United States Department of Agriculture

Food Safety and Inspection Service

ANNUAL SAMPLING PROGRAM PLAN

Fiscal Year 2019

Introduction

The U.S. Department of Agriculture's (USDA) Food Safety and Inspection Service (FSIS) inspects meat, poultry, and egg products to ensure that the food produced is safe, wholesome, and properly labeled. Verification activities serve to protect the public from foodborne hazards. A key FSIS inspection verification activity is the sampling of product for microbiological contaminants or chemical residues.

This report identifies changes planned for FY2019 to FSIS' various sampling programs, and describes the Agency's overall strategy for directing its sampling resources.

Background

FSIS Agency Planning

The FSIS published Strategic Plan for FY2017-2021 in FY2017 includes strengthening FSIS sampling programs. FSIS is focusing sampling efforts, in part, through utilization of strategic plan measures to: i) ensure establishments are meeting pathogen reduction performance standards, ii) increase the percentage of country/product combinations from equivalent countries tested, and iii) increase the percentage of products from domestic establishments that are sampled. The activities in the FY 2019 Annual Sampling plan directly align with the FSIS FY2019 Annual Plan.

In FY2018 FSIS initiated an evaluation of data collected through questionnaires in the Public Health Information System (PHIS) for the sampling, inspection, and enforcement forms to improve FSIS questionnaire consistency, data quality, standardization, and targeting, as well as to better use FSIS field inspector time and resources during sampling collection. Additionally, to support planning, analysis, and future decision-making related to sampling, FSIS began conducting an internal evaluation this year to assess its past allocation and use of domestic and import sampling resources to ensure that the Agency, going forward, establishes criteria for the most efficient sampling resource allocation. FSIS will use the evaluation results to modify future annual sampling plans as needed, help FSIS better manage sampling resources, as well as inform resource allocation, close sampling gaps, and maximize the public health benefit through prioritizing testing by degree of hazard.

FSIS Process for Scheduling, Collecting, and Analyzing Samples

The Agency's 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 specified analytes, a substance whose chemical constituents are being identified and measured. For imported product, the type of inspection verification PHIS assigns to the received product informs IPP when samples are to be collected and sent for laboratory analysis. The FSIS laboratories perform different tests depending on the sampling program for which the sample was collected. One way the Agency looks to increase efficiency is by increasing the number of analytes evaluated per test for the sampling collection events of FSIS' sampling programs. Some sampling programs are considered routine, while others are triggered by positive test results from other programs or events and, as such, are not considered routine.

It is important to note there may be a difference between the number of samples that are anticipated to be analyzed and the total number of samples analyzed within the fiscal year period. Some of the challenges IPP face when trying to collect all the samples accounted for in the sampling plan are the availability of eligible products and the resources available to the Office of Field Operations (OFO). Additionally, some sampling tasks may not be completed because of other inspection priorities. Other potential reasons for discrepancies include: improvements made to the sampling frame throughout the year which correct for lower sampling volumes, product availability at the establishment level, and other unforeseen circumstances.

For these reasons the FY2019 sampling plan is based on the number of samples anticipated to be analyzed instead of those scheduled. FSIS can adjust the number of samples scheduled monthly to better target the number of samples collected and analyzed. FSIS targets are based on the number of annual samples collected as opposed to specific collection rates as not all establishments currently under FSIS sampling projects produce every eligible product every day. In order to collect samples from infrequent producers and optimize the total number of annual planned samples collected and analyzed, FSIS adjusts the number of samples being scheduled based on the average number of samples collected throughout the sampling year. The estimates for each sampling program are based on current plans, FSIS policies, and industry practices and are therefore subject to change over the course of the fiscal year.

Microbiological and Chemical Residue Sampling Planned Changes from FY2017 – FY2019

Tables 1 and Table 2 summarize, for microbiological and chemical residue programs, respectively, the total planned number of analyses and corresponding planned number of analytes tested for during FY2017, FY2018, and FY2019 by product class. Data is based on the proposed number of samples and which analyses were performed during the previous fiscal years.

Table 1: Total Planned Number of Microbiological Analyses and Analytes Reported by Year

