157 (STEC) & *Salmonella*	N/A	109	N/A

Follow-up testing to an MT60, MT54, MT55, or MT52 positive*	MT53	*E. coli* O157:H7, Non-O157 (STEC) & *Salmonella*	N/A	692	N/A
Raw ground beef at retail stores	MT05	*E. coli* O157:H7 & *Salmonella*	460	485	560
Follow-up testing to a MT05 sample*	MT06	*E. coli* O157:H7 & *Salmonella*	N/A	0	N/A
Imported raw ground beef**, ++	MT08	*E. coli* O157:H7 & *Salmonella*	100	12	10
Imported trim and other raw ground beef components ++	MT51	*E. coli* O157:H7, Non-O157 (STEC) & *Salmonella*	850	698	850
Beef and Veal Carcass Baseline ***	B52_PRECH	*E. coli* O157:H7, Non-O157 (STEC) & *Salmonella*	N/A	1,137	750
Beef and Veal Carcass Baseline ***	B52_PSTHR	*E. coli* O157:H7, Non-O157 (STEC) & *Salmonella*	N/A	1,137	750

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

** The number of lots of imported raw ground beef is too low to collect 100 samples.

*** FSIS stopped routinely sampling carcasses in FY2011 because the positive pathogen rate was low, and the potential public health benefit did not justify the expenditure of the necessary Agency resources to perform the sampling. The Agency decided to reallocate those resources to sampling procedures that would yield a more effective public health benefit. However, if a need arises, based on positive sample results or other events, FSIS can and will conduct sampling in carcasses.

+ These samples were collected for Category 3 establishments only.

++ In FY16, FSIS is moving imported samples from the calendar year to the fiscal year. The actual number of samples analyzed in FY2015 is a combination of the CY14 and CY15 import plans.
^ The sampling project codes for bench trim and raw ground beef components other than trim changed in September 2015 when the statistical design changes were implemented. The new codes are MT65 for bench trim and MT64 for the raw ground beef components other than trim program.

Raw Pork

Product Class	Sampling Project	Pathogen(s)	Planned Number of Samples to Analyze FY2015	Actual Number of Samples Analyzed in FY2015	Planned Number of Samples to Analyze in FY2016
Exploratory Sampling for Pork - Comminuted *	EXP_PK_COM01	*Salmonella* & Indicator Organisms	N/A	503	TBD
Exploratory Sampling for Pork - Intact Cuts *	EXP_PK_ICT01	*Salmonella* & Indicator Organisms	N/A	278	TBD
Exploratory Sampling for Pork - Intact Other *	EXP_PK_IOT01	*Salmonella* & Indicator Organisms	N/A	137	TBD
Exploratory Sampling for Pork - Non-Intact Cuts *	EXP_PK_NCT01	*Salmonella* & Indicator Organisms	N/A	40	TBD
Exploratory Sampling for Pork - Non-Intact Other *	EXP_PK_NOT01	*Salmonella* & Indicator Organisms	N/A	62	TBD
Imported Pork ++, ***	TBD	TBD	N/A	N/A	770
Pork Carcasses **	TBD	*Salmonella*	0	0	0

* In FY16, after collecting approximately 1,200 raw pork samples FSIS intends to analyze results and rebalance sample distribution to focus on specific pork products.

** FSIS stopped routinely sampling carcasses in FY2011 because the positive pathogen rate was low, and the potential public health benefit did not justify the expenditure of the necessary Agency resources to perform the sampling. The Agency decided to reallocate those resources to sampling procedures that would yield a more effective public health benefit. However, if a need arises, based on positive sample results or other events, FSIS can and will conduct *Salmonella* sampling in carcasses.

*** In FY16, FSIS is considering to start sampling imported raw pork products

++ In FY16, FSIS is moving imported samples from the calendar year to the fiscal year. The actual number of samples analyzed in FY2015 is a combination of the CY14 and CY15 import plans.

Poultry

Product Class	Sampling Project	Pathogen(s)	Planned Number of Samples to Analyze FY2015	Actual Number of Samples Analyzed in FY2015	Planned Number of Samples to Analyze in FY2016
Young Chickens*	HC11_BR & HC_CH_CARC01	*Salmonella* & *Campylobacter*	10,700	6,372	12,000
Raw Comminuted Chicken***	NRTE_EXP_CH	*Salmonella* & *Campylobacter*	5,400	1,970	0
Sampling for Ground and Other Comminuted Chicken (not Mechanically Separated)***	HC_CH_COM01	*Salmonella* & *Campylobacter*	N/A	358	4,000
Exploratory Sampling for Mechanically Separated Chicken***	EXP_CH_MSK01	*Salmonella* & *Campylobacter*	36	28	150
Chicken Parts	HC_CPT_LBW01	*Salmonella* & *Campylobacter*	3,850	2,236	8,000
Turkeys**	HC11_TU & HC_TU_CARC01	*Salmonella* & *Campylobacter*	4,000	1,569	2,500
Raw Comminuted Turkey#	NRTE_EXP_TU	*Salmonella* & *Campylobacter*	3,000	1,035	0
Sampling for Ground and Other Comminuted Turkey (not Mechanically Separated)#	HC_TU_COM01	*Salmonella* & *Campylobacter*	N/A	283	1,500
Exploratory Sampling for Mechanically Separated Turkey#	EXP_TU_MSK01	*Salmonella* & *Campylobacter*	36	25	150
Imported Raw Intact Chicken and Turkey ++	IMP_POULTRY	*Salmonella* & *Campylobacter*	N/A	121	800
Minor Species +	TBD	*Salmonella* & *Campylobacter*	N/A	N/A	TBD

