

United States National Residue Program Quarterly Report (July–Sept., 2014)

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Introduction

Background

The USDA Food Safety and Inspection Service (FSIS) administers the United States National Residue Program (hereafter, NRP) for meat, poultry, and egg products; this interagency program was designed to identify, rank, and test for chemical residues in FSIS regulated 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) 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.). The 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 electronically and the producer via certified letter. Under best practices, the establishment also should notify the producer that an animal from that business had a violative chemical level. FSIS shares the violation data with the Environmental Protection Agency (EPA) and the Food and Drug Administration (FDA), which establish violative levels for chemical residues. The FDA has on-farm jurisdiction and works with cooperating State agencies to investigate producers linked to residue violations and enforce legal action if conditions leading to the residue violations are not corrected.

The NRP 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.

Domestic Scheduled Sampling

Under the current scheduled sampling program, FSIS tests 11 production classes (beef cows, bob veal calves, dairy cows, steers, heifers, goats, sheep, market hogs, sows, young chickens, and young turkeys) representing 96 percent of domestic meat and poultry consumption.

Domestic Inspector-generated Sampling

Inspector-generated sampling is conducted by the Office of Field Operations' in-plant personnel (IPP), overseen by the Public Health Veterinarians (PHVs). Currently, IPP inspector-generated sampling targets individual suspect animals, suspect populations of animals, and special sampling for bob veal calves per 9 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.

Port-of-Entry Reinspection Sampling

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 (<http://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/chemistry/residue-chemistry>).

Note: Some tables in this report provide results based on the number of unique violative carcasses, while other tables provide results as individual chemical in carcasses regardless of number of violative results per carcass. Multiple chemical residue violations may be associated with the same carcass.

Purpose

This Quarterly Report summarizes the chemical residue results for the domestic (Scheduled and Inspector-generated) and import sampling programs respectively.

Beginning August 2012, FSIS implemented several new multi-residue chemical methods for both the domestic sampling programs. By incorporating the multi-residue method, the agency discontinued the use of testing production classes for single chemical or chemical classes (“pairing”).

The new methods allows for the analysis of hundreds of chemicals in a single sample. These changes are detailed in the July 6, 2012 Federal Register Notice. : (<http://www.fsis.usda.gov/wps/wcm/connect/96433e1b-d3b6-42b0-93a8-f0beee77e520/2012-0012.pdf?MOD=AJPERES>)

FSIS has changed NRP reporting from a calendar year to a fiscal year reporting period to coincide with agency planning, provide results in a timely manner, and increase program transparency for stakeholders. This report contains data for the fourth quarter of fiscal year 2014: (**July–Sept., 2014**). The FSIS continues to publish National Residue Program Data (also known as the “Red Book”) on an annual basis, as the final analysis of NRP.

The report here is divided into tables and an appendix. The tables summarize the current quarter by month, whereas the appendix will include previous quarters’ results for a quick comparison. FSIS provides Figure C to report the most frequently identified antibiotics in bob veal and dairy cows samples identified as violations.

Comments are welcome. Please submit your comment to Naser Abdelmajid at Naser.abdelmajid@fsis.usda.gov

Note: Results based on sample collection date **Data Source:** FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 11/20/2014**

Table 1: NRP Domestic Scheduled Sampling Program Results by Month, July-Sept., 2014

During the fourth quarter of FY 2014, **1,511** samples were collected from beef cows, bob veal calves, dairy cows, steers, heifers, goats, sheep, market hogs, sows, young chickens, and young turkeys. Tissues analyzed include muscle, kidney, and liver. The program identified four chemical residues at violative level.