	Planned for 2017			Planned for 2018			Planned for 2019			Difference (2019 - 2018)		
Product Class	**Samples Planned**	**Tests Planned**	**Analytes Planned**	**Samples Planned**	**Tests Planned**	**Analytes Planned**	**Samples Planned**	**Tests Planned**	**Analytes Planned**	**Samples Planned**	**Tests Planned**	**Analytes Planned**
Raw Beef	21,485	70,656	250,008	20,376	67,248	234,072	20,337	66,048	232,296	-39	-1,200	-1,776
Raw Pork	5,270	15,840	58,080	3,816	9,432	31,896	5,400	9,039	18,039	1,584	-393	-13,857
Raw Poultry	29,100	102,768	171,816	42,984	105,228	175,380	38,859	55,824	60,240	-4,125	-49,404	-115,140
Raw Siluriformes	300	300	300	2,460	2,460	2,460	1,660	1,660	1,660	-800	-800	-800
RTE	17,000	34,032	34,032	18,919	35,616	35,616	18,919	35,616	35,616	0	0	0
RLm	8,260	8,260	8,260	1,487	1,392	1,392	5,437	5,088	5,088	3,950	3,696	3,696
Eggs	1,725	3,456	3,456	1,752	3,504	3,504	1,750	3,504	3,504	-2	0	0
NARMS	6,408	6,408	6,408	6,408	6,408	6,408	6,408	6,408	6,408	0	0	0
Total[1]	**89,548**	**241,70**	**532,360**	**98,202**	**231,288**	**490,28**	**98,970**	**183,387**	**363,051**	**568**	**-48,101[1]**	**-127,877[1]**

RTE/Eggs

[1] The differences between FY2018 and FY2019 plans include the following:
- Reduction of Religious Exempt/Low volume sampling has decreased the number of tests and analytes being performed.
- Removal of STEC analysis from pork projects has also reduced the number of test and analytes performed.

Table 2: Total Planned Number of Chemical Residue Analyses and Analytes Reported by Year

	Planned for 2017			Planned for 2018			Planned for 2019			Difference (2019 - 2018)		
Product Class	**Samples Planned**	**Tests Planned**	**Analytes Planned**	**Samples Planned**	**Tests Planned**	**Analytes Planned**	**Samples Planned**	**Tests Planned**	**Analytes Planned**	**Samples Planned**	**Tests Planned**	**Analytes Planned**
Tier I												
Beef Cows	712	3,560	119,972	712	3,560	119,972	712	3,240	121,320	-	-320	1,348
Bob Veal	356	1,780	59,986	356	1,780	59,986	356	1,620	60,660	-	-160	674
Dairy Cows	712	3,560	119,972	712	3,560	119,972	712	3,240	121,320	-	-320	1,348
Heifers	356	1,780	59,986	356	1,780	59,986	356	1,620	60,660	-	-160	674
Steer	356	1,780	59,986	356	1,780	59,986	356	1,620	60,660	-	-160	674
Sows	712	3,560	116,768	712	3,560	116,768	712	2,160	111,600	-	-1,400	-5,168
Market Swine	712	3,560	118,548	712	3,560	118,548	712	2,880	119,880	-	-680	1,332
Young Chickens	712	2,492	116,056	712	2,492	116,056	712	2,160	110,880	-	-332	-5,176
Young Turkeys	712	2,492	116,056	712	2,492	116,056	712	2,160	110,880	-	-332	-5,176
Tier II												
Sheep	150	525	23,325	150	525	23,325	150	546	25,584	-	21	2,259
Goats	150	525	23,325	300	1,050	46,650	300	1,050	49,200	-	0	2,550
Roaster Swine	300	300	46,050	300	300	300	300	300	300	-	-	-
Bulls/Stags	100	400	15,550	100	400	15,550	100	378	17,712	-	-22	2,162
Veal - Other	100	300	10,850	150	450	16,275	150	640	19,890	-	190	3,615
Egg Product	-	-	-	-	-	-	400	400	22,378	400	400	22,378
Tier III												
Siluriformes	300	1,500	44,250	2,450	12,500	368,750	1,650	8,358	323,034	-800	-4,142	-45,716
Other												
State NRP[1]	-	-	-	-	-	-	-	-	-	-	-	-
Imports[1]	-	-	-	-	-	-	-	-	-	-	-	-
KIS™	4,000	8,000	424,000	4,000	8,000	424,000	4,000	8,000	424,000	-	-	-
Total[1]	**10,440**	**36,114**	**1,474,680**	**12,790**	**47,789**	**1,782,180**	**12,390**	**41,374**	**1,759,958**	**-400**	**-7,417**	**-22,222**

[1] The analyses for import and State testing are driven by In-Plant and Import Personnel selection.
[2] The differences between FY2018 and FY2019 plans include the following:
- Cessation of the arsenic stand-alone method
- Expansion of the trace elements analysis to additional slaughter classes.
- Added egg product sampling.

Significant Changes for the FY 2019 Plan

The format of the FY2019 Annual Sampling plan has been changed to quickly review the main goals the Agency will try to achieve in the upcoming fiscal year. Instead of breaking apart the activities by major analyte, the plan discusses the challenges presented to the Agency, where this challenge impacts and any activities that are planned to address these things. They are presented in Table 3, additionally, changes to the number of samples allocated to the various projects are addressed in Table 4. The following table consists of key activities FSIS plans to implement in FY2019. Each line consists of the challenges that the Agency faces moving into FY2019, what process is impacted and the objective(s) to achieve during the fiscal year.

