



United States Department of Agriculture

# Food Safety and Inspection Service **ANNUAL SAMPLING**

Program Plan FISCAL YEAR 2020



Protecting Public Health and Preventing  
**Foodborne Illness**

The U.S. Department of Agriculture's (USDA) Food Safety and Inspection Service (FSIS) inspects meat, poultry, and processed egg products to ensure that food is safe, wholesome, and properly labeled. Verification activities serve to protect the public from foodborne illness or injury. Sampling of product for microbiological contaminants or chemical residues is a key FSIS activity to ensure public health and safety.

This report identifies changes to FSIS' sampling programs planned for fiscal year (FY) 2020 and describes the Agency's overall strategy for directing its sampling resources.

## Background

### FSIS Agency Planning

The FSIS Strategic Plan for FY 2017-2021 includes an objective to strengthen FSIS sampling programs. The activities in the FY 2020 Annual Sampling plan directly align with the FSIS FY 2020 Annual Plan.

In FY 2018 FSIS initiated an evaluation on 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, and to more efficiently use FSIS field inspector time and resources during sampling collection. Additionally, FSIS initiated an internal evaluation to assess historic domestic and import sampling to support planning, analysis, and future decision-making related to sampling, including setting sampling resource efficiency criteria. In FY 2019, FSIS began updating internal procedures and generating tools to facilitate the development and review of sampling programs. In FY 2020, FSIS will continue to implement recommendations derived from FY 2018 evaluations.

### 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 PHIS. The number of sampling tasks a domestic establishment receives can vary greatly depending on the types and quantities of products produced. The Agency is investigating ways to reduce the sampling burden on small and very small establishments, with the intent to implement changes in the FY 2021 Annual Sampling Plan. The tables in **Appendix D: Sample Distribution by Product Volume Category** identify the various task frequencies and monthly maximum sample tasks, as well as illustrate through examples how sampling task assignment varies by product and production volume. Additional non-routine sampling tasks might be distributed to establishment in response to routine results or other establishment performance history. Sampling type of inspection (TOI) tasks are assigned for each foreign country and product combination based on the number of imported shipments received.

It is important to note there might be a difference between the number of samples that are anticipated to be analyzed and the total number of samples actually analyzed within the fiscal year. One of the challenges IPP face when trying to collect all the samples accounted for in the sampling plan is the availability of eligible products; therefore, the annual 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 rather than specific collection rates because not all establishments 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 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.

After receiving the sampling tasks, and verifying eligible product availability, IPP collect and ship the samples to one of three FSIS testing laboratories, where the sample is tested for specified analytes. An analyte is a substance whose constituents are identified and measured, and the FSIS laboratories perform different tests depending on the sampling program and target analytes. The Agency looks to increase sample resource efficiency by increasing the number of analytes evaluated per sample collection and test.

## Microbiological and Chemical Residue Sampling Planned Changes from FY 2018 – FY 2020

Tables 1 and 2 summarize, for microbiological and chemical residue programs, respectively, the total planned number of analyses and corresponding planned number of analytes tested for during FY 2018, FY 2019, and FY 2020 by product class. Data are 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**

Product Class		Planned for FY 2018			Planned for FY 2019			Planned for FY 2020			Difference <sup>1</sup> (FY 2020-FY 2019)		
		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		20,376	67,248	234,072	20,337	66,048	232,296	20,234	54,736	216,984	-103	-11,312	-15,312
Raw Pork		3,816	9,432	31,896	5,400	9,039	18,039	11,600	22,106	44,186	6,200	13,067	26,147
Raw Poultry		42,984	105,228	175,380	38,859	55,824	60,240	48,540	66,024	66,024	9,681	10,200	5,784
Raw Siluriformes		2,460	2,460	2,460	1,660	1,660	1,660	1,660	1,660	1,660	0	0	0
RTE/Eggs	RTE	18,919	35,616	35,616	18,919	35,616	35,616	18,919	35,616	35,616	0	0	0
	RLm	1,487	1,392	1,392	5,437	5,088	5,088	5,437	5,088	5,088	0	0	0
	Eggs	1,752	3,504	3,504	1,750	3,504	3,504	1,600	3,200	3,200	-150	-304	-304
NARMS		6,400	6,400	6,400	6,400	6,400	6,400	7,880	7,880	7,880	1,480	1,480	1,480
<b>Total</b>		<b>98,202</b>	<b>231,288</b>	<b>490,728</b>	<b>98,770</b>	<b>183,187</b>	<b>362,851</b>	<b>115,570</b>	<b>195,810</b>	<b>380,538</b>	<b>16,900</b>	<b>12,723</b>	<b>17,787</b>
<sup>1</sup> The differences between FY 2019 and FY 2020 plans include the following: additional sampling for pork, expanded sampling in poultry to increase establishments under categorization and the expansion of National Antimicrobial Resistance Monitoring System (NARMS) sampling.													

# Microbiological and Chemical Residue Sampling Planned Changes from FY 2018 – FY 2020

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

Product Class	Planned for FY 2018			Planned for FY 2019			Planned for FY 2020			Difference <sup>3</sup> (FY 2020-FY 2019)		
	Samples Planned	Tests Planned	Analytes Planned	Samples Planned	Tests Planned	Analytes Planned	Samples Planned	Tests Planned	Analytes Planned	Samples Planned	Tests Planned	Analytes Planned
<b>Tier I</b>												
Beef Cows	712	3,560	119,972	712	3,240	121,320	712	3,240	121,320	-	-	-
Bob Veal	356	1,780	59,986	356	1,620	60,660	356	1,620	60,660	-	-	-
Dairy Cows	712	3,560	119,972	712	3,240	121,320	712	3,240	121,320	-	-	-
Heifers	356	1,780	59,986	356	1,620	60,660	356	1,620	60,660	-	-	-
Steer	356	1,780	59,986	356	1,620	60,660	356	1,620	60,660	-	-	-
Sows	712	3,560	116,768	712	2,160	111,600	712	2,160	111,600	-	-	-
Market Swine	712	3,560	118,548	712	2,880	119,880	712	2,880	119,880	-	-	-
Young Chickens	712	2,492	116,056	712	2,160	110,880	356	1,030	55,440	<b>-356</b>	<b>-1,130</b>	<b>-55,440</b>
Whole Chickens	-	-	-	-	-	-	356	1,030	55,440	<b>356</b>	<b>1,030</b>	<b>55,440</b>
Young Turkeys	712	2,492	116,056	712	2,160	110,880	712	2,160	110,880	-	-	-
<b>Tier II</b>												
Sheep	150	525	23,325	150	546	25,584	100	357	16,728	<b>-50</b>	<b>-189</b>	<b>-8,856</b>
Lamb	-	-	-	-	-	-	100	357	16,728	<b>100</b>	<b>357</b>	<b>16,728</b>
Goats	300	1,050	46,650	300	1,050	49,200	300	900	35,100	-	<b>-150</b>	<b>-14,100</b>
Roaster Swine	300	300	300	300	300	300	300	300	300	-	-	-
Bulls/Stags	100	400	15,550	100	378	17,712	0	0	0	<b>-100</b>	<b>-378</b>	<b>-17,712</b>
Veal - Other	150	450	16,275	150	640	19,890	150	640	19,890	-	-	-
Egg Product	-	-	-	400	400	22,378	250	500	37,296	<b>-150</b>	<b>100</b>	<b>14,918</b>
<b>Tier III</b>												
Siluriformes	2,450	12,500	368,750	1,650	8,358	323,034	1,650	8,358	323,034	-	-	-
<b>Other</b>												
State NRP <sup>1</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Imports <sup>2</sup>	-	-	-	-	-	-	-	-	-	-	-	-
KIS™	4,000	8,000	424,000	4,000	8,000	424,000	4,000	8,000	424,000	-	-	-
<b>Total</b>	<b>12,790</b>	<b>47,789</b>	<b>1,782,180</b>	<b>12,390</b>	<b>40,372</b>	<b>1,759,958</b>	<b>12,190</b>	<b>40,012</b>	<b>1,750,936</b>	<b>-200</b>	<b>-360</b>	<b>-9,022</b>

<sup>1</sup>FSIS devotes approximately 11% of samples for each applicable slaughter class to State NRP sampling.