Sample Collection Month	Number of Samples / (FSIS Lab Chemical Analytes)	Number of Violative Carcasses/(Number of Lab Confirmed Violative Samples)	Violative Chemical Residues
July	517 / (50,347)	0N/A	N/A
Aug.	454 / (47,729)	2 / (2) Bob veal	DDT and Metabolites- 1 Sulfamethazine -1
Sept.	540 / (55,602)	2 / (2) Bob veal	Ivermectin -1 Penicillin- 1
Total	1,511 / (153,678)	4/ (4)	

Note: Results based on sample collection date **Data Source:** FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) as of **11/20/2014**

**Table 2: NRP Domestic Inspector-Generated (In-plant) Screening Program (KIS™ Test)
By Month, Carcass Class- July–Sept., 2014. The number in parenthesis represents the number on in-plant screens positive that was sent to FSIS labs**

Carcass Class	July	Aug.	Sept.	Total
Beef Cows	1,712 (36)	1,385 (52)	1,547 (50)	4,644 (138)
Boars/Stags	39 (--)	27 (0)	18 (1)	84 (1)
Bob Veal	3,135 (40)	1,612 (16)	1,638 (34)	6,385 (90)
Bulls	296 (9)	156 (8)	166 (2)	618 (19)
Dairy Cows	10,352 (283)	8,959 (208)	8,844 (275)	28,155 (766)
Formula Fed Veal	72 (2)	48 (3)	78 (3)	198 (8)
Goats	50 (0)	73 (0)	44 (0)	167 (0)
Heavy Calves	109 (25)	62 (9)	67 (15)	238 (49)

Note: Results based on sample collection date **Data Source:** FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) as of **11/20/2014**

**Table 2 (con't): NRP Domestic Inspector-Generated (in-plant) Screening Program (KIS™ Test)
By Month, Carcass Class - July-Sept., 2014. The number in parenthesis represents the number on in-plant screens positive that was sent to FSIS labs**

Carcass Class	July	Aug.	Sept.	Total
Heifers	284 (5)	244 (9)	234 (11)	762 (25)
Lambs	194 (10)	247 (4)	137 (0)	578 (14)
Market Hogs	1,730 (23)	1,791 (27)	1,631 (19)	5,152 (69)
Mature Sheep	36 (0)(0)	33 (1)	33 (0)	102 (1)
Non Formula Fed Veal	50 (4)	54 (7)	58 (6)	162 (17)
Roaster Pigs	135 (0)	108 (2)	111 (1)	354 (3)
Sows	1,036 (5)	1,007 (9)	1,107 (11)	3,150 (25)
Steers	999 (26)	977 (18)	863 (11)	2,839 (55)
TOTAL	20,229 (468)	16,783 (373)	16,576 (439)	53,588 (1,280)

Note: Results based on sample collection date **Data Source:** FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) as of **11/20/2014**

Table 3: NRP Domestic Inspector-Generated (In-plant) Screening Program (KIS™ Test). Results by Month, July–Sept., 2014

1,057 positive values were identified from over 50,000 in-plant tests. Of these positive samples, 362 were lab-confirmed violative samples. Several of the violative tissue samples were associated with the same carcass.

Sample Collection Month	Number of In-plant Screen Tests	Number of Positive In-plant Screens Sent to Labs	Number of Positive In-plant Screens Tested in FSIS Labs (FSIS Lab Chemical Analytes screened for)	Number of Carcasses with Violative Samples	Number of Lab-confirmed Violative Samples	Three Most Commonly Reported Chemical Violations (Number of Violative Samples for 3 Most Reported Violations)	Total Number of Violative Chemical Residues
July	20,229	468	457/(26,352)	93	120	Ceftiofur (27), Penicillin (24), Sulfadimethoxine (17)	14
Aug.	16,783	373	370/(21,410)	61	73	Penicillin (24), Ceftiofur (9), Sulfadimethoxine (7)	14
Sept.	16,576	439	439/(28,720)	85	99	Ceftiofur (33), Penicillin (20), Flunixin (9)	15
Total	53,588	1,280	1,266/(76,482)	239	292	Ceftiofur (69), Penicillin (68), Sulfadimethoxine (29)	18

Note: Results based on sample collection date **Data Source:** FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) as of **11/20/2014**

Table 4: Distribution of NRP Residue Violations Inspector-Generated (in-plant) Screening Program (KIS™ Test). Results by Carcass Class and Month, July–Sept., 2014