Table 3: FY 2019 Priorities

Inciting Cause or Challenge	Impacted Sampling Related Process or Analyte	FY 2019 Planned Agency Goal, Target Objective, or Activity
Prior Fiscal Year (FY) Annual Sampling Plan target sampling numbers were continually over or under the estimated intended number of samples to be analyzed in the FY relative to the actual number analyzed	Sampling resource planning and allocation	• Continue a quarterly review of routine sampling to determine if the sampling rates continue to perform on target.
To support planning, analysis, and future decision-making related to sampling	*Sampling resource planning and allocation*	• Incorporate the findings and recommendations from the evaluation results of the Strategic Assessment of Sampling Resources to modify future annual sampling plans as needed, help FSIS better manage sampling resources, as well as inform resource allocation, close sampling gaps, and maximize the public health benefit through prioritizing testing by degree of hazard.
Agency implementation of Poultry Pathogen Performance Standards as identified in the Federal Register 81 FR 7285	*Salmonella and Campylobacter*	• Evaluate Raw Poultry Performance Standard follow-up sampling projects results
Implementation for Siluriformes Domestic and Import inspection verification.	*Salmonella*	• Continue to implement all relevant Siluriformes inspection verification activities in all FSIS Inspected establishments. • Import sampling for Siluriformes includes routine and follow up sampling, as necessary.
Agency transition from Pulse Field Gel Electrophoresis (PFGE) to Whole Genome Sequencing pathogen characterization.	Pathogen result assessments and Establishment Quarterly Letters	• Assess project sampling results utilizing WGS characterization, including specifying if the Risk-based Listeria Monocytogenes (RLM) results are indicative of cross contamination or harborage. • Revise Quarterly Letter content to reflect agency utilization of WGS and assessments. • Plan to move to WGS rather than PFGE for Campylobacter, STEC and *Salmonella.*
Changes to the National Residue Program (NRP)	Pesticides Trace minerals Arsenic	• In FY2018, FSIS extended the multi-residue pesticide method to egg products so that analysis can begin in FY2019. • In FY2018, FSIS suspended the analysis of trace metals since there were no significant detection. FSIS has now extended the trace metals method to include the analyte, arsenic. • FSIS will extend trace metals analysis from only Siluriformes products to include beef, pork, goats, and sheep, and discontinue analysis of arsenic as a single issue method. • The Agency plans to evaluate the results of the trace minerals analysis.
Commitment with FDA and USDA ARS to collect FSIS products for ARS dioxin residue analysis every five years; last sampling survey occurred in 2013.	Dioxin	• Continue IPP collection of domestic beef, pork, poultry, and Siluriformes products for the 12 month ARS dioxin analysis study which began June 1, 2018.

Table 4 contains the rationale for changes in sampling number allocations between FY2018 and FY2019 sampling plans. Each row consists of where the change will occur in the sampling program, a description of that program and the Agency's reasoning for the changes

Table 4: Rationale for Changes in Sampling Allocations

Sampling Program	Program Description	Rationale for Any Changes from the FY 2018 Sampling Allocation
E. coli O157:H7 and non-O157 Shiga toxin-producing *E. coli* (STEC)	• FSIS conducts STEC sampling projects for product produced in domestic establishments, imported products, and raw ground beef collected at retail. • Raw non-intact beef products and raw beef products intended for raw non-intact use are eligible for sampling, including ground beef, bench trim, beef manufactured trimmings, and other raw ground beef components. • FSIS analyzes all raw beef samples collected under the routine and follow-up sampling programs for E. coli O157:H7 and Salmonella. • FSIS analyzes domestic and imported beef manufacturing trimmings for non-O157 STEC, which includes the following six O-antigen groups: O26, O45, O103, O111, O121, and O145.	• Increase in the MT64 (sampling for Raw ground beef components other than trim) project stems from the successful implementation of FSIS Notice 38-12 (product group changes), which improved sample testing percentages from 40% to 70%. • Decrease of samples allotted for imported other raw ground beef components and trim aligns the project with the volume seen in FY2018 while maintaining sampling rate.
Salmonella and *Campylobacter*	• FSIS analyzes young chicken and turkey carcasses, comminuted chicken and turkey, and chicken part samples for *Salmonella* and *Campylobacter.* • For raw beef products, FSIS analyzes all raw beef samples, including raw ground beef, bench trim, beef manufactured trimmings, and other raw ground beef components for *Salmonella.* • FSIS analyzes raw fish of the order Siluriformes and Ready-To-Eat (RTE) meat, egg product, and poultry product samples for *Salmonella.* • FSIS is conducting the sampling program Raw Pork Exploratory Sampling Project (RRESP) to analyze raw intact, non-intact, and comminuted domestic pork for *Salmonella.* • Imported raw pork products are analyzed for *Salmonella.*	• Decrease in sample allocations for *Salmonella* Poultry Performance Standard sampling projects, Low Volume and Religious Exempt projects to better align with the actual collection rates in FY 2018. • Increase sample allocation for *Salmonella* Follow Up Poultry Performance Standard (parts and comminuted) sampling projects since projects were implemented halfway through FY 2018. • Decrease of samples allotted for imported poultry products aligns the project with the import volume seen in FY2018 while maintaining sampling rate. • No changes in allocations for other raw poultry products. • Increase in samples allotted for all RRESP projects to return the allotments back to the original scope of phase II sampling. • Decrease of samples allotted for imported pork products aligns the project with the seen in FY2018 while maintaining sampling rate. • Import sampling for Siluriformes includes routine and follow up sampling, as necessary. The decrease in allocations were due to adjustments in volume imported.