* In FY15, samples were collected under HC01_BR and HC_CH_CAR01 as FSIS transition from set based sampling to continuous sampling.

** In FY15, samples were collected under HC01_TU and HC_TU_CAR01 as FSIS transition from set based sampling to continuous sampling.

*** In FY15, split the NRTE_EXP_CH project into HC_CH_CARC01 and EXP_CH_MSK01. This transition and delays starting the new projects caused the number of samples analyzed to be lower than the number planned.

In FY15, split the NRTE_EXP_TU project into HC_TU_CARC01 and EXP_TU_MSK01. This transition and delays starting the new projects caused the number of samples collected to be lower than the number planned.

+ FSIS is considering an exploratory sampling program for minor species.

++ In FY16, FSIS is moving imported samples from the calendar year to the fiscal year. The actual number of samples analyzed in FY2015 is a combination of the CY14 and CY15 import plans.

Ready-to-Eat Products

Product Class	Sampling Project	Pathogen(s)	Planned Number of Samples to Analyze FY2015	Actual Number of Samples Analyzed in FY2015	Planned Number of Samples to Analyze in FY2016
Both post lethality-exposed and non-post lethality-exposed RTE products	RTEPROD_Rand	*Lm* & *Salmonella*	4,400	3,403	4,400
Post lethality-exposed RTE products	RTEPROD_Risk	*Lm* & *Salmonella*	10,400	9,811	10,400
RLm product samples (Composited 5-sample Units)	RLMPRODC	*Lm*	690	535	690
RLm food contact surface samples	RLMCONT	*Lm*	6,880	5,314	6,880
RLm non-food contact environmental samples (Composited 5-sample Units)	RLMENVC	*Lm*	690	539	690
Intensified Verification Testing (IVT) product samples*	INTPROD	*Lm* or *Salmonella*	N/A	496	N/A
IVT food contact surface samples*	INTCONT	*Lm* or *Salmonella*	N/A	1,017	N/A
IVT non-food contact environmental samples*	INTENV	*Lm* or *Salmonella*	N/A	549	N/A
Imported intact RTE product ++	IMVRTE	*Lm* & *Salmonella*	2,200	3,592	2,200
Follow up testing to imported RTE product	FLISTERIA	*Lm*	N/A	24	N/A
Follow up testing to imported RTE product	FSALMONEL	*Salmonella*	N/A	0	N/A
Processed Egg Products	EM31-EM37	*Salmonella*	1,600	1,687	1,600
Collector-generated egg product testing	EGGDOM	*Lm*	N/A	21	N/A
Pasteurized imported liquid, frozen or dried egg products	EGGIMP	*Salmonella*	80	91	80

* Dependent on positive findings from RTEPROD_RAND, RTEPROD_RISK, and RLm sampling projects

++ In FY16, FSIS is moving imported samples from the calendar year to the fiscal year. The actual number of samples analyzed in FY2015 is a combination of the CY14 and CY15 import plans.

Chemical Residues

Product Class	Sampling Project	Planned Number of Samples to Analyze FY2015	Actual Number of Samples Analyzed in FY2015	Planned Number of Samples to Analyze in FY2016
Beef Cows	NRP_BC	712	689	712
Bob Veal	NRP_BV	712	483	356
Dairy Cows	NRP_DC	712	687	712
Heifers	NRP_HF	356	375	356
Steer	NRP_ST	356	362	356
Market Sows	NRP_MS	712	695	712
Market Swine	NRP_SW	712	699	712
Young Chicken	NRP_YC	712	667	712
Young Turkey	NRP_YT	712	683	712
Sheep	NRP_SH	300	285	356
Goats	NRP_GO	300	242	356
Old Breeder Turkeys	NRP_OBT	N/A	27	90
Roaster Swine	NRP_RS	N/A	N/A	300
National Residue Program State Residues*	Various	700	552	700
Various species for export to EU	EU	N/A	346	N/A
KIS™ Test	KIS	N/A	161,165	N/A
KIS™ Test – Laboratory Confirmation **	KIS	N/A	4,037	N/A
Collector Generated Residues	Various	N/A	140	N/A
Import Residue ++	Various	1,550	2,929	3,000

++ In FY16, FSIS is moving imported samples from the calendar year to the fiscal year. The actual number of samples analyzed in FY2015 is a combination of the CY14 and CY15 import plans.

