United States National Residue Program Residue Quarterly Report 4rd Quarter, FY 2013 (July-Sep)

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Introduction

Background

The USDA Food Safety and Inspection Service (FSIS) administers the United States National Residue Program for meat, poultry, and egg products (hereafter, NRP), an interagency program designed to identify, rank, and test for chemical residues in meat, poultry, and egg products.

The NRP is designed to: (1) provide a structured process for identifying and evaluating chemical compounds of concern in food animals; (2) analyze chemical compounds of concern; (3) collect, analyze and report results; and, (4) identify the need for regulatory follow-up subsequent to the identification of violative levels of chemical residues.

FSIS administers this regulatory program under the Federal Meat Inspection Act (FMIA) (21 U.S.C. 601 et seq.), the Poultry Products Inspection Act (PPIA) (21 U.S.C. 453 et seq.), and the Egg Products Inspection Act (EPIA) (21 U.S.C. 1031 et seq.). NRP is designed to protect the health and welfare of consumers by regulating the meat, poultry, and egg products produced in federally inspected establishments and to prevent the distribution in commerce of any such products that are adulterated or misbranded.

FSIS has administered the NRP by collecting meat, poultry, and egg product samples and analyzing the samples for specific chemical compounds at FSIS laboratories. The program has analyzed meat and poultry samples since 1967. The program began sampling egg products in 1995.

A violation occurs when an FSIS laboratory detects a chemical compound in excess of an established tolerance or action level. When a violation is established, FSIS informs the establishment via certified letter. Under best practices, the establishment should notify the producer that an animal from that business had a violative chemical level. FSIS also shares the violation data with the Environmental Protection Agency (EPA) and the Food and Drug Administration, which establish violative levels for chemical residues. Additionally, Food and Drug Administration (FDA) has on-farm jurisdiction. The FDA and cooperating State agencies investigate producers linked to residue violations and can enforce legal action if conditions leading to the residue violations are not corrected. The NRP Residue sampling plans focus on chemical residues in domestic meat, poultry, and egg products. The domestic sampling plan includes scheduled sampling (headquarters-directed) and inspector-generated (targeted) sampling. Scheduled sampling plans involve random tissue sampling from food animals that have passed ante-mortem inspection.

Under the current scheduled sampling program, FSIS tests nine production classes (beef cows, bob veal, dairy cows, steers, heifers, market hogs, sows, young chickens, and young turkeys) representing 95 percent of domestic meat and poultry consumption.

Inspector-generated sampling is conducted by the Office of Field Operation's in-plant personnel (IPP), overseen by the Public Health Veterinarians (PHVs). Currently, IPP inspector-generated sampling targets individual suspect animals, and suspect populations of animals, and special sampling for bob veal per CFR 310.21 c and d.

When an inspector-generated sample is collected, the carcass is held pending the results of laboratory testing. If a carcass is found to contain violative levels of residues, FSIS condemns the carcass.

Under the import reinspection plan, imported meat, poultry, and egg products are sampled through the Port-of-Entry Reinspection Program. This program is a chemical residue-monitoring program conducted to verify the equivalence of inspection systems in exporting countries.

All imported products are subject to reinspection and one or more types of inspection (TOI). These procedures ensure that every lot of product is inspected before it enters the United States. Chemical residue sampling is included in the reinspection of imported products.

In addition to publishing chemical residue results on a timely manner, this quarterly report compliments the weekly residue violative tables from the Residue Repeat Violator Lists (<u>http://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/chemistry/residue-chemistry</u>. The NRP Red Book will continue to provide more thorough analyses of the data presented in these quarterly reports.

Note: Some tables provide results as the number of unique violative animals, while other tables provide results as violative chemical. Multiple chemical residue violations in different tissues may be associated with the same animals.

Note: For FY2013, FSIS did not test egg products under the scheduled sampling program (Tier 1).

Purpose

This Quarterly Report summarizes chemical residue results for the United States National Residue Program for meat, poultry, and egg products. The results in this report cover the domestic (Scheduled and Inspector-generated) and import sampling programs respectively.

Beginning August 2012, FSIS implemented two new multi-residue chemical methods for both the Scheduled and Inspectorgenerated programs and discontinued the use of testing production classes for single chemical or chemical classes ("pairing").

The new methods reflect the significant changes made to the NRP by the Agency. Individual samples are now analyzed for hundreds of chemicals. These changes are detailed in the 5 July 2013 Federal Register Notice.