<sup>2</sup>The analyses for import testing are driven by TOI assignments based on expected volume.

<sup>3</sup>The differences between FY 2019 and FY 2020 plans include the following: cessation of sampling the bull/stag slaughter class, moving all analysis of goats to target avermectins, and the addition of lamb as a separate slaughter class from sheep, and the addition of another analysis to egg products.

## Significant Changes for the FY 2020 Plan

The following table consists of key activities FSIS plans to implement in FY 2020. Each row consists of the challenges that the Agency faces moving into FY 2020, what process is impacted and the objective(s) to achieve during the fiscal year.

**Table 3: FY 2020 Priorities**

Cause or Challenge that Prompted Change	Impacted Sampling, Related Process or Analyte	FY 2020 Planned Agency Goal, Target Objective, or Activity
Support sampling plan, design, analysis, and future decision-making	Sampling resource planning and allocation	<ul style="list-style-type: none"> <li>Incorporate the <i>Strategic Assessment of Sampling Resources</i> findings and recommendations to modify future annual sampling plans as needed; help FSIS more efficiently manage sampling resources and inform resource allocation; close sampling gaps; and maximize the public health benefit through prioritizing testing by degree of hazard.</li> <li>Explore strategies to modernize sample task assignment in PHIS. This effort will focus on how the Agency can build consistency in sample collection at an establishment throughout the year.</li> </ul>
FSIS is moving towards product sample selection for Ready-to-Eat products (RTEPROD) based on <i>Listeria</i> control alternative rather than product	<i>Listeria monocytogenes</i> (Lm) and <i>Salmonella</i>	<ul style="list-style-type: none"> <li>Revise FSIS Directive 10,240.4, Verification Activities for the Lm Regulation and RTE Sampling Program to include a revised RTEPROD_RISK product sampling priority list for Inspection Program Personnel to use when selecting products for sample collection.</li> </ul>
PHRE methodology impacts how Risk-based <i>Listeria monocytogenes</i> (RLm) samples are scheduled.	<i>Listeria monocytogenes</i>	<ul style="list-style-type: none"> <li>Revise FSIS Directive 10,240.5, Verification Procedures for Enforcement, Investigation, and Analysis Officers (EIAOs) to include revised approach for scheduling RLm samples incorporating the PHRE methodology.</li> </ul>



## Significant Changes for the FY 2020 Plan

Cause or Challenge that Prompted Change	Impacted Sampling, Related Process or Analyte	FY 2020 Planned Agency Goal, Target Objective, or Activity
Changes to the National Residue Program (NRP)	Goats	<ul style="list-style-type: none"> <li>Since FY 2016, FSIS has reported multiple avermectin violations in goats analyzed under the NRP. Therefore, in the FY 2020 NRP, all goats sampled, instead of only half, will receive avermectin analysis.</li> </ul>
	Nitrofurans	<ul style="list-style-type: none"> <li>In FY 2018, FSIS conducted an exploratory study to evaluate whether semicarbazide (SEM), the primary metabolite of nitrofurazone, could be detected in chicken samples after chilling, despite not being detected prior to chilling. In response to the results of this exploratory study, in FY 2020, FSIS will begin collecting young chicken carcasses at a point prior to chilling for nitrofuran analysis.</li> </ul>
	Heavy Calf and Bull/Stags	<ul style="list-style-type: none"> <li>In FY 2017, heavy calf and bull/stags were added to the NRP. Since then no residues have been reported in these product classes; therefore, in FY 2020, FSIS will discontinue sampling of heavy calf and bull/stags.</li> </ul>
	Lambs/Sheep	<ul style="list-style-type: none"> <li>In FY 2020, to enhance surveillance of both lamb and mature sheep, FSIS will redefine the sampling of this slaughter class by creating a specific project code for lamb and will increase the total number of samples from 150 to 200, split equally between both lamb (100 samples) and mature sheep (100 samples).</li> </ul>
	PFAS (per- and polyfluoroalkyl substances)	<ul style="list-style-type: none"> <li>With the support of Food and Drug Administration (FDA) and Environmental Protection Agency (EPA), FSIS will conduct sampling to determine the presence of PFAS (per- and polyfluoroalkyl substances) in FSIS-regulated products. In FY 2020, condemned bovine samples collected under the inspector-generated sampling will be analyzed for the presence of PFAS.</li> </ul>
	New Methodology	<ul style="list-style-type: none"> <li>In FY 2020, the Agency will start using a next generation multi-residue screening method to strengthen its ability to detect animal drug residues. Screening and Confirmation of Animal Drug Residues by UHPLC-MS-MS (CLG-MRM3.00) will be an improvement over the current CLG-MRM1.08 method due to the use of more sensitive instrumentation. As a result, the number of animal drug residues analyzed in a sample will increase from 92 to 107 unique compounds. The method is applicable for the analysis of kidney and muscle in several slaughter classes (beef, pork, poultry, goat, and sheep), as well as Siluriformes muscle and liquid egg products.</li> </ul>

## Significant Changes for the FY 2020 Plan

Cause or Challenge that Prompted Change	Impacted Sampling, Related Process or Analyte	FY 2020 Planned Agency Goal, Target Objective, or Activity
Utilizing Whole Genome Sequencing (WGS) to obtain determinations previously done through other methods	WGS	<ul style="list-style-type: none"> <li>• FSIS will explore the use of long-read sequencing technology to supplement WGS to completely sequence the genomes and plasmids from isolates of interest.</li> </ul>
		<ul style="list-style-type: none"> <li>• FSIS will explore replacement of Salmonella molecular serotyping method by reporting serotypes derived from WGS data.</li> </ul>
		<ul style="list-style-type: none"> <li>• FSIS will explore replacement of Antimicrobial Susceptibility Testing by the use of inferred resistance derived from WGS data.</li> </ul>
Address concerns about communication to industry about sample results	Result Reporting	<ul style="list-style-type: none"> <li>• Evaluate FSIS' capability to use LIMS Direct to provide WGS data to industry.</li> </ul>
		<ul style="list-style-type: none"> <li>• Resolve the LIMS Direct/PHIS timing issues.</li> </ul>
		<ul style="list-style-type: none"> <li>• Explore possibilities to reduce the time to report results for WGS.</li> </ul>
		<ul style="list-style-type: none"> <li>• Increase transparency of National Antimicrobial Resistance Monitoring System (NARMS) results.</li> </ul>

