National Residue Program Quarterly Report (Oct–Dec 2020)

National Residue Program

In FY 2021 Q1, eight 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 1,912 samples analyzed by FSIS (1,871 from U.S. Federal plants and 41 from U.S. State inspected plants), one sample contained violative chemical residues. In total, more than 332,000 chemical residue analyses were conducted on the 1,912 samples collected under the surveillance sampling plan.

Table 1: Summary of FY 2021 Q1 Surveillance Sampling Results

Animal Category	Animal Class	Total Number of Samples Planned for FY 2021	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	201	198	2	1
	Bob Veal	400	78	78	--	--
	Dairy Cows	800	208	207	1	--
	Formula-Fed Veal	75	15	15	--	--
	Heifers	400	106	101	5	--
	Non-Formula-Fed Veal	75	12	12	--	--
	Steers	400	105	93	12	--
Porcine	Feral Swine	75	15	15	--	--
	Market Swine	800	198	198	--	--
	Roaster Swine	300	72	72	--	--
	Sows	800	175	175	--	--
Poultry	Young Chickens	400	105	104	1	--
	Whole Chickens	400	95	94	1	--
	Young Turkeys	800	236	233	3	--
Other Species	Goats	300	73	73	--	--
	Lambs	100	22	21	1	--
	Mature Sheep	100	17	17	--	--
	Siluriformes (Catfish)	650	139	138	1	--
	Egg Products	400	40	39	1	--
Annual Total		**8,075**	**1,912**	**1,883**	**28**	**1**

[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 2021 Q1 Surveillance Sampling Results by Chemical Method

Animal Category	Animal Class	Number of Samples Analyzed per Chemical Method							
		Aminoglycosides	Antifungal Dyes	Carbadox	Metals	MRM	Nitrofurans	Pesticides	PFAS
Bovine	Beef Cows	201	--	--	30	201	--	111	--
	Bob Veal	78	--	--	19	78	--	42	--
	Dairy Cows	208	--	--	33	208	--	105	--
	Formula-Fed Veal	15	--	--	--	15	--	--	--
	Heifers	106	--	--	21	106	--	51	--
	Non- Formula Fed Veal	12	--	--	--	12	--	--	--
	Steers	105	--	--	18	105	--	59	--
Porcine	Feral Swine	--	--	--	--	--	--	15	--
	Market Swine	198	--	--	29	198	--	116	25
	Roaster Swine	--	--	72	--	--	--	--	--
	Sows	175	--	--	24	175	--	91	20
Poultry	Young Chickens	105	--	--	27	105	18	18	--
	Whole Chickens	95	--	--	--	95	95	95	68
	Young Turkeys	236	--	--	44	236	124	124	--
Other Species	Goats	72	--	--	--	73	--	34	--
	Lambs	22	--	--	--	22	--	11	--
	Mature Sheep	17	--	--	--	17	--	11	--
	Siluriformes (Catfish)	--	124	--	125	138	14	14	18
	Egg Products	--	--	--	--	35	--	40	--
	Annual Total	1645	124	72	370	1819	251	937	131

Table 3. FY 2021 Q1 Surveillance Sampling Residue Violations

List of FY 2021 Surveillance Sampling residue violations (specific compound, concentration, tolerance and regulatory citation) by animal class.

	Animal Class	Tissue	Compound	Concentration	Units	Tolerance Level Value	Authority (CFR Citation)
	Beef Cow	Muscle	Diazinon	*	*	*	Not Approved

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

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

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 2021 Q1, of the 33,997 Kidney Inhibition Swab (KIS™) tests conducted on animals selected by FSIS (Table 4), 604 samples were submitted to FSIS field laboratories for further analysis. In total, 131 chemical residue violations were reported in 106 samples. 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 ceftiofur (32), penicillin (22), and neomycin (19), which account for 24%, 17%, and 16% of total violative residues, respectively.

Table 4. Summary of FY 2021 Q1 Inspector-Generated Sampling (KIS™) Test and Confirmatory Tests

FY 2021 Q1 summary of in-plant screening tests performed using the KIS™ test, number of in-plant screens with negative results, number of carcasses sent to FSIS laboratory for confirmation, and the number of carcasses 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	2,733	2,659	76	8
	Bob Veal	7,241	7,195	46	27
	Bulls	349	329	21	2
	Dairy Cows	16,489	16,141	347	60
	Heavy Calves	78	76	2	0
	Formula-fed Veal	22	22	0	0
	Heifers	1,013	984	29	2
	Non-Formula-fed Veal	56	56	0	0
	Steers	1,830	1,790	41	2
Porcine	Boar/Stag Swine	19	19	0	0
	Market Swine	2,669	2,649	20	0
	Roaster Swine	255	253	1	0
	Sows	858	844	14	1
Other Species	Goats	137	133	4	3
	Mature Sheep	70	69	1	1
	Lambs	178	176	2	0
	Annual Total	**33,997**	**33,395**	**604**	**106**

Table 5. FY 2021 Q1 Inspector-Generated Sampling Residue Violation Results by Chemical Residue and Animal Class
FY 2021 Q1 summary of chemical residue violations reported within the inspector-generated sampling.

