National Residue Program Quarterly Report (October-December 2023)

National Residue Program

In FY 2024 Q1, nine analytical methods were used by FSIS to detect approximately 260 different veterinary drugs, pesticides, and environmental contaminants. Accompanying this report is an Excel spreadsheet. This sheet includes detailed information regarding samples taken by FSIS in both the residue domestic scheduled and inspector-generated sampling programs, in addition to the residue import sampling program results. Additionally, the excel sheet includes quarterly metals and per- and polyfluorinated alkyl substances (PFAS) results. Key observations are below.

Surveillance Sampling Plan

Specified slaughter subclasses are sampled at the time of slaughter, after a carcass has passed antemortem inspection. Of the 1,584 samples analyzed by FSIS (1,514 from U.S. Federal plants and 70 from U.S. State inspected plants), 6 sample contained violative chemical residues. In total, more than 361,000 chemical residue analyses were conducted on the 1,584 samples collected under the surveillance sampling plan.

Table 1: Summary of FY 2024 Q1 Surveillance Sampling Results

FY 2024 Q1 summary of surveillance sampling results from FSIS inspector-collected muscle, kidney, and liver tissue from carcasses and parts is shown.

Animal Category	Animal Class	Total Number of Samples Planned for FY 2024	Number of Samples Analyzed this Quarter			
			Total Samples[1]	Number of Non-Detect Samples	Number of Non-Violative Positives Samples	Number of Violative Samples
Bovine	Beef Cows	800	217	213	3	1
	Bob Veal	400	81	78	1	2
	Dairy Cows	800	212	211	1	-
	Formula-Fed Veal	75	20	20	-	-
	Heifers	400	113	108	5	-
	Non-Formula-Fed Veal	75	12	11	-	1
	Steers	400	114	111	3	-
Porcine	Feral Swine	75	16	16	-	-
	Market Swine	800	224	223	1	-
	Sows	800	174	174	-	-
Poultry	Young Chickens	400	105	101	3	1
	Young Turkeys	400	87	87	-	-
Other Species	Goats	300	80	80	-	-
	Lambs	100	24	22	2	-
	Sheep	100	26	25	-	1
	Siluriformes (Catfish)	200	51	51	-	-
	Egg Products	100	28	27	1	-
Quarter Total		**6,225**	**1,584**	**1,558**	**20**	**6**

[1] For raw product, a sample is a representative portion of a meat, poultry, or egg product collected to identify potential microbiological, chemical, or pathological hazards.

Table 2: FY 2024 Q1 Number Collected NRP Surveillance Sampling Residues by Chemical Methods

FY 2024 Q1 number collected surveillance sampling residue sampling summary is shown reflecting the number of samples (carcasses) analyzed per chemical method per animal class.

Animal Category	Animal Class	Number of Samples Analyzed per Chemical Method						
		Avermectins	Aminoglycosides	Antifungal Dyes	Metals	MRM[1]	Pesticides	PFAS[2]
Bovine	Beef Cows	1	217	-	51	217	162	-
	Bob Veal	-	81	-	32	81	61	-
	Dairy Cows	-	212	-	42	212	163	-
	Formula-Fed Veal	-	20	-	-	20	3	-
	Heifers	-	113	-	38	113	87	-
	Non-Formula-Fed Veal	-	11	-	-	12	2	-
	Steers	1	114	-	42	114	90	-
Porcine	Feral Swine	-	-	-	-	-	16	7
	Market Swine	-	223	-	47	224	166	-
	Sows	-	174	-	37	174	140	-
Poultry	Young Chickens	-	104	-	50	105	79	-
	Young Turkeys	-	86	-	35	87	74	-
Other Species	Goats	-	80	-	-	80	2	-
	Lambs	1	24	-		24	17	-
	Mature Sheep	1	26	-	-	26	18	-
	Siluriformes (Catfish)	-	-	51	51	51	28	23
	Egg Products	-	-	-	-	18	28	-
	Quarter Total	**4**	**1,485**	**51**	**425**	**1,558**	**1,136**	**30**

[1] MRM: multiresidue method

[2] PFAS: polyfluoroalkyl substances

Table 3. FY 2024 Q1 Surveillance Sampling Residue Violations

List of FY 2024 Q1 surveillance sampling residue violations, including specific compound, concentration, tolerance, and regulatory citation by animal class is shown.