Table 4 contains the rationale for changes in sampling number allocations between FY 2019 and FY 2020 sampling plans. Each row identifies 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 by Program/ Commodity	Program Description	Rationale for Any Changes from the FY 2019 Sampling Allocations
Beef Products	<ul style="list-style-type: none"> <li>• FSIS conducts STEC sampling projects for product produced in domestic establishments, imported products, and raw ground beef collected at retail.</li> <li>• 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 manufacturing trimmings, and other raw ground beef components.</li> <li>• FSIS analyzes all raw beef products collected under the routine and follow-up sampling programs, including raw ground beef, bench trim, beef manufacturing trimmings, and other raw ground beef components, for E. coli O157:H7 and Salmonella.</li> </ul>	<ul style="list-style-type: none"> <li>• Expand non-O157 STEC analysis to all other beef sampling projects (pending Federal Register notification and public comment period).</li> <li>• Initiate indicator organism analysis on beef.</li> <li>• Evaluate the options for enumeration of positive E. coli O157:H7 and Salmonella samples.</li> </ul>
Pork Products	<ul style="list-style-type: none"> <li>• FSIS is conducting the sampling program Raw Pork Products Sampling Project to analyze raw intact, non-intact, and comminuted domestic pork for Salmonella.</li> </ul>	<ul style="list-style-type: none"> <li>• Due to the low recovery of STEC in samples tested in Phase II of the Raw Pork Products Exploratory Sampling Program, FSIS is entering into a research collaboration with USDA's Agricultural Research Service (ARS) to continue diagnostics related to STEC in raw pork products sampled by FSIS; FSIS will share sample enrichments with ARS as part of a collaborative study analysis.</li> <li>• FSIS will expand sampling to a larger percentage of official establishments that FSIS plans to propose be subject to Salmonella performance standards. This will increase sampling by ~7,000 samples. Suspend generic E. coli indicator analysis and instead analyze for aerobic counts.</li> <li>• Evaluate the options for enumeration of positive Salmonella samples.</li> </ul>



## Significant Changes for the FY 2020 Plan

Sampling by Program/ Commodity	Program Description	Rationale for Any Changes from the FY 2019 Sampling Allocations
Poultry Products	<ul style="list-style-type: none"> <li>FSIS analyzes young chicken and turkey carcasses, comminuted chicken and turkey, and chicken part samples for Salmonella and Campylobacter.</li> </ul>	<ul style="list-style-type: none"> <li>Beginning August 2019, young chicken carcasses, young turkey carcasses, and chicken parts routine projects sampling frequency were based on a two-tier production volume method. In an effort to decrease the number of establishments not categorized under the performance standards due to too few samples analyzed, establishments with greater than 1000 but less than 250,000 lbs. of production volume will receive 2 sample tasks per month. Plants with a volume greater than 250,000 lbs. will receive 5 sample tasks per month. This will increase allocations by 7,700 samples for these projects.</li> <li>End religious exempt and low volume poultry sampling. FY 2019 analyses indicated a higher percent positive in some product categories, although the overall volume of such products in the food supply is low.</li> <li>Analyze the results of the remaining poultry exploratory sampling projects and determine next steps based on that analysis.</li> <li>Conduct an analysis to determine the final destination of mechanically separated poultry to determine whether to suspend this program.</li> <li>Implement heavy fowl New Poultry Inspection System sampling, which will add 300 rinsate samples.</li> <li>Evaluate the options for enumeration of positive Salmonella samples.</li> </ul>
Siluriformes	<ul style="list-style-type: none"> <li>FSIS analyzes raw fish of the order Siluriformes and Ready-To-Eat (RTE) meat, egg product, and poultry product samples for Salmonella.</li> </ul>	<ul style="list-style-type: none"> <li>No allocation changes FY 2020.</li> </ul>

## Significant Changes for the FY 2020 Plan

Sampling by Program/ Commodity	Program Description	Rationale for Any Changes from the FY 2019 Sampling Allocations
RTE: Meat, Poultry, and Egg Products	<ul style="list-style-type: none"> <li>• FSIS conducts microbiological testing for Lm and Salmonella in both domestically produced and imported egg products.</li> <li>• Product sampling is scheduled every month under random sampling and risk-based sampling projects under 2 RTEPROD projects.</li> <li>• 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.</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluate the options for enumeration of positive <i>Listeria monocytogenes</i> and <i>Salmonella</i> samples.</li> </ul>

## Significant Changes for the FY 2020 Plan

Sampling by Program/ Commodity	Program Description	Rationale for Any Changes from the FY 2019 Sampling Allocations
NRP	<ul style="list-style-type: none"> <li>The 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 antemortem 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.)</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>New NRP projects with increased allocations are based on FDA and EPA analysis of exposure risk. The following allocation changes will occur in FY 2020.               <ul style="list-style-type: none"> <li>FSIS will discontinue Tier 2 sampling of heavy calf and bull/stags which will remove allocations of 175 samples for these sampling projects.</li> <li>The addition of the lamb slaughter class will adjust sampling for sheep to 100 samples and include an additional 100 samples to analyze lamb. This will add 50 samples.</li> <li>FSIS will discontinue the KIS analysis on beef samples from the NRP.</li> </ul> </li> </ul>

## Significant Changes for the FY 2020 Plan

Sampling by Program/ Commodity	Program Description	Rationale for Any Changes from the FY 2019 Sampling Allocations
Import Sampling	<ul style="list-style-type: none"> <li>• FSIS analyzes imported raw beef samples for E. coli O157:H7 and Salmonella.</li> <li>• FSIS analyzes imported beef manufacturing trimmings for non-O157 STEC, which includes the following six O-antigen groups: O26, O45, O103, O111, O121, and O145.</li> <li>• FSIS analyzes imported poultry for Salmonella and Campylobacter.</li> <li>• FSIS analyzes imported raw pork products for Salmonella.</li> <li>• FSIS analyzes imported RTE and egg products for Lm and Salmonella in.</li> <li>• FSIS analyzes imported raw fish of the order Siluriformes for Salmonella.</li> <li>• FSIS analyzes imported meat and poultry products, and imported Siluriformes products for chemical residues and conducts speciation.</li> </ul>	<ul style="list-style-type: none"> <li>• Realign samples allotted for MT51 (sampling for imported raw beef manufactured trimmings or components) from 1500 to 1200 to adjust for expected volume and sampling rate.</li> <li>• Realign samples allotted for imported poultry products from 900 to 800 to adjust for the expected import volume and sampling rate.</li> <li>• Realign samples allotted for imported pork products from 900 to 600 to adjust for the expected volume and sampling rate.</li> </ul>
Other Sampling	<ul style="list-style-type: none"> <li>• NARMS - FSIS analyzes cecal materials of beef, swine and young chicken and turkeys for the presence of Salmonella, Campylobacter, generic E. coli, and Enterococcus.</li> <li>• FSIS performs verification of species claims on domestic and imported product.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase NARMS sampling by 1,380 samples.</li> <li>• Expand species analysis to include cat and dog.</li> </ul>

## Appendix A: Microbial Sampling Numbers by Product

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 FY 2019;
2. Number of samples actually analyzed in FY 2019; and
3. Planned number of samples to be analyzed in FY 2020.

