

National Residue Program Quarterly Report (April-June 2022)

National Residue Program

In FY 2022 Q3, nine analytical methods were used by FSIS to detect approximately 260 different veterinary drugs, pesticides, and environmental contaminants. 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 1,994 samples analyzed by FSIS (1,914 from U.S. Federal plants and 80 from U.S. State inspected plants), ten sample contained violative chemical residues. In total, more than 361,000 chemical residue analyses were conducted on the 1,994 samples collected under the surveillance sampling plan.

Table 1: Summary of FY 2022 Q3 Surveillance Sampling Results

FY 2022 Q3 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 2022	Total Samples ¹	Number of Samples Analyzed this Quarter		
				Number of Non-Detect Samples	Number of Non-Violative Positives Samples	Number of Violative Samples
Bovine	Beef Cows	800	215	193	2	--
	Bob Veal	400	80	78	--	3
	Dairy Cows	800	196	202	--	2
	Formula-Fed Veal	75	13	17	--	--
	Heifers	400	119	107	--	1
	Non-Formula-Fed Veal	75	9	15	--	--
	Steers	400	112	105	--	--
Porcine	Feral Swine	75	14	14	--	--
	Market Swine	800	219	200	--	--
	Roaster Swine	300	67	56	--	--
	Sows	800	185	178	2	2
Poultry	Young Chickens	400	107	97	--	--
	Whole Chickens	400	105	83	1	--
	Young Turkeys	800	219	202	1	--
Other Species	Goats	300	79	66	1	1
	Lambs	100	24	20	--	--
	Mature Sheep	100	23	17	--	1
	<i>Siluriformes</i> (Catfish)	650	148	144	--	--
	Egg Products	400	43	40	--	--
Quarter Total		8,075	1,994	1,977	7	10

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 2022 Q3 Number Collected NRP Surveillance Sampling Residues by Chemical Methods

FY 2022 Q3 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								
		Aminoglycosides	Antifungal Dyes	Carbadox	Metals	MRM ¹	Nitrofurans	Pesticides	PFAS ²	Speciation
Bovine	Beef Cows	217	--	--	19	217	--	159	--	--
	Bob Veal	83	--	--	30	83	--	60	--	--
	Dairy Cows	198	--	--	15	198	--	147	--	--
	Formula-Fed Veal	13	--	--	--	13	--	3	--	--
	Heifers	120	--	--	37	120	--	82	--	--
	Non- Formula Fed Veal	9	--	--	--	9	--	1	--	--
	Steers	112	--	--	35	112	--	71	--	--
Porcine	Feral Swine	--	--	--	--	--	--	14	11	--
	Market Swine	219	--	--	21	219	--	166	48	--
	Roaster Swine	--	--	67	--	--	--	--	--	--
	Sows	189	--	--	25	189	--	134	36	--
Poultry	Young Chickens	107	--	--	29	107	19	57	48	--
	Whole Chickens	106	--	--	--	103	102	106	--	--
	Young Turkeys	220	--	--	45	218	54	110	--	--
Other Species	Goats	81	--	--	--	81	--	14	--	--
	Lambs	24	--	--	--	24	--	9	--	--
	Mature Sheep	24	--	--	--	24	--	15	--	--
	<i>Siluriformes</i> (Catfish)	--	92	--	92	137	45	93	40	103
	Egg Products	--	--	--	--	43	--	43	--	--
Quarter Total		1,722	92	67	348	1,897	220	1,284	183	103

¹ MRM: multiresidue method

² PFAS: polyfluoroalkyl substances

Table 3. FY 2022 Q3 Surveillance Sampling Residue Violations

List of FY 2022 Q3 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)
Bob Veal	Muscle	Ketoprofen	*	*	*	Not Approved ^{/1/}
	Kidney	Gamithromycin	*	*	*	Not Approved ^{/1/}
	Kidney	Flunixin	*	*	*	Not Approved ^{/1/}
Dairy Cow	Muscle	Salbutamol	*	*	*	Not Approved ^{/1/}
	Muscle	Meloxicam	*	*	*	Not Approved ^{/1/}
Heifer	Liver	Ractopamine	176	ppb	90	40 CFR 556.570
Sow	Muscle	Diclofenac	*	*	*	Not Approved ^{/1/}
Goat	Muscle	Moxidectin	*	*	*	Not Approved ^{/1/}
Mature Sheep	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.

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 2022 Q3, of the 32,880 Kidney Inhibition Swab (KIS™) tests conducted on animals selected by FSIS (Table 4), 470 samples were submitted to FSIS field laboratories for further analysis. In total, 98 chemical residue violations were reported in 75 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 (26), Flunixin (12), and penicillin (10) which account for 27%, 12%, and 10% of total violative residues, respectively.