Animal Class	Tissue	Compound	Concentration	Units	Tolerance Level Value	Authority (CFR Citation)
Beef Cow	Liver	Tilmicosin	5.92	ppm	1.2 ppm	40 CFR 556.735
Bob Veal	Muscle	Meloxicam	--	--	--	Not Approved/1/
	Kidney	Neomycin	383	ppm	7.2 ppm	40 CFR 556.430
	Muscle	Meloxicam	--	--	--	Not Approved/1/
Mature Sheep	Muscle	Doramectin	--	--	--	Not Approved/1/
Non-Formula-Fed Veal	Liver	Florfenicol	8.47	ppm	3.7 ppm	40 CFR 556.283
	Muscle	Florfenicol	0.840	ppm	0.3 ppm	40 CFR 556.283
Young Chicken	Muscle	Diclofenac	--	--	--	Not Approved/1/

***** Violative residue results were detected but not quantified.

/1/Not Approved: the residue detected is not approved in that tissue for the animal class.

ppm – parts per million (mg/kg)

ppb – parts per billion (µg/kg)

CFR – Code of Federal Regulations

Inspector-Generated Sampling Plan

FSIS inspectors conduct inspector-generated sampling when they suspect that animals presented for slaughter may have violative levels of chemical residues. If an inspector suspects that there is misuse of drugs that cannot be detected by the KIS™ test, the samples are sent directly to the laboratory for appropriate analysis. These samples are reported under the Inspector-Generated program. If an inspector suspects that there is misuse of drugs that cannot be detected by the KIS™ test, the samples are sent directly to the laboratory for appropriate analysis. These samples are reported under the Collector-Generated program.

In FY 2024 Q1, of the 27,041 Kidney Inhibition Swab (KIS™) tests conducted on animals selected by FSIS (Table 4), 381 samples were submitted to FSIS field laboratories for further analysis. In total, 66 chemical residue violations were reported in 53 samples (Table 5). Due to multiple analyses per sample submitted, multiple residue violations may be found in the same sample. The predominant violative residues in the inspector-generated samples were Desfuroylceftiofur (19), Flunixin (8), and Sulfadimethoxine (7) which account for 29%, 12%, and 11% (each) of total violative residues, respectively.

Table 4. Summary of FY 2024 Q1 Inspector-Generated Sampling (KIS™) Test and Confirmatory Tests

FY 2024 Q1 summary of KIS™ tests, number of in-plant screens with negative results, number of carcasses sent to FSIS laboratory for confirmation, and the number of carcasses (i.e., samples) with violations for each animal class.

Animal Category	Animal Class	KIS ™ Test			
		Total Number of In-plant Carcasses	Number of In-plant Negative Carcasses	Number of Samples Analyzed in FSIS Labs	Number of Samples with Confirmed Lab Violations
Bovine	Beef cows	3141	3089	40	7
	Bob Veal	1515	1502	9	8
	Bulls	305	294	10	-
	Dairy Cows	16281	15939	241	33
	Formula-fed Veal	12	12	-	-
	Heavy Calves	24	24	-	-
	Heifers	1001	964	28	1
	Non-Formula-fed Veal	26	23	3	-
	Steers	1436	1385	36	2
Porcine	Boar/Stag Swine	14	12	1	-
	Market Swine	1817	1810	5	-
	Roaster Swine	332	332	-	-
	Sows	851	840	6	-
Other Species	Adult Goats	15	15	-	-
	Young Goats	28	28	-	-
	Mature Sheep	111	111	-	-
	Lambs	132	128	2	2
	Quarter Total	**27,041**	**26,508**	**381**	**53**

Table 5. FY 2024 Q1 Inspector-Generated Sampling Residue Violation Results by Chemical Residue and Animal Class
FY 2024 Q1 summary of chemical residue violations reported within the inspector-generated sampling.

Chemical Residue	Beef Cow	Bob Veal	Dairy Cow	Heifer	Steer	Lamb	Quarter Total
Ciprofloxacin	1	1	-	-	-	-	**2**
Desethylene Ciprofloxacin	-	1	-	-	-	-	**1**
Desfuroylceftiofur	-	-	18	-	1	-	**19**
Enrofloxacin	-	1	-	-	-	-	**1**
Florfenicol	-	-	1	-	-	-	**1**
Flunixin	3	-	3	1	1	-	**8**
Gamithromycin	-	-	-	-	-	2	**2**
Meloxicam	1	-	3	-	-	-	**4**
Neomycin	-	5	-	-	-	-	**5**
Oxytetracycline	1	-	-	-	-	-	**1**
Penicillin	-	1	4	-	-	-	**5**
Spectinomycin	-	1	-	-	-	-	**1**
Sulfadiazine	-	1	-	-	-	-	**1**
Sulfadimethoxine	-	-	6	1	-	-	**7**
Sulfamethazine	2	-	1	-	-	-	**3**
Sulfathiazole	-	2	-	-	-	-	**2**
Tilmicosin	1	-	-	-	2	-	**3**
Quarter Total	**9**	**13**	**36**	**2**	**4**	**2**	**66**

Table 6. Summary of FY 2024 Q1 Collected-Generated Sampling
FY 2024 Q1 summary of suspect animal samples sent directly to FSIS laboratory (collected-generated sampling) for appropriate analysis.