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

Carcass Class	July	Aug.	Sept.	Total
Beef Cows	3 (3)	8 (14)	6 (8)	17 (25)
Boars/Stags	--	--	--	--
Bob Veal	13 (14)	6 (6)	10 (10)	29 (30)
Bulls	1 (1)	--	--	1 (1)
Dairy Cows	59 (73)	40 (44)	54 (59)	153 (176)
Formula Fed Veal	--	--	--	--
Goats	--	--	--	--
Heavy Calves	4 (5)	--	3 (6)	7 (11)

Note: Results based on sample collection date **Data Source:** FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 11/20/2014**

Table 4 (con't): Distribution of NRP Residue Violations Inspector-Generated (in-plant) Screening Program (KIS™ Test). Results by Carcass Class and Month, July–Sep. 2014

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

Carcass Class	July	Aug.	Sept.	Total
Heifers	1 (2)	--	3 (4)	4 (6)
Lambs	1 (1)	1 (1)	--	2 (2)
Market Hogs	--	4 (6)	--	4 (6)
Mature Sheep	--	--	--	--
Non Formula Fed Veal	4 (13)	--	4 (6)	8 (19)
Roaster Pigs	--	--	1 (1)	1 (1)
Sows	--	1 (1)	2 (2)	3 (3)
Steers	7 (8)	1 (1)	2 (3)	10 (12)
TOTAL	93 (120)	61 (73)	85 (99)	239 (292)

Note: Results based on sample collection date **Data Source:** FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 11/20/2014**

Table 5: Distribution of NRP Residue Violations Inspector-Generated (In-plant) Screening Program (KIS™ Test). Results by Carcass class, and Chemical Residue, July–Sept., 2014.

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 Carcass.

Note: Three most commonly reported chemical violations are highlighted.

Compound / (Number of violative Carcass classes)	Beef Cows	Bob Veal	Bulls	Dairy Cows	Heavy Calves	Heifers	Lambs	Market Hogs	Non Formula Fed Veal	Roasters Pigs	Sows	Steers	Total
Ampicillin / (1)	-	-	-	4	-	-	-	-	-	-	-	-	4
Cefazolin / (1)	-	-	-	1	-	-	-	-	-	-	-	-	1
Ciprofloxacin / (4)	1	1	-	3	1	-	-	-	-	-	-	-	6
Ceftiofur / (4)	2	1	-	64	-	1	-	-	-	-	-	1	69
Florfenicol / (4)	5	-	-	3	1	-	-	-	5	-	-	-	14
Flunixin / (5)	3	-	-	12	3	2	-	-	1	-	-	-	21
Gentamycin Sulfate / (3)	-	-	-	4	-	-	-	-	-	1	-	2	7
Lincomycin / (1)	-	-	-	1	-	-	-	-	-	-	-	-	1
Neomycin / (3)	1	22	-	1	-	-	-	-	-	-	-	-	24
Oxyphenylbutazone / (1)	-	-	-	1	-	-	-	-	-	-	-	-	1
Oxytetracycline / (2)	4	-	-	1	-	-	-	-	-	-	-	-	5
Penicillin / (7)	2	-	1	55	-	1	-	-	2	-	3	4	68

Note: Results based on sample collection date **Data Source:** FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) as of **11/20/2014**

Table 5 (con't): Distribution of NRP Residue Violations Inspector-Generated (In-plant) Screening Program (KIS™ Test). Results by Carcass class and Chemical Residue, July–Sept., 2014.

Violations reported for inspector-generated sampling for each production by specific chemical residue. The results include in-plant screened positive samples (KIS™ Test) tested in FSIS labs. Results include multiple violative tissues samples associated with the same Carcass.

