United States National Residue Program Quarterly Report (Oct.–Dec. 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 12 production classes (beef cows, bob veal calves, dairy cows, lamb, 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 of 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 first quarter of fiscal year 2015: **Oct–Dec., 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 the 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 three quarters' results for a quick comparison with current quarterly report. Figure C reports 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 are based on sample collection date.
Data Source: FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 02/20/2015**

Table 1: NRP Domestic Scheduled Sampling Program Results by Month, Oct.–Dec. 2014

During the first quarter of FY 2014, **1,479** samples were collected from beef cows, bob veal calves, dairy cows, steers, heifers, lamb, 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
Oct.	522 / **(53,694)**	**1 / (1)** beef cows	Permethrin (Cis and Trans) - 1
Nov.	427 / **(45,425)**	N/A	N/A
Dec.	530 / **(54,753)**	N/A	N/A
Total	**1,479 / (153,872)**	**1/ (1)**	

Note: Results are based on sample collection date.
Data Source: FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 02/20/2015**

Table 2: NRP Domestic Inspector-Generated (In-plant) Screening Program (KIS™ Test) by Month, Carcass Class, Oct.–Dec. 2014

The number in parenthesis represents the number of in-plant screen positives that were sent to FSIS labs.

Carcass Class	Oct.	Nov.	Dec.	Total
Beef Cows	1,517 **(29)**	1,552 **(39)**	1,613 **(37)**	**4,652 (105)**
Boars/Stags	18 **(0)**	23 **(0)**	25 **(0)**	**66 (0)**
Bob Veal	1,520 **(24)**	1,612 **(18)**	1,446 **(29)**	**4,578 (90)**
Bulls	143 **(3)**	174 **(7)**	158 **(5)**	**475 (15)**
Dairy Cows	8,870 **(230)**	7,664 **(212)**	9,275 **(200)**	**25,809 (642)**
Formula Fed Veal	61 **(0)**	28 **(0)**	62 **(1)**	**151 (1)**
Goats	25 **(0)**	26 **(1)**	28 **(1)**	**79 (2)**
Heavy Calves	94 **(21)**	62 **(18)**	68 **(14)**	**224 (53)**

Note: Results are based on sample collection date.
Data Source: FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 02/20/2015**

Table 2 (cont.): NRP Domestic Inspector-Generated (in-plant) Screening Program (KIS™ Test) by Month, Carcass Class, Oct.–Dec. 2014
The number in parenthesis represents the number of in-plant screen positives that was sent to FSIS labs.

Carcass Class	Oct.	Nov.	Dec.	Total
Heifers	314 **(9)**	260 **(11)**	268 **(13)**	**842 (33)**
Lambs	79 **(2)**	60 **(0)**	71 **(1)**	**210 (3)**
Market Hogs	1,690 **(19)**	1,158 **(7)**	1,462 **(4)**	**4,310 (30)**
Mature Sheep	38 **(0)**	21 **(1)**	25 **(0)**	**84 (1)**
Non Formula Fed Veal	34 **(12)**	15 **(4)**	15 **(2)**	**64 (18)**
Roaster Pigs	101 **(1)**	126 **(3)**	149 **(1)**	**376 (5)**
Sows	994 **(9)**	861 **(12)**	1,112 **(16)**	**2,967 (37)**
Steers	774 **(31)**	688 **(34)**	743 **(34)**	**2,205 (99)**
TOTAL	**16,272 (390)**	**14,300 (367)**	**16,520 (358)**	**47,092 (1,115)**

Note: Results are based on sample collection date.
Data Source: FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 02/20/2015**

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

1,115 positive values were identified from over 47,000 in-plant tests. Of these positive samples, 316 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
Oct.	16,272	390	388/(**25,951**)	82	**116**	Sulfadimethzine **(27)** Penicillin **(24)** Ceftiofur **(20)**	**14**
Nov.	14,300	367	367/(**24,573**)	67	**99**	Ceftiofur **(17)** Penicillin **(17)** Florfenicol **(17)**	**12**
Dec.	16,520	358	355/(**23,579**)	77	**101**	Ceftiofur **(26)** Penicillin **(24)** Flunixin **(9)**	**14**
Total	**47,092**	**1,115**	**1,110**/(**74,103**)	**226**	**316**	Penicillin **(65)** Ceftiofur **(63)** Sulfadimethzine **(42)**	**19**

Note: Results are based on sample collection date.
Data Source: FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 02/20/2015**