## Appendix A: Microbial Sampling Numbers by Product

Appendix A summarizes the numbers of samples in FSIS' microbiological sampling program and presents the number of samples planned and actually analyzed in FY 2019, and the number of samples planned to be analyzed in FY 2020, by product type. Raw products are presented first, beginning with beef (Table A2), followed by pork (Table A3), fish of the order Siluriformes (Table A4) and Poultry (Table A5). RTE, NRTE, and egg product sampling numbers are presented in Table A6.

Table A1 is a quick reference guide of the microbiological analytes by various FSIS regulated products in FY 2020. 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 A1: Summary of Analyte Tested by Product**

Product	Microbiological Analyte					
	<i>Salmonella</i>	<i>Campylobacter</i>	<i>Lm</i>	<i>E. coli</i> O157:H7	Non-O157 STEC	Indicator Organisms
Raw Beef	√			√	√ <sup>1</sup>	√ <sup>2</sup>
Raw Pork	√					√ <sup>2</sup>
Raw Siluriformes	√					
Raw Poultry	√	√				√ <sup>2</sup>
RTE Product	√		√			
Egg Products	√		√			

<sup>1</sup>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.

<sup>2</sup>Dependent upon the program as not all beef, pork, and poultry projects are analyzed for indicator organisms.



## Appendix A: Microbial Sampling Numbers by Product

**Table A2: FY 2019 and FY 2020 Sample Numbers for Raw Beef**

Product Class	Sampling Project	Pathogen(s)	Number of Samples FY 2019		Number of Samples FY 2020
			Planned	Actual	Planned
Raw ground beef	MT43	<i>E. coli</i> O157:H7 and <i>Salmonella</i>	11,500	10,685	11,500
Follow-up testing to a ground beef <i>E. coli</i> positive <sup>1</sup>	MT44 and MT44T	<i>E. coli</i> O157:H7 and <i>Salmonella</i>	TBD	63	TBD
Raw ground beef components other than trim	MT64	<i>E. coli</i> O157:H7 and <i>Salmonella</i>	1,050	1,214	1,050
Bench trim	MT65	<i>E. coli</i> O157:H7 and <i>Salmonella</i>	1,500	1,350	1,500
Beef manufacturing trim	MT60	<i>E. coli</i> O157:H7, Non-O157 STEC and <i>Salmonella</i>	3,750	4,076	3,750
Follow-up testing at supplier establishments following MT43, MT44, or MT65 positive <sup>1</sup>	MT52	<i>E. coli</i> O157:H7, Non-O157 STEC and <i>Salmonella</i>	TBD	61	TBD
Follow-up testing to an MT60, MT64, MT65, or MT52 positive <sup>1</sup>	MT53	<i>E. coli</i> O157:H7, Non-O157 STEC and <i>Salmonella</i>	TBD	515	TBD
Raw ground beef at retail stores	MT05	<i>E. coli</i> O157:H7 and <i>Salmonella</i>	575	531	575
Follow-up testing to a MT05 sample <sup>1</sup>	MT06	<i>E. coli</i> O157:H7 and <i>Salmonella</i>	TBD	0	TBD
Imported raw ground beef <sup>2</sup>	MT08	<i>E. coli</i> O157:H7 and <i>Salmonella</i>	50	43	50
Imported trim and other raw ground beef components <sup>2</sup>	MT51	<i>E. coli</i> O157:H7, Non-O157 STEC and <i>Salmonella</i>	1,500	921	1,200

<sup>1</sup>Dependent on positive findings from other *E. coli* O157:H7 or non-O157 STEC sampling projects.

<sup>2</sup>Lab sampling for Imports depends on the number of shipments received by country and product.

## Appendix A: Microbial Sampling Numbers by Product

**Table A3: FY 2019 and FY 2020 Sample Numbers for Raw Pork**

Product Class	Sampling Project	Pathogen(s)	Number of Samples FY 2019		Number of Samples FY 2020
			Planned	Actual	Planned
Comminuted Pork Exploratory Sampling	EXP_PK_COM02	<i>Salmonella</i> and Indicator Organisms	1,704	1,672	0
Comminuted Pork	HC_PK_COM01	<i>Salmonella</i> and Indicator Organisms	-	-	8,640
Intact Pork Cuts Exploratory Sampling	EXP_PK_ICT02	<i>Salmonella</i> and Indicator Organisms	1,521	1,347	0
Non- Intact Pork Cuts Exploratory Sampling	EXP_PK_NCT02	<i>Salmonella</i> and Indicator Organisms	1,272	1,155	0
Intact and Non-Intact Cuts	HC_PK_CUT01	<i>Salmonella</i> and Indicator Organisms	-	-	2,400
Imported Pork <sup>1</sup>	IMP_PORK	<i>Salmonella</i>	900	339	600

<sup>1</sup>Sampling for imports depends on the number of shipments received by country and product.

**Table A4: FY 2019 and FY 2020 Sample Numbers for Raw Siluriformes**

Product Class	Sampling Project	Analyses	Number of Samples FY 2019		Number of Samples FY 2020
			Planned	Actual	Planned
Domestic Raw fish of the order Siluriformes	EXP_FI_MIC01	<i>Salmonella</i>	650	608	650
Imported Raw fish of the order Siluriformes <sup>1</sup>	IMPFISH_MI	<i>Salmonella</i>	1,000	745	1,000

<sup>1</sup>Sampling for imports depends on the number of shipments received by country and product

## Appendix A: Microbial Sampling Numbers by Product

**Table A5: FY 2019 and FY 2020 Sample Numbers for Raw Poultry**

Product Class	Sampling Project	Pathogen(s)	Number of Samples FY 2019		Number of Samples FY 2020
			Planned	Actual	Planned
Young Chicken Carcasses	HC_CH_CARC01	<i>Salmonella</i> , <i>Campylobacter</i>	9,000	8,999	9,630
Ground and Other Comminuted Chicken (not Mechanically Separated)	HC_CH_COM01	<i>Salmonella</i> , <i>Campylobacter</i>	2,500	2,032	2,500
Exploratory - Mechanically Separated Chicken	EXP_CH_MSK01	<i>Salmonella</i> , <i>Campylobacter</i>	150	119	150
Chicken Parts – Legs, Breasts, Wings	HC_CPT_LBW01	<i>Salmonella</i> , <i>Campylobacter</i>	9,000	9,410	16,300
Chicken Parts – Other Parts	EXP_CPT_OT01	<i>Salmonella</i> , <i>Campylobacter</i>	360	298	80
Chicken Parts – Quarters, Halves	EXP_CPT_QH01	<i>Salmonella</i> , <i>Campylobacter</i>	120	90	120
Turkey Carcasses	HC_TU_CARC01	<i>Salmonella</i> , <i>Campylobacter</i>	2,000	1,847	1,730
Ground and Other Comminuted Turkey (not Mechanically Separated)	HC_TU_COM01	<i>Salmonella</i> , <i>Campylobacter</i>	1,500	1,495	1,500
Exploratory - Mechanically Separated Turkey	EXP_TU_MSK01	<i>Salmonella</i> , <i>Campylobacter</i>	150	103	150
Imported Raw Intact Chicken and Turkey <sup>2</sup>	IMP_POULTRY	<i>Salmonella</i> , <i>Campylobacter</i>	900	690	800
Religious exempt establishments	RE_CH_CARC01	<i>Salmonella</i> , <i>Campylobacter</i>	2,200	2,261	0
Low Volume Establishments	LO_CH_CARC01	<i>Salmonella</i> , <i>Campylobacter</i>			
	LO_TU_CARC01				
	LO_CH_COM01				
	LO_TU_COM01				
	LO_CH_MSK01				
	LO_TU_MSK01				
	LO_CPT_LBW01				
	LO_CPT_OT01				
	LO_CPT_QH01				
Follow-up Sampling for Chicken Parts, Carcasses, Comminuted Chicken and Turkey <sup>1</sup>	F_CPT_LBW01 F_CH_COM01 F_TU_COM01 F_CH_CARC01 F_TU_CARC01	<i>Salmonella</i> , <i>Campylobacter</i>	TBD	2,249	TBD