Compound / (Number of violative Carcass classes)	Beef Cows	Bob Veal	Bulls	Dairy Cows	Heavy Calves	Heifers	Lambs	Market Hogs	Non Formula Fed Veal	Roasters Pigs	Sows	Steers	Total
Sulfadiazine / (1)	-	-	-	1	-	-	-	-	-	-	-	-	1
Sulfadimethoxine / (5)	1	1	-	21	-	-	2	-	4	-	-	-	29
Sulfadoxine / (1)	-	-	-	1	-	-	-	-	-	-	-	-	1
Sulfamethazine / (7)	5	3	-	1	2	-	-	6	7	-	-	4	28
Tilmicosin / (5)	1	-	-	2	4	2	-	-	-	-	-	1	10
Tulathromycin / (1)	-	2	-	-	-	-	-	-	-	-	-	-	2
Total	25	30	1	176	11	6	2	6	19	1	3	12	292

Note: Results based on sample collection date **Data Source:** FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) as of **11/20/2014**

Table 6: NRP Import Samples Analyzed by Country, July–Sept., 2014

One violative import sample was found (Doramectin). See Table 10 for details.

Country	July	August	Sep	Total
Canada	70	24	50	144
Chile	20	47	19	86
Poland	42	10	17	69
Australia	21	11	19	51
Mexico	13	11	5	29
New Zealand	2	13	6	21
Other**	51	26	18	95
Total	219	142	134	495

The following additional countries eligible to export meat and egg product to the United States did not produce a violation: Argentina, Brazil, Denmark, Finland, Germany, Hungary, Israel, Netherlands, Nicaragua, Northern Ireland, Spain, United Kingdom, and Uruguay.

Table 7: NRP Import Samples Analyzed by Species, July–Sept., 2014

The number of samples analyzed under the import reinspection program by production class. The ‘Other’ category may include lamb, veal, mutton, and goat. **Note: Multiple import residue results may be associated with the same sample**

Species	July	August	Sep	Total
Beef	84	61	95	240
Chicken	158	59	60	277
Pork	147	79	98	324
Turkey	56	23	46	125
Other*	80	170	58	308
Total	525	392	357	1,274

Note: Multiple import residue results may be associated with the same sample

Table 8: NRP Import Samples Analyzed by Chemical Residue, July–Sept., 2014

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

Chemical Residue	July	Aug.	Sept.	Total
Arsenic	80	63	52	195
Avermectins	53	45	39	137
Beta Agonists	69	55	51	175
Cadmium	1	--	--	1
Doramectin	1	--	--	1
Fluoroquinolones	69	55	51	175
Hormones	69	55	51	175
Ivermectin	2	--	--	2
Manganese	10	5	4	19
Molybdenum	4	1	3	8
Pesticides	40	35	29	104
Selenium	1	--	--	1
Sulfas	111	68	69	248
Trace Elements	15	10	8	33
Total	525	392	357	1,274

Note: Multiple import residue results may be associated with the same sample

Table 9: NRP Import Samples Analyzed by Species and Chemical Residue July–Sept., 2014
 Number of import reinspection program arranged by product class tested for chemical residue.

Chemical Residue	Beef	Chicken	Pork	Turkey	Other*	Total
Arsenic	29	36	65	21	44	195
Avermectins	27	1	65	--	44	137
Beta Agonists	36	50	25	17	47	175
Cadmium	--	--	1	--	--	1
Doramectin	1	--	--	--	--	1
Fluoroquinolones	36	50	25	17	47	175
Hormones	36	50	25	17	47	175
Ivermectin	2	--	--	--	--	2
Manganese	2	5	9	3	--	19
Molybdenum	1	4	2	1	--	8
Pesticides	24	24	16	10	30	104
Selenium	--	--	1	--	--	1
Sulfas	45	50	71	35	47	248
Trace Elements	1	7	19	4	2	33
Total	240	277	324	125	308	1,274

*The 'Other' category may include lamb, veal, mutton, goat, and turkey.

Note: Multiple import residue results may be associated with the same sample.