Animal Category	Animal Class	Total Samples	Number of Non-Detect Samples	Number of Non-Violative Positives Samples	Number of Violative Samples
Bovine	Beef Cows	4	3	1	-
	Bob Veal	1	-	1	-
	Dairy Cows	3	2	-	1
	Heifers	2	1	1	-
	Steers	11	9	2	-
Porcine	Market Swine	6	5	1	-
	Sows	2	2	-	-
Other	Lamb	3	3	-	-
	Young Goat	1	1	-	-

In addition to the publication of the quarterly FY 2024 Sampling Summary NRP results, FSIS posts the details of each positive non-violative, and positive violative residue result associated with the NRP sampling program in a spreadsheet format on the FSIS Residue Chemistry website.

This spreadsheet includes detailed information regarding samples collected and analyzed by FSIS under both the “scheduled” sampling and the “inspector-generated” sampling programs. Overall, these data indicate levels of metals in FSIS-regulated product, on average, are relatively low and are not likely to cause a human health concern. FSIS plans to update this spreadsheet on an ongoing basis so as to increase program transparency for all stakeholders. The spreadsheet includes the following data fields: sample collection and reviewed date, the project code, the animal class, tissue type, chemical residue name, concentration values, sample results (whether positive non-violative or positive violative), chemical concentration values (if any) and the CFR reference for each chemical listed.

Import Residue Sampling

Imported meat, poultry, and egg products are sampled through the point-of-entry Import Reinspection Sampling Plan. This verifies that foreign inspection systems in exporting countries are equivalent to U.S. standards. A total of 175 samples were analyzed under this program in FY 2024 Q1. During FY 2024 Q1, there were zero violative import samples. The results are summarized in **Table 7**.

Table 7. Summary of FY 2024 Q1 Residue Sampling of Imported Products

FY 2024 Q1 import residue samples by inspection level and production type.

Product Name and Project Code	Analytical Method	Normal			Increased[/1/]		Intensified[/2/]		Quarter Total
		Number of Samples Analyzed	Non-Violative Positives Samples	Violative Positive Samples	Number of Samples Analyzed	Non-Violative Positive Samples	Number of Samples Analyzed	Non-Violative Positive Samples	
Imported - Metals IMPMETALS	Metals	48	-	-	-	-	-	-	48
Imported - Pesticide IMPPESTICIDE	Pesticides	108	-	-	-	-	1	-	109
Imported Egg Products - Chemistry IMPRESEGG	Pesticides	5	-	-	-	-	-	-	5
Imported Processed Products - Residue Eastern Lab IMPRESPR_EL	Avermectins	4	-	-	-	-	-	-	4
Imported Processed Products - Residue Midwestern Lab IMPRESPR_MWL	Sulfonamides	9	-	-	-	-	-	-	9
Quarter Total		**174**	**0**	**0**	**0**	**0**	**1**	**0**	**175**

[/1/]Increased is a level of reinspection above the normal level that is directed by a FSIS management decision. Under increased reinspection, FSIS may hold, on a case-by-case basis, lots of imported meat, poultry, or egg products pending receipt of a laboratory analysis. If FSIS does not place the product on hold, the importer of record is still required to hold product tested for adulterants by FSIS and is not to allow such product to enter commerce unless and until negative results are received.

/2/Intensified is a level of reinspection that is implemented automatically by the Public Health Information System (PHIS) when a Type of Inspection PHIS task is reported as “Fail.” Under intensified reinspection, FSIS holds the sampled lot at the official import inspection establishment pending receipt of laboratory analysis. The sampled lot is not allowed to move off-site to be held. Intensified is a level of reinspection that is implemented automatically by the Public Health Information System (PHIS) when a Type of Inspection PHIS task is reported as “Fail.” Under intensified reinspection, FSIS holds the sampled lot at the official import inspection establishment pending receipt of laboratory analysis. The sampled lot is not allowed to move off-site to be held.