<sup>1</sup>Dependent on findings from other *Salmonella* and *Campylobacter* projects.

<sup>2</sup>Sampling for imports depends on the number of shipments received by country and product.

## Appendix A: Microbial Sampling Numbers by Product

**Table A6: FY 2019 and FY 2020 Sample Numbers for RTE, NRTE and Egg Products**

Product Class	Sampling Project	Pathogen(s)	Number of Samples FY 2019		Number of Samples FY 2020
			Planned	Actual	Planned
Both post lethality-exposed and non-post lethality-exposed RTE products	RTEPROD_Rand	<i>Lm</i> & <i>Salmonella</i>	7,400	6,986	7,400
Post lethality-exposed RTE products	RTEPROD_Risk	<i>Lm</i> & <i>Salmonella</i>	7,400	7,571	7,400
RLm product samples (Composited 5-sample Units)	RLMPRODC	<i>Lm</i>	423 (2,125) <sup>2</sup>	264	423 (2,125) <sup>2</sup>
RLm food contact surface samples	RLMCONT	<i>Lm</i>	4,218	2,637	4,218
RLm non-food contact environmental samples (Composited 5-sample Units)	RLMENVC	<i>Lm</i>	423 (2,125) <sup>2</sup>	267	423 (2,125) <sup>2</sup>
Intensified Verification Testing (IVT) product samples <sup>1</sup>	INTPROD	<i>Lm</i> or <i>Salmonella</i>	TBD	1,071	TBD
IVT food contact surface samples <sup>1</sup>	INTCONT	<i>Lm</i> or <i>Salmonella</i>	TBD	603	TBD
IVT non-food contact environmental samples <sup>1</sup>	INTENV	<i>Lm</i> or <i>Salmonella</i>	TBD	544	TBD
Imported intact RTE product <sup>3</sup>	IMVRTE	<i>Lm</i> & <i>Salmonella</i>	3,000	2,891	3,000
Follow-up testing to imported RTE product	FLISTERIA	<i>Lm</i>	TBD	2	TBD
Follow-up testing to imported RTE product	FRTESALMONEL	<i>Salmonella</i>	TBD	0	TBD
Egg Products	EM31-EM37	<i>Lm</i> & <i>Salmonella</i>	1,600	1,652	1,600
Pasteurized imported liquid, frozen or dried egg products	EGGIMP	<i>Lm</i> & <i>Salmonella</i>	150	132	150

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

<sup>1</sup>Dependent on positive findings from RTEPROD\_RAND, RTEPROD\_RISK, and RLm sampling projects

<sup>2</sup>The number in parenthesis represents the number of samples collected by OFO to generate 1 composite sample submission.

<sup>3</sup>Sampling for imports depends on the number of shipments received by country and product.

## Appendix B: Chemical Residue Sampling Numbers by Product

Appendix B summarizes the numbers of samples in FSIS' chemical residue sampling program for FY 2019 and FY 2020. Table B1 presents the number of samples by production class. Tables B2 – B5 present the number of analyses performed by method used in each production class broken out by Tiers and Import sampling. In these tables the values for the number of analyses performed are color coded to reflect where the analysis is taking place. Red represents analyses performed only at the Eastern Laboratory; green are analyses performed only at the Western Laboratory; blue are samples that are split half at Eastern and half at Western Laboratories; and purple are analyses performed only at the Midwestern Laboratory.

**Table B1: FY 2019 and FY 2020 Sample Numbers for Chemical Residues**

Production Class	Sampling Project	Number of Samples FY 2019		Number of Samples FY 2020
		Planned	Actual	Planned
Beef Cows	NRP_BC	712	754	712
Beef Cow – State <sup>1</sup>	NRP_BC_S	88	54	88
Bob Veal	NRP_BV	356	391	356
Bob Veal - State <sup>1</sup>	NRP_BV_S	44	0	44
Dairy Cows	NRP_DC	712	758	712
Dairy Cows – State <sup>1</sup>	NRP_DC_S	88	50	88
Heifers	NRP_HF	356	442	356
Heifers – State <sup>1</sup>	NRP_HF_S	44	74	44
Steer	NRP_ST	356	397	356
Steer - State <sup>1</sup>	NRP_ST_S	44	103	44
Market Swine	NRP_MS	712	725	712
Market Swine - State <sup>1</sup>	NRP_MS_S	88	98	88
Sows	NRP_SW	712	679	712
Sows – State <sup>1</sup>	NRP_SW_S	88	52	88
Young Chicken	NRP_YC	712	716	356
Young Chicken - State <sup>1</sup>	NRP_YC_S	88	17	88
Whole Chicken	NRP_WC	0	-	356
Young Turkey	NRP_YT	712	639	712
Young Turkey – State <sup>1</sup>	NRP_YT_S	88	7	88
Sheep	NRP_SH	150	161	100
Lambs	NRP_LA	0	-	100
Goats	NRP_GO	300	282	300
Roaster Swine	NRP_RS	300	396	300
Bulls/Stags	NRP_BS	100	87	0
Veal other than bob veal	NRP_HC <sup>6</sup> , NRP_FFV, NRP_NFFV	150	184	150
Feral Swine	NRP_FS	75	99	75
Egg products	NRP_EG	400	19	250
Siluriformes – Domestic	RES_FI	650	619	650



## Appendix B: Chemical Residue Sampling Numbers by Product

Production Class	Sampling Project	Number of Samples FY 2019		Number of Samples FY 2020
		Planned	Actual	Planned
Siluriformes – Imports <sup>5</sup>	IMPFISH_CH_E and IMPFISH_CH_W	1,000	782	1,000
Dioxin Survey	DIOX_18_xx <sup>4</sup>	610	600	0
KIS™ Test <sup>2</sup>	KIS	NA	175,248	NA
KIS™ Test – Laboratory Confirmation <sup>3</sup>	KIS	NA	3,564	NA
Collector Generated Residues	Various	NA	201	NA
Import Residue	Various	2,000	1,935	2,000

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

<sup>1</sup>FSIS schedules 11 percent of the total samples per year for state establishments, which are part of the state meat and poultry inspection (MPI) program, who produce the same species as those at federally inspected establishments.