Table 4. Summary of FY 2022 Q3 Inspector-Generated Sampling (KIS™) Test and Confirmatory Tests

FY 2022 Q3 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	2,513	2,456	55	11
	Bob Veal	3,983	3,955	26	14
	Bulls	305	297	8	2
	Dairy Cows	22,331	22,025	300	58
	Formula-fed Veal	54	54	--	--
	Heavy Calves	44	44	--	--
	Heifers	994	972	21	2
	Non-Formula-fed Veal	53	51	2	1
	Steers	1,885	1,850	33	2
Porcine	Boar/Stag Swine	32	31	1	--
	Market Swine	3,373	3,350	22	--
	Roaster Swine	346	346	--	--
	Sows	1,569	1,563	6	1
Other Species	Adult Goats	23	23	--	--
	Goats	135	134	1	1
	Young Goats	30	30	--	--
	Mature Sheep	68	67	1	--
	Lambs	198	197	1	--
	Quarter Total	32,880	32,393	470	75

Table 5. FY 2022 Q3 Inspector-Generated Sampling Residue Violation Results by Chemical Residue and Animal Class
 FY 2022 Q3 summary of chemical residue violations reported within the inspector-generated sampling.

Chemical Residue	Animal Class										Quarter Total
	Beef Cow	Bob Veal	Bulls	Dairy Cow	Heavy Calves	Heifer	Non-Formula-fed Veal	Steer	Sow	Goat	
Ampicillin	--	1	--	2	--	--	--	--	--	--	3
Ciprofloxacin	--	2	--	--	--	--	--	1	--	--	3
Desethylene Ciprofloxacin	--	2	--	--	--	--	--	--	--	--	2
Desfuroylceftiofur	2	3	--	18	--	1	--	2	--	--	26
Diclofenac	--	1	--	--	--	--	--	--	--	--	1
Doramectin	2	--	--	--	--	--	--	--	--	--	2
Enrofloxacin	--	2	--	--	--	--	--	--	--	--	2
Florfenicol	1	--	2	1	--	--	--	1	--	--	5
Flunixin	3	4	1	2	--	--	--	2	--	--	12
Ketoprofen	--	1	--	--	--	--	--	--	--	--	1
Lincomycin	--	--	--	1	--	--	--	--	--	--	1
Meloxicam	1	--	--	--	--	--	--	--	--	--	1
Neomycin	--	2	--	1	--	--	--	--	--	--	3
Norfloxacin	--	--	--	--	--	--	1	--	--	--	1
Oxyphenylbutazone	1	--	--	--	--	--	--	--	--	--	1
Oxytetracycline	--	--	--	2	--	--	--	--	--	1	3
Penicillin	1	--	--	7	--	--	--	2	--	--	10
Phenylbutazone	1	--	--	--	--	--	--	--	--	--	1
Sulfadimethoxine	--	--	--	5	--	--	--	--	--	--	5
Sulfamethazine	--	--	--	2	--	1	--	1	--	--	4
Sulfamethoxazole	--	2	--	--	--	--	--	--	--	--	2

Sulfathiazole	--	2	--	--	--	--	--	--	--	--	2
Tildipirosin	--	1	--	--	--	--	--	--	--	--	1
Tilmicosin	3	--	1	--	--	--	--	1	--	--	6
Quarter Total	15	23	4	41	0	2	2	10	0	1	98

Table 6. Summary of FY 2022 Q3 Collected-Generated Sampling

FY 2022 Q3 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 Cow	1	1	--	--
	Dairy Cow	5	4	1	--
	Bob Veal	3	2	--	1
	Heifer	2	0	1	1
	Steer	30	26	4	--
Porcine	Market Swine	16	16	--	--
Other Species	Mature Sheep	1	1	--	--
	Lamb	4	4	--	--
Quarter Total		62	54	6	2

In addition to the publication of the FY 2022 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 website at:

<https://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/chemistry/red-books/redbook>

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 611 samples were analyzed under this program in FY 2022 Q3. During FY 2022 Q3, there was one violative import sample. The results are summarized in **Table 7**.

Table 7. Summary of FY 2022 Q3 Residue Sampling of Imported Products

FY 2022 Q3 import residue samples by inspection level and production type.

Product Name and Project Code	Analytical Method	Normal			Increased		Intensified ^{1/}		Quarter Total
		Number of Samples Analyzed	Non-Violative Positives Samples	Violative Positive Samples	Number of Samples Analyzed	Non-Violative Positives Samples	Number of Samples Analyzed	Non-Violative Positive Samples	
Imported Fish Products- Eastern Laboratory IMPFISH_CH_E	Speciation	184	--	--	--	--	--	--	184
Imported Fish Products- Western Laboratory IMPFISH_CH_W	Nitrofurans, Pesticides	180	--	--	--	--	3	--	183
Imported - Metals IMPMETALS	Metals	64	--	--	1	--	--	--	65
Imported - Pesticide IMPPESTICIDE	Pesticides	134	1	1	--	--	3	--	137
Imported Egg Products - Chemistry IMPRESSEGG	Pesticides	11	--	--	--	--	--	--	11
Imported Processed Products - Residue Eastern Lab IMPRESPR_EL	Avermectins	15	--	--	1	--	--	--	16
Imported Processed Products - Residue Midwestern Lab IMPRESPR_MWL	Sulfonamides	15	--	--	--	--	--	--	15
Quarter Total		603	1	1	2	0	6	0	611

^{/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. 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.