Chemical Residue	Animal Class									
	Beef Cow	Bob Veal	Bull/Stag	Dairy Cow	Goat	Heifer	Mature Sheep	Sow	Steer	Annual Total
Ampicillin	--	--	--	4	--	--	--	--	--	**4**
Ciprofloxacin	--	1	--	--	--	--	--	--	--	**1**
Desethylene Ciprofloxacin	--	1	--	--	--	--	--	--	--	**1**
Desfuroylceftiofur	--	2	--	29	--	1	--	--	--	**32**
Doxycycline	--	--	--	1	--	--	--	--	--	**1**
Enrofloxacin	--	1	--	--	--	--	--	--	--	**1**
Florfenicol	5	1	--	1	--	--	--	--	--	**7**
Florfenicol Amine	--	1	--	--	--	--	--	--	--	**1**
Flunixin	--	3	--	5	--	--	--	--	--	**8**
Gentamycin Sulfate	--	--	2	6	--	--	--	--	--	**8**
Meloxicam	--	--	--	2	--	--	--	--	--	**2**
Neomycin	--	19	--	--	--	--	--	--	--	**19**
Oxyphenylbutazone	--	--	1	--	--	--	--	--	--	**1**
Oxytetracycline	1	--	--	--	1	--	--	--	--	**2**
Penicillin	4	--	--	16	--	--	1	1	--	**22**
Phenylbutazone	--	--	1	--	--	--	--	--	--	**1**
Sulfadimethoxine	1	1	--	3	--	--	--	--	2	**7**
Sulfadoxine	--	--	--	2	--	--	--	--	--	**2**
Sulfamethazine	1	1	--	2	--	--	--	--	1	**5**
Sulfamethoxazole	--	1	--	--	--	--	--	--	--	**1**
Sulfathiazole	--	1	--	--	--	--	--	--	--	**1**
Tetracycline	--	--	--	1	1	--	--	--	--	**2**
Tilmicosin	--	--	--	--	--	1	--	--	--	**1**
Tylosin	--	--	--	--	1	--	--	--	--	**1**
Annual Total	**12**	**33**	**4**	**72**	**3**	**2**	**1**	**1**	**3**	**131**

Table 6. Summary of FY 2021 Q1 Collected-Generated Sampling

FY 2021 Q1 summary of suspect animal samples sent directly to FSIS laboratory (collected-generated sampling) for appropriate analysis.

Animal Category	Animal Class	Number of Non-Detect Samples	Number of Non-Violative Positives Samples	Number of Violative Samples	Total Samples
Bovine	Beef Cow	3	--	--	3
	Bull/Stag	1	--	--	1
	Dairy Cow	10	--	1	11
	Heavy Calf	1	--	--	1
	Steer	3	1	--	4
Porcine	Market Swine	1	--	--	1
	Sow	1	--	--	1
Poultry	Young Turkey	1	--	--	1
Annual Total		**21**	**1**	**1**	**23**

In addition to the publication of the FY 2021 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 903 samples were analyzed under this program in FY 2021 Q1, of which three samples were violative. Those violative samples originated from the following countries: Argentina, New Zealand, and The People's Republic of China Canada. The results are summarized in **Table 7**.

Table 7. Summary of FY 2021 Q1 Residue Sampling of Imported Products

FY 2021 Q1 import residue samples by inspection level and production type.

Product Name and Project Code	Analytical Method	Normal			Increased[/1/]			Intensified[/2/]			Annual Total
		Number of Samples Analyzed	Non-Violative Positives Samples	Violative Samples	Number of Samples Analyzed	Non-Violative Positives Samples	Violative Samples	Number of Samples Analyzed	Non-Violative Positives Samples	Violative Samples	
Imported Fish Products-Eastern Laboratory IMPFISH_CH_E	Antifungal Dyes, Metals, MRM	194	--	--	--	--	--	--	--	--	**194**
Imported Fish Products-Western Laboratory IMPFISH_CH_W	Nitrofurans, Pesticides	191	1	1	--	--	--	--	--	--	**191**
Imported - Metals IMPMETALS	Metals	75	--	--	1	--	--	--	--	--	**76**
Imported - Pesticide IMPPESTICIDE	Pesticides	119	--	1	--	--	--	56	--	1	**175**
Imported Egg Products - Chemistry IMPRESEGG	Pesticides	7	--	--	--	--	--	--	--	--	**7**
Imported Fresh Products - Residue Eastern Lab IMPRESFR_EL	Aminoglycosides, Avermectins, MRM	120	1	--	--	--	--	--	--	--	**120**

Product Name and Project Code	Analytical Method	Normal			Increased[/1/]			Intensified[/2/]			
		Number of Samples Analyzed	Non-Violative Positives Samples	Violative Samples	Number of Samples Analyzed	Non-Violative Positives Samples	Violative Samples	Number of Samples Analyzed	Non-Violative Positives Samples	Violative Samples	Annual Total
Imported Fresh Products - Residue Western Lab IMPRESFR_WL	Aminoglycosides , Beta Agonists, MRM, Nitrofurans	115	--	--	--	--	--	--	--	--	**115**
Imported Processed Products - Residue Eastern Lab IMPRESPR_EL	Avermectins	16	--	--	2	--	--	--	--	--	**18**
Imported Processed Products - Residue Midwestern Lab IMPRESPR_MWL	Sulfonamides	7	--	--	--	--	--	--	--	--	**7**
Annual Total		**844**	**2**	**2**	**3**	**0**	**0**	**56**	**0**	**1**	**903**

[/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.

Table 8. FY 2021 Q1 Import Residue Sampling Violations by Foreign Country/Animal Class

List of FY 2021 Q1 import residue sampling violations (foreign country, specific compound, concentration, tolerance, and regulatory citation) by animal class.

	Foreign Country	Animal Class	Compound	Concentrations	Units	Tolerance Level Value	Authority (CFR Citations)
1	Argentina	**Mutton**	DDT and Metabolites	*	*	*	Not Approved/1/
2	New Zealand	**Beef**	Diazinon	*	*	*	Not Approved/1/
3	The People's Republic of China	***Siluriformes***	Nitrofurazone	*	*	*	Not Approved/1/

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

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

PPB – parts per billion (µg/kg)