<sup>2</sup>These KIS™ tests are performed by OFO in the field and not by the laboratories.

<sup>3</sup>FSIS in-plant inspection personnel send positive KIS™ tests to FSIS laboratories for confirmation.

<sup>4</sup>FSIS conducted 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.

<sup>5</sup>Sampling for imports depends on the number of shipments received by country and product.

<sup>6</sup>The NRP\_HC sampling project is discontinued in FY 2020. The samples allocated to Veal other than bob veal will be split between NRP\_FFV and NRP\_NFFV.

## Appendix B: Chemical Residue Sampling Numbers by Product

**Table B2: Number of Chemical Residues Analysis by Production Class: Tier 1**

Methods	Number of Animals	Aminoglycosides (M,L,K)	Antifungal Dyes (M)	Avermectins (M,L)	B-agonist (M,L)	Carbadox (L)	Metals (M,L,K)	Multi-residue (M,L,K)	Nitrofurans (M)	Pesticides (M,L,K)	Sulfonamides
Beef cows	N= 800	800 <sup>3</sup>	-	400 <sup>1</sup>	400 <sup>2</sup>	-	100 <sup>1</sup>	800 <sup>3</sup>	-	400 <sup>2</sup>	-
Bob veal	N= 400	400 <sup>3</sup>	-	200 <sup>1</sup>	200 <sup>2</sup>	-	100 <sup>1</sup>	400 <sup>3</sup>	-	200 <sup>2</sup>	-
Dairy cows	N= 800	800 <sup>3</sup>	-	400 <sup>1</sup>	400 <sup>2</sup>	-	100 <sup>1</sup>	800 <sup>3</sup>	-	400 <sup>2</sup>	-
Heifers	N= 400	400 <sup>3</sup>	-	200 <sup>1</sup>	200 <sup>2</sup>	-	100 <sup>1</sup>	400 <sup>3</sup>	-	200 <sup>2</sup>	-
Steers	N= 400	400 <sup>3</sup>	-	200 <sup>1</sup>	200 <sup>2</sup>	-	100 <sup>1</sup>	400 <sup>3</sup>	-	200 <sup>2</sup>	-
Roaster swine	N= 300	-	-	-	-	300 <sup>2</sup>	-	-	-	-	-
Market swine	N= 800	800 <sup>3</sup>	-	400 <sup>1</sup>	200 <sup>2</sup>	-	100 <sup>1</sup>	800 <sup>3</sup>	-	400 <sup>2</sup>	-
Sows	N= 800	800 <sup>3</sup>	-	400 <sup>1</sup>	200 <sup>2</sup>	-	100 <sup>1</sup>	800 <sup>3</sup>	-	400 <sup>2</sup>	-
Young chickens	N= 400	400 <sup>1</sup>	-	-	-	-	150 <sup>1</sup>	400 <sup>1</sup>	-	-	-
Young whole chicken	N=400	400 <sup>2</sup>	-	-	-	-	-	400 <sup>2</sup>	400 <sup>2</sup>	400 <sup>2</sup>	-
Young turkeys	N= 800	800 <sup>3</sup>	-	-	-	-	150 <sup>1</sup>	800 <sup>3</sup>	400 <sup>2</sup>	400 <sup>2</sup>	-
Goats	N= 300	300 <sup>1</sup>	-	300 <sup>1</sup>	-	-	-	300 <sup>1</sup>	-	-	-
Siluriformes	N= 650	-	325 <sup>1</sup>	-	-	-	325 <sup>1</sup>	650 <sup>3</sup>	325 <sup>2</sup>	325 <sup>2</sup>	-
Egg products	N= 400	-	-	-	-	-	-	250 <sup>2</sup>	-	250 <sup>2</sup>	-
Total		6300	325	2500	1800	300	1325	7200	1125	3575	0

<sup>1</sup>Red = Eastern Lab only; <sup>2</sup>Green = Western Lab only; <sup>3</sup>Blue = split half at Eastern and half at Western Labs; <sup>4</sup>Purple = Midwestern Lab only

## Appendix B: Chemical Residue Sampling Numbers by Product

**Table B3: Number of Chemical Residues Analysis by Production Class: Tier 2**

Methods	Number of Animals	Aminoglycosides (M,L,K)	Antifungal Dyes (M)	Avermectins (M,L)	B-agonist (M,L)	Carbadox (L)	Metals (M,L,K)	Multi-residue (M,L,K)	Nitrofurans (M)	Pesticides (M,L,K)	Sulfonamides
Formula-fed Veal	N= 75	75 <sup>3</sup>	-	-	37 <sup>2</sup>	-	-	75	-	-	-
Non-formula-fed Veal	N= 75	75 <sup>3</sup>	-	-	37 <sup>2</sup>	-	-	75	-	-	-
Sheep	N= 100	100 <sup>3</sup>	-	50 <sup>1</sup>	-	-	-	100	-	50 <sup>2</sup>	-
Lamb	N= 100	100 <sup>3</sup>	-	50 <sup>1</sup>	-	-	-	100	-	50 <sup>2</sup>	-
<b>Total</b>		<b>350</b>	<b>0</b>	<b>100</b>	<b>74</b>	<b>0</b>	<b>0</b>	<b>350</b>	<b>0</b>	<b>100</b>	<b>0</b>

<sup>1</sup>Red = Eastern Lab only; <sup>2</sup>Green = Western Lab only; <sup>3</sup>Blue = split half at Eastern and half at Western Labs; <sup>4</sup>Purple = Midwestern Lab only

**Table B4: Number of Chemical Residues Analysis by Production Class: Tier 3**

Methods	Number of Animals	Aminoglycosides (M,L,K)	Antifungal Dyes (M)	Avermectins (M,L)	B-agonist (M,L)	Carbadox (L)	Metals (M,L,K)	Multi-residue (M,L,K)	Nitrofurans (M)	Pesticides (M,L,K)	Sulfonamides
Feral Swine	N=75	-	-	-	-	-	-	-	-	75 <sup>2</sup>	-
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>75</b>	<b>0</b>