Furthermore, FSIS has changed NRP reporting from a calendar to a fiscal reporting period to coincide with agency planning. This report contains data for the fourth quarter of fiscal year 2013: (July to Sep 2013), and its purpose is to provide chemical residue testing results on FSIS inspected meat, poultry, and egg products in a more timely manner, and to, increase program transparency for all stakeholders; The U.S. NRP residue data (Red Book) which FSIS will continue to publish on an annual basis as the final analysis of NRP.

The report is divided into tables and an appendix. The tables summarize the current quarter by month, whereas the appendix will include previous quarters' results as well for a quick comparison.

As this is a first attempt to provide chemical residue data in a timelier fashion, comments are welcome. Please submit your comment to Naser Abdelmajid at <u>Naser.abdelmajid@fsis.usda.gov</u>

Note: Results based on sample collection date **Data Source**: FSIS Data Warehouse (DW)/ Public Health Information System (PHIS)

Table 11: NRP Domestic Scheduled Sampling Program Results by Month, July-Sep 2013

During the fourth quarter of FY 2013, 1,482 samples were conducted on beef cows, bob veal, dairy cows, steers, heifers, market hogs, sows, young chickens, and young turkeys. Sample tissues analyzed include muscle, kidney, and liver. The program identified one chemical residue at violative levels.

Sample Collection Month	Number of Samples / (FSIS Lab Chemical Analytes)	Number of Violative Animals/Number of Lab Confirmed Violative Samples	Violative Chemical Residues
July	530 / (52,182)	2/(3) -Bob veal, 1/(1) -Heifer 1/(1) - Market hogs 1/(2) -Sow	Penicillin(2)Piperonyl Butoxide(2)Sulfamethazine(2)Sulfamethoxazole(1)
Aug	481 / (48,967)	1/ (1) -Bob veal	Tulathromycin (1)
Sep	451 / (45,850)	1/ (2) -Bob veal	Sulfamethazine (2)
Total	1,482 / (146,999)	7/ (10)	

¹ In the above table, column 2 lists the number of animal samples tested, and in **parenthesis**, the number of analysis completed for these animals. Column 3 lists the number of samples tested and, in **parentheses**, the number of violative residues found in these samples. Column 4 lists the specific violative residues and, in parentheses, the number of violations for that residue. Source: FSIS DW/PHIS

Slaughter Class	July	Aug	Sep	Total
Beef Cows	1,391	1,468	1,405	4,264
	(33)	(43)	(37)	(113)
Boars/Stags	7	11	6	24
	(0)	(0)	(0)	(0)
Bob Veal	3,557	2,567	2,459	8,603
	(61)	(43)	(49)	(153)
Bulls	295	245	246	786
	(14)	(13)	(10)	(37)
Dairy Cows	8,740	9,138	8,575	26,543
	(220)	(273)	(217)	(710)
Formula Fed Veal	46	85	53	184
	(2)	(2)	(5)	(9)
Goats	54	81	54	178
	(1)	(1)	(0)	(2)
Heavy Calves	77	92	102	271
	(8)	(7)	(5)	(20)

Table2 ²: NRP Domestic Inspector-Generated (include KIS[™] test) In-plant Screening Sampling By Month, Animal Class— July-Sep 2013

² In the above table, column 2-4 list the number of in-plant screened samples screened at the establishments by month, and in **parentheses**, the number of these screens that were found positive at the establishments, and sent to FSIS labs for confirmations : FSIS DW/PHIS

Slaughter Class	July	Aug	Sep	Total
Heifers	346	351	300	997
	(13)	(7)	(5)	(25)
Lambs	174	255	125	554
	(1)	(5)	(0)	(6)
Market Hogs	1,832	1,974	1,559	5,365
	(16)	(29)	(7)	(52)
Mature Sheep	39	36	17	92
	(1)	(1)	(0)	(2)
Non Formula Fed Veal	15	14	17	46
	(0)	(1)	(1)	(2)
Roaster Pigs	151	175	132	458
	(0)	(0)	(0)	(0)
Sows	1,032	1,179	1,160	3,371
	(18)	(14)	(13)	(45)
Steers	1,176	1,330	972	3,478
	(27)	(33)	(18)	(78)
TOTAL	18,932	19,021	17,171	55,124
	(415)	(472)	(366)	(1,253)

Continued Table 2: NRP Domestic Inspector-Generated (include KIS[™] test) In-plant Screening Sampling By Month, Animal Class - July-Sep 2013

Table 3 3: NRP Domestic Inspector-Generated (include KIS™ test) Sampling Program ResultsBy Month, July-Sep 2013

1,253 positive values were identified from over 55,000 in-plant tests. Of these samples, 289 were lab-confirmed violations. Several of the violative tissue samples were associated with the same sample.