* FSIS schedules and analyzes samples for states using PHIS. Those samples are spread across the same species that FSIS samples at federal establishments at the rate of 88 per year.

** FSIS in-plant inspection personnel send positive KIS tests to FSIS laboratories for confirmation.

Methods	**Tier 1: Production Class**									**Tier 2: Production Class**			
	Beef Cows	**Dairy Cows**	**Steers**	**Heifers**	**Bob Veal**	**Market Swine**	**Market Sows**	**Young Chicken**	**Young Turkeys**	**Goats**	**Sheep**	**Mature turkey**	**Roster Pigs**
Multi-class	√	√	√	√	√	√	√	√	√	√	√	√	√
Aminoglycoside	√	√	√	√	√	√	√	√	√				√
Pesticides	√	√	√	√	√	√	√	√	√	√	√		
Metals	√	√	√	√	√	√	√	√	√			√	
B-agonists	√	√	√	√	√	√							
Carbadox													√
Hormones	√	√	√	√	√								
Avermectins	√	√	√	√	√	√	√			√	√		
Arsenic	√	√	√	√	√	√	√	√	√	√	√		
Nitrofurans								√	√			√	

Other

Sampling Project	Sampling Project	Planned Number of Samples to Analyze FY2015	Actual Number of Samples Analyzed in FY2015	Planned Number of Samples to Analyze in FY2016
Advanced Meat Recovery (AMR) - Beef ##	AMR01	150	111	150
Import AMR Beef ##, ++	IMPAMRBEEF	10	8	10
Follow-up testing to a AMR01 Beef Sample *,##	FAMR01	N/A	35	N/A
AMR Pork ###				
National Antimicrobial Resistance Monitoring System for Enteric Bacteria ***	NARMS	5,400	4,733	5,400
Foodborne Illness and Outbreak Sampling +, ^	Various	N/A	2,109	3,000
Nutrient Content - Raw Ground Beef	NUTR_GB	100	105	240
Species Identification - Collector Generated	SPECID	N/A	1	N/A
Import Species Identification **, ++	IMPSPECIESID	N/A	248	250
Food Chemistry - Collector Generated	FOODCHEM	N/A	2	N/A
Compliance Testing+,$	COMPLIAN	N/A	115	N/A
Pathology - Collector Generated +, %	Various	N/A	4,260	N/A
Import Abnormal Container ++	IMPABNCONT & ABNCONT	N/A	7	N/A
Siluriformes %%	TBD	N/A	N/A	TBD
Import *Siluriformes* %%	TBD	N/A	N/A	TBD

* Dependent on positive findings from the AMR01 sampling project.

** Species sampling occurs for 1 out of every 48 lots reinspected by FSIS.

*** NARMS is a national public health surveillance system that tracks antibiotic resistance in foodborne bacteria. NARMS monitors antimicrobial susceptibility among enteric bacteria from humans, retail meats, and food animals. The major bacteria currently under surveillance are *Salmonella, Campylobacter, E. coli*, and Enterococcus. In FY2013, FSIS began collecting intestinal cecal samples from cattle (steer, heifer, dairy cow, and beef cow), swine (market swine and sows), young chickens, and young turkeys presented for slaughter at FSIS-inspected establishments for the pathogens listed above.

a. FSIS performs food chemistry analyses such as moisture, protein, fat and testing for the presence of food additives to identify mislabeling, economic fraud, and adulteration of meat, poultry, and egg products

FSIS conducts a sampling project in regulated establishments for AMR processes to help prevent beef spinal cord material from entering the food supply and being misrepresented as meat. If an AMR sample is positive, additional samples are assigned to the establishment in PHIS through the FAMR01 sampling. FSIS is considering expanding the beef AMR program to include calcium and iron.

+ Samples for these projects are not planned in advance, but rather are collector-generated in the field based on inspector findings or other circumstances.

++ In FY16, FSIS is moving imported samples from the calendar year to the fiscal year. The actual number of samples analyzed in FY2015 is a combination of the CY14 and CY15 import plans.

$ FSIS investigators collect compliance samples at in-commerce businesses on a “for-cause” basis in response to complaints, allegations, and their own observations during routine or for-cause surveillance activities.

^ FSIS collects and analyzes food samples potentially related to human disease outbreaks. Analyses include cultural and molecular methods such as polymerase chain reaction (PCR), PFGE, antimicrobial susceptibility testing and molecular serotyping to identify and further characterize organisms in outbreak samples

% FSIS carries out diagnostic and consultative pathology services to identify diseases, parasites and related conditions in response to the needs of field operations.

%% FSIS will begin testing for *Siluriformes* after the final rule publishes. FSIS is considering testing for *Salmonella,* Speciation, and Chemical Residues

FSIS is considering implementing an AMR pork program.