## Appendix B: Chemical Residue Sampling Numbers by Product

**Table B5: Number of Chemical Residues Analysis by Production Class: Imports**

Methods	Aminoglycosides	Antifungal Dyes	Avermec tins	B-agonist	Carbadox	Metals	Multi-resi- due	Nitrofu- rans	Pesti- cides	Sulfon amides
Beef, Raw	200 <sup>3</sup>	-	100 <sup>1</sup>	100 <sup>2</sup>	-	50 <sup>1</sup>	200 <sup>3</sup>	-	100 <sup>2</sup>	-
Beef, Processed	-	-	25 <sup>1</sup>	-	-	12 <sup>1</sup>	-	-	-	25 <sup>4</sup>
Chicken, Raw	50 <sup>3</sup>	-	-	-	-	25 <sup>1</sup>	50 <sup>3</sup>	25 <sup>2</sup>	25 <sup>2</sup>	-
Chicken, Processed	-	-	-	-	-	5 <sup>1</sup>	-	-	-	5 <sup>4</sup>
Turkey, Raw	40 <sup>3</sup>	-	-	-	-	10 <sup>1</sup>	40 <sup>3</sup>	25 <sup>2</sup>	25 <sup>2</sup>	-
Turkey, Pro- cessed	-	-	-	-	-	5 <sup>1</sup>	-	-	-	5 <sup>4</sup>
Veal, Raw	70 <sup>3</sup>	-	25 <sup>1</sup>	35 <sup>2</sup>	-	-	70 <sup>3</sup>	-	35 <sup>2</sup>	-
Veal, Processed	-	-	5 <sup>1</sup>	-	-	-	-	-	-	-
Goat, Raw	25 <sup>3</sup>	-	15 <sup>1</sup>	-	-	-	25 <sup>3</sup>	-	25 <sup>2</sup>	-
Goat, Processed	-	-	5 <sup>1</sup>	-	-	-	-	-	-	-
Lamb, Raw	20 <sup>3</sup>	-	10 <sup>1</sup>	-	-	-	20 <sup>3</sup>	-	10 <sup>2</sup>	-
Lamb, Processed	-	-	5 <sup>1</sup>	-	-	-	-	-	-	-
Mutton, Raw	5 <sup>3</sup>	-	10 <sup>1</sup>	-	-	-	5 <sup>3</sup>	-	5 <sup>2</sup>	-
Mutton, Processed	-	-	5 <sup>1</sup>	-	-	-	-	-	-	-
Pork, Raw	200 <sup>3</sup>	-	100 <sup>1</sup>	100 <sup>2</sup>	-	50 <sup>1</sup>	200 <sup>3</sup>	-	100 <sup>2</sup>	-
Pork, Processed	-	-	25 <sup>1</sup>	-	-	12 <sup>1</sup>	-	-	-	25 <sup>4</sup>
Siluriformes, Raw	-	900 <sup>1</sup>	-	-	-	900 <sup>1</sup>	1800 <sup>3</sup>	900 <sup>2</sup>	900 <sup>2</sup>	-
Egg products	-	-	-	-	-	-	-	-	40 <sup>2</sup>	-
Total	610	900	330	235	0	1069	2410	950	1265	60

<sup>1</sup>Red = Eastern Lab only; <sup>2</sup>Green = Western Lab only; <sup>3</sup>Blue = split half at Eastern and half at Western Labs; <sup>4</sup>Purple = Midwestern Lab only

## Appendix C: Other Sampling Programs

Table C1 summarizes the numbers of samples in FSIS' sampling programs other than microbiological and chemical residue sampling programs for FY 2019 and FY 2020.

**Table C1: FY 2019 and FY 2020 Sample Numbers for FSIS Sampling Programs other than Microbiological and Chemical Residues**

Sampling Project	Sampling Project	Number of Samples FY 2019		Number of Samples FY 2020
		Planned	Actual	Planned
Domestic AMR - Beef <sup>1</sup>	AMR01	150	81	150
Import AMR – Beef <sup>1</sup>	IMPAMRBEEF	10	5	10
Follow-up AMR01 – Beef <sup>1,2</sup>	FAMR01	NA	2	NA
NARMS	NARMS	6,400	6,206	7,880
Foodborne Illness and Outbreak Sampling <sup>3,4</sup>	Various	7,000	40	7,000
Label Verification for Nutrient Content - Raw Ground Beef	EXP_LV_NUTR	200	15	200
Label Verification – Allergens <sup>5</sup>	EXP_LV_SOY	200	2	200
Label Verification – Antibiotic Free <sup>5</sup>	EXP_LV_ABX	400	125	400
Label Verification – Hormone Free <sup>5</sup>	EXP_LV_HORM	200	27	200
Species Identification - Collector Generated	SPECID	NA	0	NA
Import Species Identification	IMPSPECIESID	250	179	250
Food Chemistry - Collector Generated <sup>5</sup>	FOODCHEM	NA	0	NA
Compliance Testing <sup>3,6</sup>	COMPLIAN	NA	140	NA
Pathology - Collector Generated <sup>3,7</sup>	Various	NA	3,205	NA
Import - Abnormal Container	IMPABNCONT and ABNCONT	NA	17	NA

Abbreviations: AMR, advanced meat recovery; NARMS, National Antimicrobial Resistance Monitoring System.

<sup>1</sup>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.

<sup>2</sup>Dependent on positive findings from the AMR01 sampling project.

<sup>3</sup>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.

<sup>4</sup>FSIS collects and analyzes food samples potentially related to human disease outbreaks. Analyses include cultural and molecular methods such as polymerase chain reaction (PCR), antimicrobial susceptibility testing, and molecular serotyping to identify and further characterize organisms in outbreak samples

<sup>5</sup>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

<sup>6</sup>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.

<sup>7</sup>FSIS carries out diagnostic and consultative pathology services to identify diseases, parasites, and related conditions in response to the needs of field operations.



## Appendix D: Sample Distribution by Production Volume Category

These tables identify establishment sampling task distribution by production volume of products eligible for the various sampling projects and Hazard Analysis Critical Control Point (HACCP) categories. Sample task assignment varies by establishment and is reliant upon the information identified in the PHIS establishment profile. An establishment can be categorized into very small, small, or large HACCP size according to the number of employees and gross sales. However, the daily production volume of meat, poultry, and egg products has a greater impact on sample task assignments. Each sampling program is designed to verify certain HACCP processes (slaughter, raw intact, RTE, etc.) for specific species and slaughter classes of animals (dairy cattle, beef cattle, young chicken, etc.). Establishments may produce multiple species of products under multiple HACCP processes, therefore, both volume and diversity of production processes influence the types and frequencies of FSIS sampling. This appendix offers four examples of establishments with a variety of production processes and volumes. Table D2 first provides a summary of those examples and illustrates how the various factors influence sample tasks assignment. Each of the four examples then details the sample task assignment.

**Table D1: Maximum Number of Monthly Sampling Tasks**

	Daily Production Volume Category								
	Large			Medium	Small				Very Small
	>1,000,000 lb	600,001 – 1,000,000 lb	250,001 – 600,000 lb	50,001 – 250,000 lb	6,001 – 50,000 lb	3,001 – 6,000 lb	1,101 – 3,000 lb	101 – 1,100 lb	1 – 100 lb
MT projects	4	4	4	3	2	2	2	1	1
Poultry Carcasses	5	5	5	2	2	2	2	0	0
Poultry Parts	5	5	5	2	2	2	2	0	0
Poultry Comminuted	5	5	5	5	5	5	5	0	0
Pork Comminuted	NA	5	5	5	5	0	0	0	0
Pork Cuts	5	5	5	5	0	0	0	0	0
RTE products	1	1	1	1	1	1	1	1	1

## Appendix D: Sample Distribution by Product Volume Category

**Table D2: Summary of the Examples of Sampling from Establishments with Various Volumes and Processes of Production**

Example	Product/Volume in Plant Profile	Number Qualifying Projects	Number Samples/month
1	Raw – Intact / 50,001-250,000 Raw - Non-Intact / 3,001-6,000 Slaughter / 250,001-600,000	5	11
2	Fully Cooked - Not Shelf Stable / 1,001-3,000 Heat Treated - Not Fully Cooked - Not Shelf Stable / 1,001-3,000 Raw – Intact / 6,001-50,000 Raw - Non-Intact / 3,001-6,000 Slaughter / 6,001-50,000	10	12
3	Raw – Intact / 1,001-3,000 Raw - Non-Intact / 101-1,000 Slaughter / 101-1,000	9	16
4	Raw – Intact / > 1,000,000 Raw - Non-Intact / > 1,000,000	5	9

### Example 1

Example 1 is a mid-range volume poultry establishment with a small HACCP size. There are three different HACCP processes, including slaughter and further processing, all involving the same slaughter species and class (young chicken). The three different young chicken HACCP production processes qualify for five separate poultry sampling tasks which generate 11 monthly sampling tasks. This example demonstrates how multiple processes affected the number of sampling tasks, even though the overall volume produced was not a large amount.