Table 4: Distribution of NRP Residue Violations Inspector-Generated (in-plant) Screening Program (KIS™ Test). Results by Carcass Class and Month, Oct.–Dec. 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	Oct.	Nov.	Sept.	Total
Beef Cows	6 (10)	8 (12)	9 (10)	**23** **(32)**
Boars/Stags	--	--	--	--
Bob Veal	10 (14)	4 (6)	15 (19)	**29** **(39)**
Bulls	1 (1)	5 (6)	3 (3)	**9** **(10)**
Dairy Cows	44 (49)	35 (46)	39 (51)	**118** **(146)**
Formula Fed Veal	--	--	--	--
Goats	--	--	--	--
Heavy Calves	2 (3)	3 (11)	--	**5** **(14)**

Note: Results are based on sample collection date.
Data Source: FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 02/20/2015**

Table 4 (cont.): Distribution of NRP Residue Violations Inspector-Generated (in-plant) Screening Program (KIS™ Test). Results by Carcass Class and Month, Oct.–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	Oct.	Nov.	Dec.	Total
Heifers	1 (1)	2 (2)	--	**3** **(3)**
Lambs	1 (1)	--	--	**1** **(1)**
Market Hogs	1 (1)	--	--	**1** **(1)**
Mature Sheep	--	--	--	**--**
Non Formula Fed Veal	10 (22)	1 (2)	--	**11** **(24)**
Roaster Pigs	--	1 (1)	--	**1** **(1)**
Sows	3 (4)	4 (7)	6 (9)	**13** **(20)**
Steers	3 (10)	4 (6)	5 (9)	**12** **(25)**
TOTAL	**82** **(116)**	**67** **(99)**	**77** **(101)**	**226** **(316)**

Note: Results are based on sample collection date.
Data Source: FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 02/20/2015**

Table 5: Distribution of NRP Residue Violations Inspector-Generated (In-plant) Screening Program (KIS™ Test). Results by Carcass Class and Chemical Residue, Oct.–Dec. 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: The three most commonly reported chemical violations are highlighted.

Compound	Beef Cows	Bob Veal	Bulls	Dairy Cows	Heavy Calves	Heifers	Lambs	Market Hogs	Non Formula Fed Veal	Roaster Pigs	Sows	Steers	Total
Amikacin	-	-	-	-	-	-	-	1	-	-	-	-	**1**
Ampicillin	-	-	-	2	-	-	-	-	-	-	-	-	**2**
Ciprofloxacin	-	-	-	-	-	-	-	-	-	-	-	1	**1**
Desfuroylceftiofur	5	6	-	45	1	-	-	-	-	-	-	6	**63**
Florfenicol	9	-	2	3	7	-	-	-	4	-	-	8	**33**
Flunixin	2	1	1	14	2	-	-	-	-	-	1	3	**24**
Gamithromycin	-	1	-	-	-	-	-	-	-	-	-	-	**1**
Gentamycin Sulfate	1	1	1	7	1	1	-	-	1	-	-	1	**14**
Neomycin	-	12	-	1	1	-	-	-	-	-	-	-	**14**
Oxytetracycline	-	1	1	4	-	-	-	-	-	-	-	-	**6**
Penicillin	9	1	1	36	1	1	-	-	-	-	15	1	**65**
Sulfadimethoxine	3	-	-	18	1	-	-	-	2	1	-	2	**27**

Note: Results are based on sample collection date.
Data Source: FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 02/20/2015**

Table 5 (cont.): Distribution of NRP Residue Violations Inspector-Generated (In-plant) Screening Program (KIS™ Test). Results by Carcass Class and Chemical Residue, Oct.–Dec. 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	Beef Cows	Bob Veal	Bulls	Dairy Cows	Heavy Calves	Heifers	Lambs	Market Hogs	Non Formula Fed Veal	Roasters Pigs	Sows	Steers	Total
Sulfadoxine	-	-	-	2	-	-	-	-	-	-	-	-	**2**
Sulfamethazine	-	10	3	6	-	-	1	-	17	-	3	2	**42**
Sulfamethoxazole	-	1	-	-	-	-	-	-	-	-	-	-	**1**
Tilmicosin	3	-	1	8	-	1	-	-	-	-	-	1	**14**
Tulathromycin	-	3	-	-	-	-	-	-	-	-	-	-	**3**
Tylosin	-	2	-	-	-	-	-	-	-	-	-	-	**2**
Zeranol	-	-	-	-	-	-	-	-	-	-	1	-	**1**
Total	**32**	**39**	**10**	**146**	**14**	**3**	**1**	**1**	**24**	**1**	**20**	**25**	**316**

Note: Results are based on sample collection date.
Data Source: FSIS Data Warehouse (DW)/ Public Health Information System (PHIS) **as of 02/20/2015**

Table 6: NRP Import Collected Samples by Country, Oct.–Dec. 2014

No violative import sample was found. See Table 10 for details.