Table 4: Rationale for Changes in Sampling Allocations Continued...

Sampling Program	Program Description	Rationale for Any Changes from the FY 2018 Sampling Allocation
Ready To Eat (RTE): *Listeria monocytogenes (Lm)* and *Salmonella:* Meat, Poultry, and Egg Products	• FSIS conducts microbiological testing for Lm and Salmonella in both domestically produced and imported egg products. • Product sampling is scheduled every month under random sampling and risk-based sampling projects under 2 RTEPROD projects. • Risk-based Listeria monocytogenes (RLM) sampling program identifies establishments producing post-lethality exposed RTE product. Samples, consisting of product, contact surfaces, and the processing environment, are collected and sampled for Lm under 3 RLM project codes. • Intensified Verification Testing (IVT) is carried out whenever an establishment has a positive sample collected under the RLM sampling program projects, or either one of the RTEPROD sampling projects.	• The increase in the number of samples collected for FY2019 RLM sampling is adjusted to a 25% reduction from the FY2017 Sampling Plan, which was the intended adjustment for the FY2018 Sampling Plan.
Chemistry and Residues	• The National Residue Program (NRP) product sampling numbers are determined through the Surveillance Advisory Team meeting. This meeting is held by an interagency committee that determines the chemical compounds and production classes of public health concern. The Tier 1 sampling plan is the scheduled sampling for slaughter subclasses at the time of slaughter, after they have passed ante mortem inspection. Tier 2 sampling plan is in response to information (obtained by FDA and EPA and provided to FSIS) about potential misuse of animal drugs and/or exposure to environmental chemicals, as well as in response to Tier 1 analytical result. Tier 3 sampling is similar to Tier 2 sampling except that it is applied at the herd or flock level. (Please see the "Other Projects" Table for a description of the NARMs residue sampling project.) • FSIS analyzes imported products and domestic and imported Siluriformes products for chemical residues and speciation. • FSIS Inspection Personnel perform inspector generated sampling in livestock slaughter species as per FSIS Directive 10,800.1. As per this same directive, a positive sample is submitted to the FSIS laboratory for confirmatory testing. • IPP collect of domestic beef, pork, poultry, and Siluriformes products for the 12 month ARS dioxin analysis study which began June 1, 2018 as a commitment with FDA and USDA ARS to collect FSIS products for ARS dioxin residue analysis every five years	• New NRP projects with increased allocations are based on FDA and EPA analysis of exposure risk. • Increase for the yearlong Dioxin Survey sampling project implemented June 1, 2018. • Reallocate import residue sampling with a focus on sampling assigning more residue samples to raw products than processed products. Decrease samples allotted for import residue sampling aligns the projects with the volume seen in FY2018 while maintaining sampling rates. • Import sampling for Siluriformes includes routine and follow up sampling, as necessary. The decrease in allocations were due to adjustments in volume imported.
NARMS and Residue Pilot program (RESNARMS)	As part of a paired sampling task, FSIS collects tissues for residue analysis from the same dairy cow or chicken flock from which a NARMS cecal sample was collected.	• This program completed one year of data collection and is pending additional data analysis to determine if this program will expand to other species.

Appendices A-C outline the sampling plan grouped by product group and broken out by the individual sampling programs. Information for changes from previous years is provided in the preceding tables to the appendices. Totals in the appendices tables have been rounded. Each table contains the following information:

1. Planned number of samples to be analyzed in FY2018;
2. Number of samples actually analyzed in FY2018; and
3. Planned number of samples to be analyzed in FY2019.

Appendix A: Microbial Sampling Numbers by Product

Table 5 is a quick reference guide of the microbiological analytes by various FSIS regulated products in FY2019. For a more in-depth review, the tables in the "Sampling by Product" section contain the stratification of the different analytes by product classes.

Table 5 Summary of Analyte Tested by Product

	Microbiological Analyte					
Product	***Salmonella***	***Campylobacter***	***L. monocytogenes***	***E. coli* O157:H7**	**Non-O157 STEC**	**Indicator Organisms**
Raw Beef	x			x	x[1]	
Raw Pork	x			x	x	x
Raw Siluriformes	x					
Raw Poultry	x	x				x[2]
RTE Product	x		x			
Egg Products	x		x			

[1] Only domestic raw beef manufacturing trim and imported raw beef trim. All other raw beef products are tested for *Salmonella* and *E. coli* O157:H7 only.