Sample Collection Month	Number of In-plant Screen Tests	Number of Positive In-plant Screens sent to labs / (FSIS Lab Chemical Analytes)	Number of Animals with Violative Samples	Number of Lab- confirmed Violative Samples	Three Most commonly reported chemical violations / (Number of Violative Samples per three most reported violations)	Total Number of violative chemical Residues
July	18,932	415 / (27,644)	92	110	Penicillin (23), DCCD (22), Neomycin (16)	21
Aug	19,021	472 / (30,794)	114	127	Penicillin(36), Desfuroylceftiofur (23), DCCD (22)	17
Sep	17,171	366 / (24,835)	83	100	Desfuroylceftiofur (34), Penicillin (23), Neomycin (8)	17
Total	55,124	1,253 / (83,273)	289	337		

Table 4 Distribution of NRP Residue Violations Inspector-Generated (include KIS[™] test) Sampling Program Results

³ In the above table, Column 2 lists the number of in-plant screens; Column 3 lists the number of these screens that were found positive at the establishments tested and, in **parentheses**, the number of analyses completed for these screens. Column 4 lists the number of animals that had violations, and column 5 lists the number of violative samples confirmed from those violative animals. Column 6 shows the three most commonly reported violative chemical residues and, in parentheses, the number of violations found for each. The last column show total numbers of violative chemical residue Note: **DCCD: DesfuroylceftiofurCystine Disulfide.** Source: FSIS DW/PHIS

By Slaughter Class and Month, July-Sep 2013

Violations reported for inspector-generated samples by production class. Samples include in-plant screened samples (include KIS[™] test). The number of laboratory confirmed violations appear in **parentheses**. Results include multiple violative tissues associated with the same sample.

Slaughter Class	July	Aug	Sep	Total
Beef Cows	6 (7)	10 (14)	9 (12)	25 (33)
Boars/Stags				
Bob Veal	23 (26)	17 (17)	8 (10)	48 (53)
Bulls	2 (6)	5 (7)	1 (1)	8 (14)
Dairy Cows	51 (59)	71 (76)	52 <mark>(59)</mark>	174 (194)
Formula Fed Veal		1 (1)	1 (1)	2 (2)
Goats				
Heavy Calves			2 (2)	2 (2)

⁴ Source: FSIS DW/PHIS

Continued Table 4: Distribution of NRP Residue Violations Inspector-Generated (include KIS[™] test) Sampling Program Results By Slaughter Class and Month, July-Sep 2013

Violations reported for inspector-generated samples by production class. Samples include in-plant screened samples (include KIS[™] test). The number of laboratory confirmed violations appear in **parentheses**. Results include multiple violative tissues associated with the same sample.

Slaughter Class	July	Aug	Sep	Total
Heifers	2 (3)		3 (7)	5 (10)
Lambs				
Market Hogs			1 (1)	1 (1)
Mature Sheep				
Non Formula Fed Veal		1 (1)		1 (1)
Roaster Pigs				
Sows	8 (9)	6 (7)	6 (7)	20 (23)
Steers		2 (3)	1 (1)	3 (4)
TOTAL	92 (110)	114 (127)	83 (100)	289 (337)

Table 5 5: Distribution of NRP Residue Violations Inspector-Generated (KIS[™] test) Sampling Program Results by Slaughter class and Chemical Residue, July-Sep 2013

Violations reported for inspector-generated sampling for each production by specific chemical residue. The results include in-plant screened samples (KIS[™] test) sent to lab. Results include multiple violative tissues samples associated with the same animal.