Table 10: NRP Import Samples Analyzed by Chemical Residue Results July–Sept., 2014

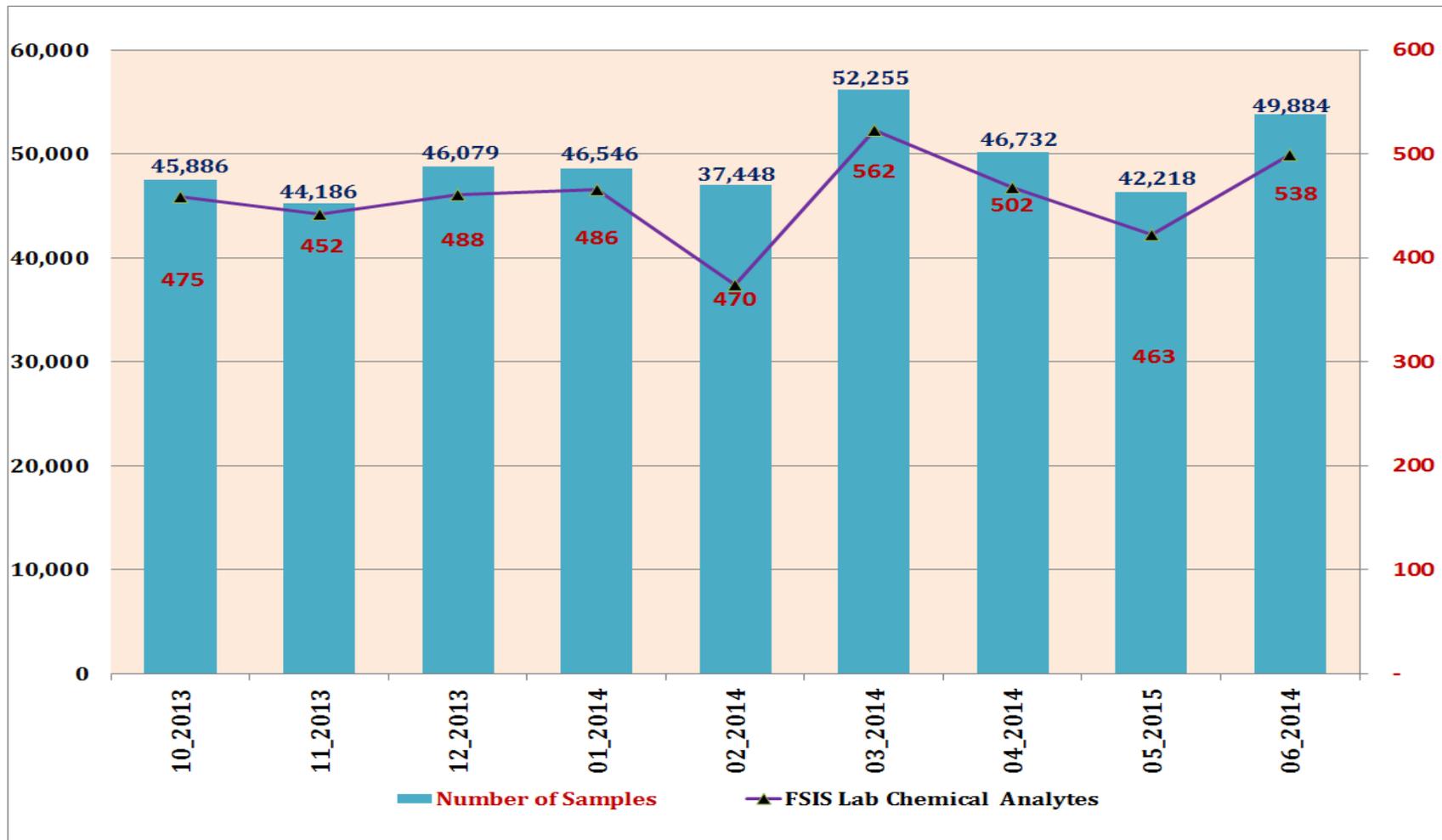
Number of import reinspection program arranged by results of chemical residue. Multiple import residue results may be associated with the same sample. **Note: Import sampling chemical violations are highlighted.**