[2] Dependent upon the program as not all poultry projects are analyzed for indicator organisms.

This appendix summarizes the numbers of samples in FSIS' microbiological sampling program, and presents the number of samples planned and actually analyzed in FY2018, and the number of samples planned to be analyzed in FY2019, by product type. Raw products are presented first, beginning with beef (Table A1), followed by pork (Table A2), fish of the order Siluriformes (Table A3) and Poultry (Table A4). Ready-to-eat, not-ready-to-eat and egg product sampling numbers are presented in Table A5.

Table A-1: FY2018 and FY2019 Sample Numbers for Raw Beef

			Number of Samples FY2018		Number of Samples FY2019
Product Class	**Sampling Project**	**Pathogen(s)**	**Planned**	**Actual**	**Planned**
Raw ground beef	MT43	*E. coli* O157:H7 and *Salmonella*	11,500	11,035	11,500
Follow-up testing to a ground beef *E. coli* positive[1]	MT44 and MT44T	*E. coli* O157:H7 and *Salmonella*	TBD	-	TBD
Raw ground beef components other than trim	MT64	*E. coli* O157:H7 and *Salmonella*	600	1,170	1,050
Bench trim	MT65	*E. coli* O157:H7 and *Salmonella*	1,500	1,206	1,500
Beef manufacturing trim	MT60	*E. coli* O157:H7, non-O157 STEC, and *Salmonella*	3,750	3,737	3,750
Follow-up testing at supplier establishments following MT43, MT44, or MT65 positive[1]	MT52	*E. coli* O157:H7, non-O157 STEC, and *Salmonella*	TBD	59	TBD
Follow-up testing to an MT60, MT64, MT65, or MT52 positive[1]	MT53	*E. coli* O157:H7, non-O157 STEC, and *Salmonella*	TBD	601	TBD
Raw ground beef at retail stores	MT05	*E. coli* O157:H7 and *Salmonella*	575	557	575
Follow-up testingto a MT05 sample [1]	MT06	*E. coli 0157:H7 and Salmonella*	TBD	0	TBD
Imported raw ground beef [2]	MT08	*E. coli 0157:H7 and salmonella*	50	35	50
Imported trim and other raw ground beef components [2]	MT51	*E. coli 0157:H7, Non-0157 STEC and Salmonella*	2,000	1,003	1,500

[1] Dependent on positive findings from other E. coli O157:H7 or non-O157 STEC sampling projects.

[2] Lab sampling for Imports depends on the import frequency for these products.

Table A-2: FY2018 and FY2019 Samples Numbers for Raw Pork

			Number of Samples FY2018		Number of Samples FY2019
Product Class	**Sampling Project**	**Pathogen(s)**	**Planned**	**Actual**	**Planned**
Comminuted Pork Exploratory Sampling	EXP_PK_ COM02	*Salmonella and Indicator Organisms*	1,120	1,665	1,704
Intact Pork Cuts Exploratory Sampling	EXP_PK_ ICT02	*Salmonella and Indicator Organisms*	840	1,315	1,521
Non- Intact Pork Cuts Exploratory Sampling	EXP_PK_ NCT02	*Salmonella and Indicator Organisms*	840	1,193	1,272
Imported Pork [1]	IMP_PORK	*Salmonella*	1,000	384	900

[1] The number of samples taken for imports depends on the import frequency for these products.

Table A3: FY2018 and FY2019 Sample Numbers for Raw Siluriformes

			Number of Samples FY2018		Number of Samples FY2019
Product Class	**Sampling Project**	**Analyses**	**Planned**	**Actual**	**Planned**
Domestic Raw fish of the order Siluriformes	EXP_FI_MIC01	*Salmonella*	650	611	650
Imported Raw fish of the order Siluriformes [1]	IMPFISH_MI	*Salmonella*	1,800	223	1,000

[1] Lab sampling for imported Siluriformes depends on the frequency in which these products are imported; a lower number of shipments were received for these products.

Table A4: FY2018 and FY2019 Sample Numbers for Raw Poultry

			Number of Samples FY2018		Number of Samples FY2019
Product Class	**Sampling Project**	**Pathogen(s)**	**Planned**	**Actual**	**Planned**
Young Chicken Carcasses	HC_CH_CARC01	*Salmonella, Campylobacter*	10,000	9,207	9,000
Ground and Other Comminuted Chicken (not Mechanically Separated)	HC_CH_COM01	*Salmonella, Campylobacter*	2,500	1,895	2,500
Exploratory - Mechanically Separated Chicken	EXP_CH_MSK01	*Salmonella, Campylobacter*	150	105	150
Chicken Parts – Legs, Breasts, Wings	HC_CPT_LBW01	*Salmonella, Campylobacter*	8,000	7,860	9,000
Chicken Parts – Other Parts	EXP_CPT_OT01	*Salmonella, Campylobacter*	360	332	360
Chicken Parts – Quarters, Halves	EXP_CPT_QH01	*Salmonella, Campylobacter*	120	109	120

Table A4: FY2018 and FY2019 Sample Numbers for Raw Poultry Continued...