Compound /	Poof	Poh		Doimu	Formula	Цорин		Markot	Non			
(Number of violative	Cows	Veal	Bulls	Cows	-fed Veal	Calves	Heifers	Hogs	fed Veal	Sows	Steers	Total
Ampicillin (2)	-	-	-	5	-	-		- 8-	-	1	-	6
Cefazolin (2)	1	-	-	1	-	-	-	-	-	-	-	2
Ciprofloxacin (3)	-	1	1	1	-	-	-	-	-	-	-	3
Desfuroylceftiofur (5)	4	-	-	60	-	1	1	-	-	1	-	<mark>67</mark>
Desfuroylceftiofur Cystine Disulfide (5)	1	1	2	39	-	-	-	-	-	-	1	<mark>44</mark>
Dihydrostreptomycin (2)	-	2	-	3	-	-	-	-	-	-	-	5
Doramectin (1)	1	-	-	-	-	-	-	-	-	-	-	1
Enrofloxacin (1)	-	2	-	-	-	-	-	-	-	-	-	2
Florfenicol (6)	3	1	4	1	-	-	2	-	-	-	1	12
Flunixin (4)	-	-	2	11	1	-	1	-	-	-	-	15
Gentamycin Sulfate (4)	2	-	-	2	-	-	1	-	1	-	-	6
Lincomycin (1)	-	1	-	-	-	-	-	-	-	-	-	1
<mark>Neomycin</mark> (4)	-	31	-	3	1	-	1	-	-	-	-	<mark>36</mark>
Oxyphenylbutazone (1)	-	-	1	-	-	-	-	-	-	-	-	1
Oxytetracycline (2)	1	-	2	-	-	-	-	-	-	-	-	3
Penicillin (8)	7	2	1	50	-	1	1	1	-	19	-	<mark>82</mark>
Phenylbutazone (1)	-	-	-	1	-	-	-	-	-	-	-	1

Note: Most commonly reported chemical violations is highlighted in Yellow

⁵ A total of **337** violative samples were found in **289** samples/animals. Source: FSIS DW/PHIS

Table 5 <u>Continue</u>: Distribution of NRP Residue Violations Inspector-Generated (KIS[™] test) Sampling Program Results by Slaughter class and Chemical Residue, July-Sep 2013

Violations reported for inspector-generated sampling for each production by specific chemical residue. The results include in-plant screened samples (KIS[™] test) sent to lab. Results include multiple violative tissues samples associated with the same animal.

Compound					Formula				Non Formula			
(Number of violative Animal classes)	Beef Cows	Bob Veal	Bulls	Dairy Cows	-Fed Veal	Heavy Calves	Heifers	Market Hogs	-Fed Veal	Sows	Steers	Total
Salbutamol (1)	-	-	-	1	-	-	-	-	-	-	-	1
Sulfadimethoxine (4)	4	2	-	7	-	-	1	-	-	-	-	14
Sulfadoxine (1)	-	-	-	1	-	-	-	-	-	-	-	1
Sulfamethazine (3)	5	4	-	2	-	-	-	-	-	-	-	11
Sulfamethoxazole (1)	-	3	-	-	-	-	-	-	-	-	-	3
Tetracycline (2)	-	1	-	4	-	-	-	-	-	-	-	5
Tilmicosin (5)	4	-	1	2	-	-	2	-	-	-	2	11
Tulathromycin (1)	-	2	-	-	-	-	-	-	-	-	-	2
ZEARALANOL (1)	-	-	-	-	-	-	-	-	-	2	-	2
Total	33	53	14	194	2	2	10	1	1	23	4	337

Table 6 6: NRP Import Samples Analyzed by Country, July-Sep 2013

Samples analyzed by ranked total numbers of samples submitted by foreign countries under the import reinspection program. 'Other' includes the following list of additional countries eligible to export meat and egg product to the United States: Argentina, Brazil, Chile, Croatia, Denmark, Finland, Iceland, Ireland, Israel, Netherlands, Nicaragua, Northern Ireland, Poland, Spain, United Kingdom, and Uruguay.

Country	July	Aug	Sep	Total
Canada	54	51	22	127
Costa Rica	11	29	4	44
Australia	17	14	12	43
New Zealand	16	6	17	39
Honduras	20	2	9	31
Mexico	12	7	4	23
Other**	59	43	36	138
Total	189	152	104	445

Table 7 ?: NRP Import Samples Analyzed by Species, July-Sep 2013

The number of samples analyzed under the import reinspeciton program by production class. The 'Other*' category may include lamb, veal, mutton, goat, and turkey.

Species	July	Aug	Sep	Total
Beef	116	86	39	241
Pork	22	29	21	72
Poultry	27	13	9	49
Other*	24	24	35	83
Total	189	152	104	445

 ⁶ Source Office of International Affairs (OIA) – Import Sampling Program
 ⁷ Source OIA – Import Sampling Program

Table 8 8: NRP Import Samples Analyzed by Chemical Residue, July-Sep 2013

The number of samples collected during the import reinspection program tested for different chemical residues.