Chemical Residue	Residue Not Detected	Residue Detected - Not-violative	Residue Detected - Violative	Non-regulatory Result	Total
Arsenic	195	--	--	--	195
Avermectins	137	--	--	--	137
Beta Agonists	175	--	--	--	175
Cadmium	--	--	--	1	1
Doramectin	--	1	1	--	1
Fluoroquinolones	175	--	--	--	175
Hormones	175	--	--	--	175
Ivermectin	--	1	--	--	2
Manganese	--	--	--	19	19
Molybdenum	--	--	--	8	8
Pesticides	104	--	--	--	104
Selenium	--	--	--	1	1
Sulfas	248	--	--	--	248
Trace Elements	--	--	--	33	33
Total	1,209	2	1	62	1,274

Appendix

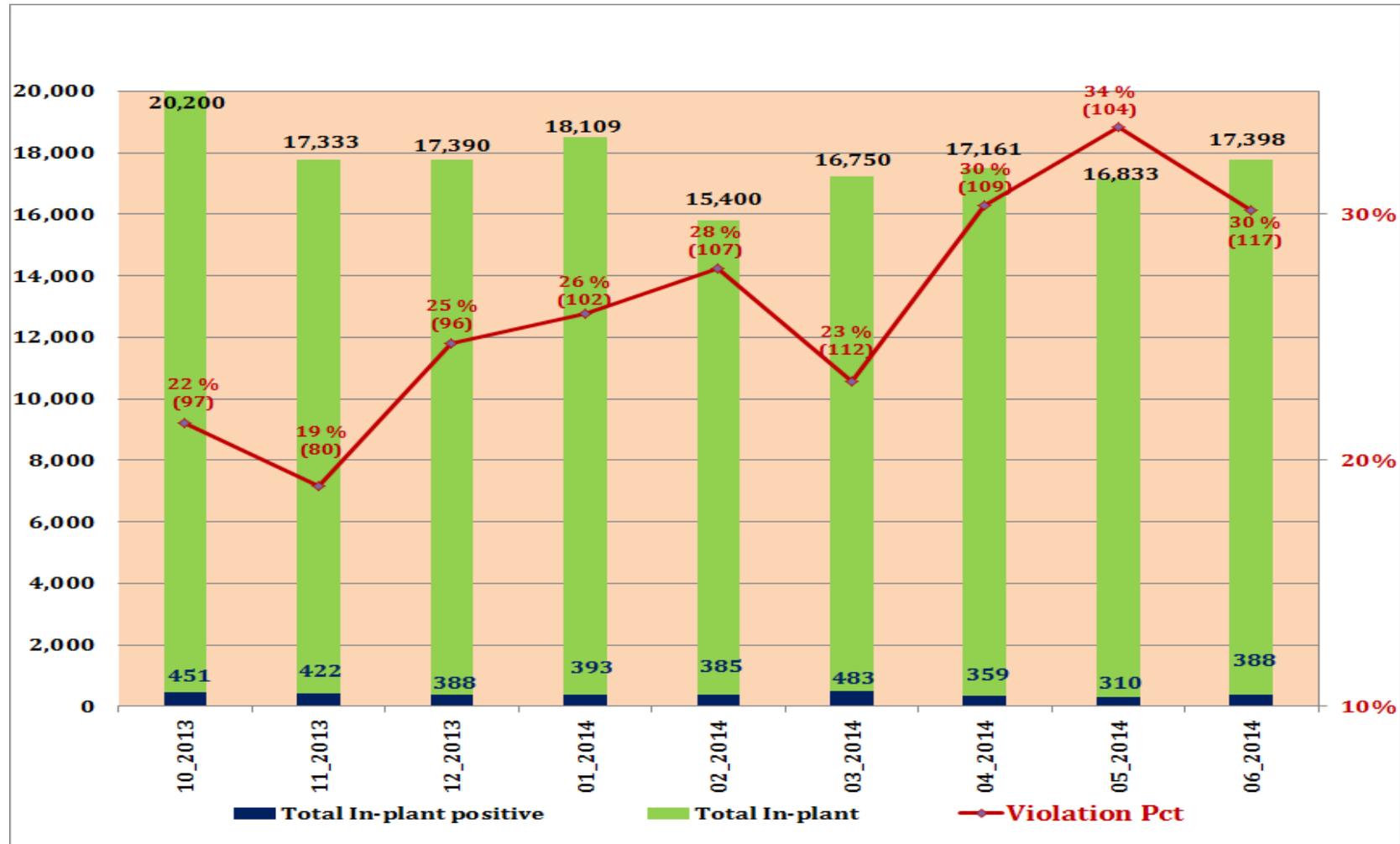
**Summary of NRP Domestic Sample Data
(Scheduled and Inspector-generated: KIS™ Test)
From Oct. 2013 to June 2014**