			Number of Samples FY2018		Number of Samples FY2019
Product Class	**Sampling Project**	**Pathogen(s)**	**Planned**	**Actual**	**Planned**
Turkey Carcasses	HC_TU_CARC01	*Salmonella, Campylobacter*	2,000	1,936	2,000
Ground and Other Comminuted Turkey (not Mechanically Separated)	HC_TU_COM01	*Salmonella, Campylobacter*	1,500	1,467	1,500
Exploratory - Mechanically Separated Turkey	EXP_TU_MSK01	*Salmonella, Campylobacter*	150	99	150
Imported Raw Intact Chicken and Turkey	IMP_POULTRY	*Salmonella, Campylobacter*	1,000	551	900
Religious exempt establishments	RE_CH_CARC01	*Salmonella, Campylobacter*	6,600	2,005	360
Low Volume Establishments	LO_CH_CARC01 LO_TU_CARC01 LO_CH_COM01 LO_TU_COM01 LO_CH_MSK01 LO_TU_MSK01 LO_CPT_LBW01 LO_CPT_OT01 LO_CPT_QH01	*Salmonella, Campylobacter*			2,200
Follow-up Sampling for Chicken Parts, Carcasses, Comminuted Chicken and Turkey[1]	F_CPT_LBW01 F_CH_COM01 F_TU_COM01 F_CH_CARC01 F_TU_CARC01	*Salmonella, Campylobacter*	TBD	2,634	TBD

[1] Dependent on findings from other Salmonella and Campylobacter projects.

Table A5: FY2018 and FY2019 Sample Numbers for RTE, NRTE and Egg Products

			Number of Samples FY2018		Number of Samples FY2019
Product Class	**Sampling Project**	**Pathogen(s)**	**Planned**	**Actual**	**Planned**
Both post lethality-exposed and non-post lethality-exposed RTE products	RTEPROD_ Rand	*Lm* and *Salmonella*	7,400	7,089	7,400
Post lethality-exposed RTE products	RTEPROD_ Risk	*Lm* and *Salmonella*	7,400	7,974	7,400
RLm product samples (composited 5-sample units)	RLMPRODC	*Lm*	115 (575)[2]	335	423 (2,125)[2]
RLm food contact surface samples	RLMCONT	*Lm*	1,150	3,283	4,218
RLm non-food contact environmental samples (composited 5-sample units)	RLMENVC	*Lm*	115 (575)[2]	331	423 (2,125)[2]
Intensified Verification Testing (IVT) product samples[1]	INTPROD	*Lm* or *Salmonella*	TBD	480	TBD
IVT food contact surface samples[1]	INTCONT	*Lm* or *Salmonella*	TBD	970	TBD
IVT non-food contact environmental samples[1]	INTENV	*Lm* or *Salmonella*	TBD	543	TBD
Imported intact RTE product	IMVRTE	*Lm* & *Salmonella*	3,000	2,942	3,000
Follow-up testing to imported RTE product	FLISTERIA	*Lm*	TBD	34	TBD
Follow-up testing to imported RTE product	FRTESALMO-NEL	*Salmonella*	TBD	0	TBD
Egg products	EM31-EM37	*Lm* and *Salmonella*	1,600	1,693	1,600
Pasteurized imported liquid, frozen, or dried egg products	EGGIMP	*Lm* and *Salmonella*	150	104	150

Abbreviations: NRTE, not-ready-to-eat; RTE, ready-to-eat.

[1] Dependent on positive findings from RTEPROD_RAND, RTEPROD_RISK, and RLm sampling projects

[2] The number in parenthesis represents the number of samples collected by OFO to generate 1 composite sample submission.

Appendix B: Chemical Residue Sampling Numbers by Product

This appendix summarizes the numbers of samples in FSIS' chemical residue sampling program for FY2018 and FY2019. Table B1 presents the number of samples by production class. Table B2 presents the testing method used in each production class.