Chemical Residue	July	Aug	Sep	Total
Aminoglycosides	49	32	13	94
Arsenic	14	8	9	31
Avermectins	35	38	32	105
<i>beta</i> Agonists	31	33	32	96
Multi-residue methods (MRM)	45	32	13	90
Pesticides	14	8	5	27
Sulfonamides	1	1		2
Total	189	152	104	445

Table 9 9: NRP Import Samples Analyzed by Species and Chemical Residue July-Sep 2013

Number of import reinspection program arranged by product class tested for chemical residues. The Other* category may include lamb, veal, mutton, goat, and turkey.

Species	Aminoglycosides	Arsenic	Avermectins	<i>beta</i> Agonists	Multi-residue Methods (MRM)	Pesticides	Sulfonamides	Total
Roof	51	1	81	30	50	27	1	241
Deel	14	1	01	21	10	27	1	271 72
POIK	14	14		51	12		1	12
Poultry	19	12			18			49
Other*	10	4	24	35	10			83
Total	94	31	105	96	90	27	2	445

 ⁸ Source OIA – Import Sampling Program
 ⁹ Source OIA – Import Sampling Program

Appendix

Summary of NRP Domestic Sample Data (Scheduled and Inspector-Generated) From Oct 2012 to June 2013



Figure 1: ¹⁰ Distribution of NRP Domestic Scheduled samples by Month, Include Residues lab chemical analytes July 2012- June 2013.

¹⁰ Number of residue domestic scheduled sample in **(parenthesis)**



Figure 2¹¹: Distribution of NRP Inspector Generated (In-plant screens samples) & Residue Violative Animals) By Month – Oct 2012- June 2013

¹¹ Violation Percent and Number of violative animals in (parenthesis). Violation percent : <u>Ratio of (Violative animals) to (Total in-plant</u> positive tested in the labs)

Residue Name	Oct 2012	Nov 2012	Dec 2012	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	June 2013	Total
Amikacin	-	-	-	-	-	-	-	-	-	-
Ampicillin	1	-	2	2	1	2	3	-	-	11
Cefazolin	-	-	-	-	2	2	1	-	-	5
Ciprofloxacin	1	2	-	-	3	2	2	-	1	11
Desethylene Ciprofloxacin	1	-	-	-	-	-	-	-	-	1
Desfuroylceftiofur Cystine Disulfide	32	21	28	33	32	37	44	28	34	289
Dexamethasone	1	-	-	-	-	-	-	-	-	1
Dihydro Streptomycin	1	2	-	-	-	-	-	-	-	3
Dihydrostreptomycin	-	-	-	-	2	2	2	2	4	12
Enrofloxacin	1	1	-	-	-	1	1	-	-	4
Florfenicol	-	1	4	4	7	11	6	6	-	39
Flunixin	6	7	12	7	11	11	11	10	13	88
Gamithromycin	1	2	-	-	-	-	2	-	-	5
Gentamycin Sulfate	2	1	2	4	8	7	2	4	5	35

Table 10¹²: Distribution of NRP Inspector Generated Program -Residue Violative SamplesOct 2012- June 2013 - Note: Multiple violations may be associated with one Animal.

¹² Note: Multiple violations may be associated with one animal.

Residue Name	Oct 2012	Nov 2012	Dec 2012	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	June 2013	Total
Lincomycin	1	-	-	-	-	1	-	-	-	2
Neomycin	27	24	19	28	37	30	19	27	37	248
Oxytetracycline	9	3	3	2	-	-	2	-	-	19
Penicillin	30	36	22	26	21	43	40	39	29	286
Sulfadiazine	-	-	1	2	2	1	1	1	-	8
Sulfadimethoxine	9	6	9	4	2	5	10	11	3	59
Sulfadoxine	1	-	-	-	-	-	1	-	-	2
Sulfamethazine	14	7	14	5	6	7	8	6	15	82
Sulfamethoxazole	1	2	1	6	2	3	3	1	1	20
Tetracycline	-	1	2	-	-	-	1	2	-	6
Tilmicosin	4	6	1	10	4	11	10	3	11	60
Tulathromycin	-	-	-	-	-	3	4	1	-	8
Tylosin	-	1	-	1	-	-	-	-	1	3
Zeralanol (Zeranol)	-	-	-	-	1	-	-	-	-	1
Total	143	123	120	134	141	179	173	141	154	1,308

Continued Table 10 : Distribution of NRP Inspector Generated Program -Residue Violative Samples Oct 2012- June 2013 - Note: <u>Multiple violations may be associated with one Animal</u>