### HACCP Processes

HACCP Category	Volume (lbs/day)
Raw - Intact	50,001-250,000
Raw - Non-Intact	3,001-6,000
Slaughter	250,001-600,000

### Sampling Projects

Project Code	Project Name
EXP_CPT_OT01	Exploratory Sampling for Chicken Parts - Other Parts
HC_CH_CAR01	HACCP Verification for Young Chicken Carcasses
HC_CH_COM01	Sampling for Ground and Other Comminuted Chicken (not Mechanically Separated)
HC_CPT_LBW01	Sampling for Chicken Parts – Legs, Breasts, and Wings
NRP_YC	National Residue Program Sampling - Young Chickens

## Appendix D: Sample Distribution by Product Volume Category

### Example 2

Example 2 is a multi-species establishment with a very small HACCP size producing various species of products under five of the nine HACCP processes. Although they have fewer production days, the total daily volume is equal to or larger than other establishments with more days of production but fewer species and HACCP processes. This very small multi-species establishment could potentially be assigned 12 sampling tasks each month.

#### HACCP Processes

HACCP Category	Volume (lbs/day)
Fully Cooked - Not Shelf Stable	1,001-3,000
Heat Treated - Not Fully Cooked - Not Shelf Stable	1,001-3,000
Raw - Intact	6,001-50,000
Raw - Non Intact	3,001-6,000
Slaughter	6,001-50,000

#### Sampling Projects

Project Code	Project Name
F_CH_CARCO1	Follow-up sampling of Chicken Carcasses
HC_CH_CARCO1	HACCP Verification for Young Chicken Carcasses
HC_CPT_LBW01	Sampling for Chicken Parts – Legs, Breasts, and Wings
KIS	KIS - Samples from In-plant Testing
LO_CH_COM01	Very Low Volume Sampling for Ground and Other Comminuted Chicken (not Mechanically Separated)
LO_TU_CARCO1	Very Low Volume Sampling for Turkey Carcasses
NARMS_MS	NARMS-National Antimicrobial Resistance Monitoring System Sampling-Market Swine
NARMS_YC	NARMS-Young Chickens
NRP_RS	National Residue Sampling Program - Roaster Swine
RTEPROD_RAND	RTEPROD Sampling - Random RTE Products

### Example 3

Example 3 is a multi-species establishment with a small HACCP size and lower production volumes than Example 1. Even though the establishment has a low daily production volume, it may receive around 16 sampling tasks per month because of the scope of the products produced and species.

#### HACCP Processes

HACCP Category	Volume (lbs/day)
Raw - Intact	1,001-3,000
Raw - Non-Intact	101-1,000
Slaughter	101-1,000

## Appendix D: Sample Distribution by Product Volume Category

### Sampling Projects

Project Code	Project Name
EXP_CPT_OT01	Exploratory Sampling for Chicken Parts - Other Parts
EXP_LV_ABX	Label Verification for Antibiotic Free
HC_CH_CARC01	HACCP Verification for Young Chicken Carcasses
HC_CH_COM01	Sampling for Ground and Other Comminuted Chicken (not Mechanically Separated)
HC_CPT_LBW01	Sampling for Chicken Parts – Legs, Breasts, and Wings
LO_TU_CARC01	Very Low Volume Sampling for Turkey Carcasses
MT43	Risk-based Sampling of Raw Ground Beef or Veal Products - E.coli O157:H7 & <i>Salmonella</i>
NRP_YT	National Residue Program Sampling - Young Turkeys
RE_CH_CARC01	Religious Exempt Sampling for Chicken Carcasses

### Example 4

Example 4 is a single species, high volume, large sized HACCP establishment. Even though it produces product in the highest agency volume category, the establishment receives the fewest tasks of all the examples at 9 tasks per month due to the limited products and species.

### HACCP Processes

HACCP Category	Volume (lbs/day)
Raw - Intact	> 1,000,000
Raw – Non-Intact	> 1,000,000

### Sampling Projects

Project Code	Project Name
EXP_CPT_OT01	Exploratory Sampling for Chicken Parts - Other Parts
EXP_CPT_QH01	Exploratory Sampling for Chicken Parts - Quarter and Half Carcasses
HC_CPT_LBW01	Sampling for Chicken Parts – Legs, Breasts, and Wings
NARMS_YC	NARMS-Young Chickens
NRP_YC	National Residue Program Sampling - Young Chickens

## Appendix E: 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

More information on *Food Safety and Inspection Service Microbiological and Residue Sampling Programs* is available at: [http://www.fsis.usda.gov/wps/wcm/connect/0816b926-c7ee-4c24-9222-34ac674ec047/FSIS\\_Sampling\\_Programs\\_Report.pdf?MOD=AJPERES](http://www.fsis.usda.gov/wps/wcm/connect/0816b926-c7ee-4c24-9222-34ac674ec047/FSIS_Sampling_Programs_Report.pdf?MOD=AJPERES)

Previous annual sampling plans are available at: <http://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/fsis-data-analysis-and-reporting/data-reporting>

FY2017-2021 FSIS Strategic Plan is available at: <http://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 at <http://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:

Centers for Disease Control and Prevention website: <http://www.cdc.gov/narms/reports/>

FDA website: <http://www.fda.gov/AnimalVeterinary/SafetyHealth/AntimicrobialResistance/NationalAntimicrobialResistanceMonitoringSystem/default.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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To file a program discrimination complaint, a complainant should complete a Form AD-3027, USDA Program Discrimination Complaint Form, which can be obtained online at <https://www.ocio.usda.gov/document/ad-3027>, from any USDA office, by calling (866) 632-9992, or by writing a letter addressed to USDA. The letter must contain the complainant's name, address, telephone number, and a written description of the alleged discriminatory action in sufficient detail to inform the Assistant Secretary for Civil Rights (ASCR) about the nature and date of an alleged civil rights violation. The completed AD-3027 form or letter must be submitted to USDA by:

(1) Mail: U.S. Department of Agriculture Office of the Assistant Secretary for Civil Rights  
1400 Independence Avenue, SW Washington, D.C.  
20250-9410; or

(2) Fax: (833) 256-1665 or (202) 690-7442; or  
(3) Email: [program.intake@usda.gov](mailto:program.intake@usda.gov)

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