Table B-1: FY2018 and FY2019 Sample Numbers for Chemical Residues

		Number of Samples FY2018		Number of Samples FY2019
Production Class	**Sampling Project**	**Planned**	**Actual**	**Planned**
Beef Cows	NRP_BC	712	782	712
Bob Veal	NRP_BV	356	328	356
Dairy Cows	NRP_DC	712	833	712
Heifers	NRP_HF	356	369	356
Steer	NRP_ST	356	387	356
Market Swine	NRP_MS	712	744	712
Sows	NRP_SW	712	639	712
Young Chicken	NRP_YC	712	696	712
Young Turkey	NRP_YT	712	747	712
Sheep	NRP_SH	150	168	150
Goats	NRP_GO	300	332	300
Roaster Swine	NRP_RS	300	309	300
National Residue Program State Residues[1]	Various	700	482	660
Bulls/Stags	NRP_BS	100	171	100
Veal other than bob veal	NRP_HC, NRP_FFV, NRP_NFFV	100	158	150
Feral Swine	NRP_FS	100	77	75
Egg Products	NRP_EG	NA	NA	400
Siluriformes - Domestic	RES_FI	650	636	650
Siluriformes - Imports[5]	IMPFISH_CH_E and IMPFISH_CH_W	1,800	582	1,000
Dioxin Survey	DIOX_18_xx[4]	610	-	610
KIS™ Test[2]	KIS	NA	179,503	NA
KIS™ Test - Laboratory Confirmation[3]	KIS	NA	3,841	NA
Collector Generated Residues	Various	NA	197	NA
Import Residues	Various	3,000	2,823	2,000

Abbreviations: KIS™, Kidney Inhibition Swab; NA, non-applicable

[1] FSIS schedules 11% of the total samples per year for state establishments, which are part of the MPI program, who produce the same species as those at federally-inspected establishments.

[2] KIS™ tests are performed by OFO in the field and not by laboratories.

[3] FSIS IPP send positive KIS™ tests to FSIS laboratories for confirmation.

[4] FSIS will conduct the Dioxin survey on poultry (YC – young chicken; YT – young turkey), pork (MH – market hogs) and beef (STHR – steers and heifers) products. The "xx" indicated above will be replaced by the two letter identifier in the parenthesis for each product group of this note, or an alternate project code may be implemented, the ARS labs will be performing the analysis of these samples.

[5] Lab sampling for imported Siluriformes depends on the frequency in which these products are imported, a lower number of shipments were received for these products.

Table B-2: Chemical Residues Tested by Production Class

	Tier 1: Production Class									Tier 2: Production Class					Tier 3		
Methods	Beef Cows	Dairy Cows	Steers	Heifers	Bob Veal	Market Swine	Market Sows	Young Chicken	Young Turkey	Goats	Sheep	Non-Bob Veal	Bull	Roster Swine	Feral Swine	Egg Products	Siluriformes
Multi-class	x	x	x	x	x	x	x	x	x	x	x	x	x				x
Aminoglycoside	x	x	x	x	x	x	x	x	x			x	x				
Pesticides	x	x	x	x	x	x	x	x	x	x	x		x		x	x	x
Metals	x	x	x	x		x	x			x	x		x				x
B-agonists	x	x	x	x	x	x						x					
Carbadox														x			
Nitrofurans								x	x								x
Antifungal Dyes																	x

Appendix C: Other Sampling Programs

Table C1 in this appendix summarizes the numbers of samples in FSIS' sampling programs other than microbiological and chemical residue sampling programs for FY2018 and FY2019.

Table C-1: FY2018 and FY2019 Sample Numbers for FSIS Sampling Programs other than Microbiological and Chemical Residues

		Number of Samples FY2018		Number of Samples FY2019
Sampling Project	**Sampling Project**	**Planned**	**Actual**	**Planned**
Domestic AMR - Beef[1]	AMR01	150	101	150
Import AMR - Beef[1]	IMPAMRBEEF	10	0	10
Follow-up AMR01 - Beef [1,2]	FAMR01	NA	40	NA
NARMS Sampling for Enteric Bacteria	NARMS	6,400	6,486	6,400
NARMS Sampling for Residues on Dairy Cows[9]	RESNARMS_DC	1,280	869	0
NARMS Sampling for Residues on Young Chickens[9]	RESNARMS_YC	768	620	0
Foodborne Illness and Outbreak Sampling [3,4]	Various	7,000	449	7,000
Label Verification for Nutrient Content - Raw Ground Beef	EXP_LV_NUTR	200	121	200
Label Verification - Allergens[5]	EXP_LV_SOY	200	12	200
Label Verification - Antibiotic Free[5]	EXP_LV_ABX	400	70	400
Label Verification - Hormone Free[5]	EXP_LV_HORM	200	23	200
Species Identification - Collector Generated	SPECID	NA	2	NA
Import Species Identification	IMPSPECIESID	250	155	250
Food Chemistry - Collector Generated[6]	FOODCHEM	NA	3	NA
Compliance Testing [3,7]	COMPLIAN	NA	151	NA
Pathology - Collector Generated [3,8]	Various	NA	3,480	NA
Import - Abnormal Container	IMPABNCONT and ABNCONT	NA	10	NA

Abbreviations: AMR, Advanced Meat Recovery; NARMS, National Antimicrobial Resistance Monitoring System

[1] FSIS collects samples in regulated establishments to test for AMR processes to verify that industry is preventing 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.