Figure A:¹ Distribution of NRP Domestic Scheduled samples by Month, Including FSIS Lab Chemical Analytes by Month, Oct. 2013–June 2014.



¹ Number of residue domestic scheduled sample in **RED**

Figure B ²: Distribution of NRP Inspector Generated (In-plant) Screenings (KIS™ Test) and Residue Violative Percent by Month, Oct. 2013–June 2014.



² Violation percent and number of violative carcasses (in parenthesis)
 Violation percent : Ratio of Violative carcasses samples to Total in-plant positive tested in the labs

Table 11: Distribution of NRP Inspector Generated Program (In-plant) Screenings (KIS™ Test)-Residue Violative Samples, Oct. 2013–June 2014. Note: Multiple violations may be associated with one carcass.

Residue Name	Oct 2013	Nov 2013	Dec 2013	Jan 2014	Feb 2014	Mar 2014	Apr 2014	May 2014	June 2014	Total
Amikacin	-	-	2	-	-	-	-	-	-	2
Ampicillin	1	1	-	2	1	-	3	4	2	14
Cefazolin	-	2	-	2	2	-	-	1	-	7
Chloramphenicol	-	-	-	-	-	-	1	-	-	1
Ciprofloxacin	1	-	2	2	2	1	1	6	-	15
Desethylene ciprofloxacin	-	-	-	-	-	-	-	1	-	1
Ceftiofur	34	28	33	34	35	36	24	22	29	275
Dihydrostreptomycin	2	2	1	2	-	1	2	-	-	10
Enrofloxacin	-	-	-	1	-	1	1	1	-	4
Florfenicol	2	-	9	5	3	4	6	15	5	49
Flunixin	17	5	11	7	9	12	4	7	13	85
Gamithromycin	1	-	-	-	-	-	-	-	-	1
Gentamycin Sulfate	4	2	-	3	4	2	1	1	1	18
Lincomycin	1	-	-	1	-	-	1	-	1	4
Neomycin	11	8	17	13	18	17	12	18	22	136

Table 11 (con't): Distribution of NRP Inspector Generated Program (In-plant) Screenings (KIS™ Test)-Residue Violative Samples, Oct. 2013–June 2014. Note: Multiple violations may be associated with one Carcass.

Residue Name	Oct. 2013	Nov. 2013	Dec. 2013	Jan. 2014	Feb. 2014	Mar. 2014	Apr. 2014	May 2014	June 2014	Total
Oxytetracycline	-	2	4	-	2	2	2	-	2	14
Penicillin	23	24	19	30	23	28	43	18	29	237
Ractopamine	-	-	-	-	-	-	-	1	-	1
Spectinomycin	-	-	-	-	-	-	1	-	-	1
Sulfadiazine	-	-	1	-	-	-	-	-	1	2
Sulfadimethoxine	12	3	5	7	3	7	3	2	8	50
Sulfadoxine	-	-	-	-	-	1	1	1	-	3
Sulfamethazine	8	7	11	8	16	8	6	14	6	84
Sulfamethoxazole	1	2	-	1	2	5	4	2	1	18
Tetracycline	-	3	1	-	-	3	-	-	-	7
Tilmicosin	3	5	6	7	7	4	2	4	1	39
Tulathromycin	2	1	-	2	1	3	1	1	2	13
Zeranol	-	-	-	-	-	-	-	-	1	1
Total	123	95	122	127	128	135	119	119	124	1,092