[2] Dependent on positive findings from the AMR01 sampling project.

[3] Samples for these projects are not planned in advance, but rather an inspector in the field can collect a sample on the basis of their findings or other circumstances. The planned samples for the Foodborne Illness and Outbreak Sampling is a baseline of 2,000 samples plus a calculated projected number of samples that includes the follow-up sampling. Follow-up sampling actual values are located within their respective product class tables.

[4] 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.

[5] FSIS implemented several other Label Verification programs in FY2018 which were originally scheduled to begin in FY2016.

[6] 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

[7] 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.

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

[9] These projects gather data to determine if there is a link between antimicrobial resistance and drug use in animals.

Appendix D: Terms, Definitions, and References

Terms and Definitions

Analyses - A target detection methodology is applied to a sample based on the sampling project.

Analytes - The target of detection in the analysis, whether it is for microbiological pathogens, chemical residues, pathology diagnoses or other various analyses.

Analyzed - A sample was processed by the laboratory.

Beef Manufacturing Trimmings - product trimmings produced from cattle slaughtered onsite.

Bench Trim - product trimmings derived from cattle not slaughtered onsite (i.e., purchased product).

Comminuted - product that has been ground, mechanically separated, or hand- or mechanically deboned and further chopped, flaked, minced or otherwise processed to reduce particle size.

Distributed - FSIS sampling task scheduling algorithm results in a sampling task to appear in PHIS. The algorithm may set to over distribute samples in order to compensate for predicted under performance in a particular sampling project. This excess distribution is often referred to as "over scheduling".

Follow-up sampling - Sampling that is a result of failed standards or moving windows.

Performed - A sample was collected and submitted to the laboratory.

Planned - Quantity of samples identified by the workgroup and annual FSIS Sampling Plan.

Routine Sample - Sample collected for sampling projects which are planned with predicted collection frequencies based on establishments' regular operations. Positive routine samples, or other unpredicted events, may trigger additional sample collections whose samples would not be considered "routine".

Sampling gaps - The difference in the desired number of samples or products samples and the actual quantity analyzed.

Sampling Plan - Annual agency reissuance of the FSIS Report on the *Food Safety and Inspection Service Microbiological and Residue Sampling Programs*, first issued in December 2011, and comprehensively identifies sampling programs, including statistical and policy basis. The data-driven strategic planning effort for microbiological and chemical residue sampling activities are aligned with the Agency's Strategic and Annual Plan priorities.

Sample Scheduling Frequency - The sampling frequency targeting the number of samples collected on an annual basis instead of focusing on specific collection rates. In order to collect samples from infrequent producers and optimize the total number of samples collected and analyzed, FSIS adjusts the number of samples being scheduled based on the average number of samples collected throughout the sampling year.

Scheduled - A sample is specifically designated a collection date by the FSIS user in PHIS. A FSIS user may not be able to schedule all of the samples distributed to a particular establishment due to factors such as eligible project availability and assignment operations.

References

Please see the following website for more information on *Food Safety and Inspection Service Microbiological and Residue Sampling Programs*:
https://www.fsis.usda.gov/wps/wcm/connect/0816b926-c7ee-4c24-9222-34ac674ec047/FSIS_Sampling_Programs_Report.pdf?MOD=AJPERES

To review past Annual sampling plans, please see the following website for more information:
http://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/fsis-data-analysis-and-reporting/data-reporting

Please see the following website for more information on the FY2017-2021 FSIS Strategic Plan:
https://www.fsis.usda.gov/wps/wcm/connect/317d14d6-1759-448e-941a-de3cbff289e5/Strategic-Plan-2017-2021.pdf?MOD=AJPERES

For more information about FSIS' role in sample collection for BSE, please see FSIS Directive 10,400.1: https://www.fsis.usda.gov/wps/wcm/connect/09bf6ed8-1e4b-4ef5-a3e1-fa454b116b8e/10400.1.pdf?MOD=AJPERES

Additional data for NARMS can be found at the following:
CDC website: http://www.cdc.gov/narms/reports/
FDA website: www.fda.gov/AnimalVeterinary/SafetyHealth/AntimicrobialResistance/NationalAntimicrobialResistanceMonitoringSystem/ucm059089.htm

USDA website:
https://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/microbiology/antimicrobial-resistance/narms

FSIS CORE VALUES

ACCOUNTABLE

FSIS holds itself accountable in fulfilling its regulatory mission and in serving the public interest.

COLLABORATIVE

FSIS actively promotes and encourages collaboration within our agency and with our partners to prevent illness and protect public health.

EMPOWERED

FSIS employees are empowered with the necessary training, tools, and approaches they need to make and carry out informed decisions that protect public health and promote food safety.

SOLUTIONS-ORIENTED

FSIS is committed to deploying effective, evidence-based solutions to ensure that the Nation's food supply is safe.

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