Country	Oct.	Nov.	Dec.	Total
Canada	86	49	66	**201**
Poland	8	23	34	**65**
Australia	24	19	18	**61**
Chile	1	33	15	**49**
New Zealand	28	13	4	**45**
Spain	8	8	5	**21**
Other**	70	33	51	**154**
Total	**225**	**178**	**193**	**596**

** The following additional countries eligible to export meat and egg product to the United States did not produce a violation: Brazil, Costa Rica, Denmark, Finland, France, Hungary, Iceland, Israel, Italy, Japan, South Korea, Mexico, Netherlands, Nicaragua, Northern Ireland, San Marino, United Kingdom, and Uruguay.

Table 7: NRP Import Samples Analyses by Species, Oct.–Dec. 2014

The number of samples analyzed under the import reinspection program by production class.

Species	Oct.	Nov.	Sept.	Total
Beef	286	154	181	**621**
Chicken	13	47	53	**113**
Goat	28	-	15	**43**
Lamb	26	35	21	**82**
Pork	194	150	204	**548**
Turkey	16	43	39	**98**
Veal	103	32	26	**161**
Total	**666**	**461**	**539**	**1,666**

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

Table 8: NRP Import Samples Analyses by Chemical Residue, Oct.–Dec. 2014

The number of sample results collected and analyzed during the import reinspection program tested for different chemical residues.

Chemical Residue	Oct.	Aug.	Dec.	Total
Arsenic	84	62	80	**226**
Avermectins	73	48	62	**183**
Barium	-	-	1	**1**
Beta Agonists	103	65	76	**244**
Boron	-	-	1	**1**
Cadmium	-	1	1	**2**
Cobalt	-	-	1	**1**
Doramectin	1	-	-	**1**
Fluoroquninolones	103	65	76	**244**
Hormones	103	65	76	**244**
Ivermectin	2	1	4	**7**
Lead	1	-	1	**2**
Manganese	5	10	4	**19**
Molybdenum	-	4	3	**7**
Pesticides	55	40	36	**131**
Selenium	-	-	1	**1**
Strontium	-	-	1	**1**
Sulfas	122	91	100	**313**
Thallium	-	-	1	**1**
Trace Elements	14	9	13	**36**
Vanadium	-	-	1	**1**
Total	**666**	**461**	**539**	**1,666**

Note: Multiple import residue results may be associated with the same sample. No violative results were found.

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

Chemical Residue	Beef	Chicken	Goat	Lamb	Pork	Turkey	Veal	Total
Arsenic	78	23	6	12	84	12	11	**226**
Avermectins	70	-	6	12	84	-	11	**183**
Barium	-	-	-	-	1	-	-	**1**
Beta Agonists	103	17	6	12	61	16	29	**244**
Boron	-	-	-	-	1	-	-	**1**
Cadmium	-	-	-	-	2	-	-	**2**
Cobalt	-	-	-	-	1	-	-	**1**
Doramectin	1	-	-	-	-	-	-	**1**
Fluoroquninolones	103	17	6	12	61	16	29	**244**
Hormones	103	17	6	12	61	16	29	**244**
Ivermectin	7	-	-	-	-	-	-	**7**
Lead	-	-	-	-	2	-	-	**2**
Manganese	3	7	-	-	9	-	-	**19**
Molybdenum	-	5	-	-	2	-	-	**7**
Pesticides	41	8	7	10	37	10	18	**131**
Selenium	-	-	-	-	1	-	-	**1**
Strontium	-	-	-	-	1	-	-	**1**
Sulfas	110	19	6	12	112	25	29	**313**
Thallium	-	-	-	-	1	-	-	**1**
Trace Elements	2	-	-	-	26	3	5	**36**
Vanadium	-	-	-	-	1	-	-	**1**
Total	**621**	**113**	**43**	**82**	**548**	**98**	**161**	**1,666**

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

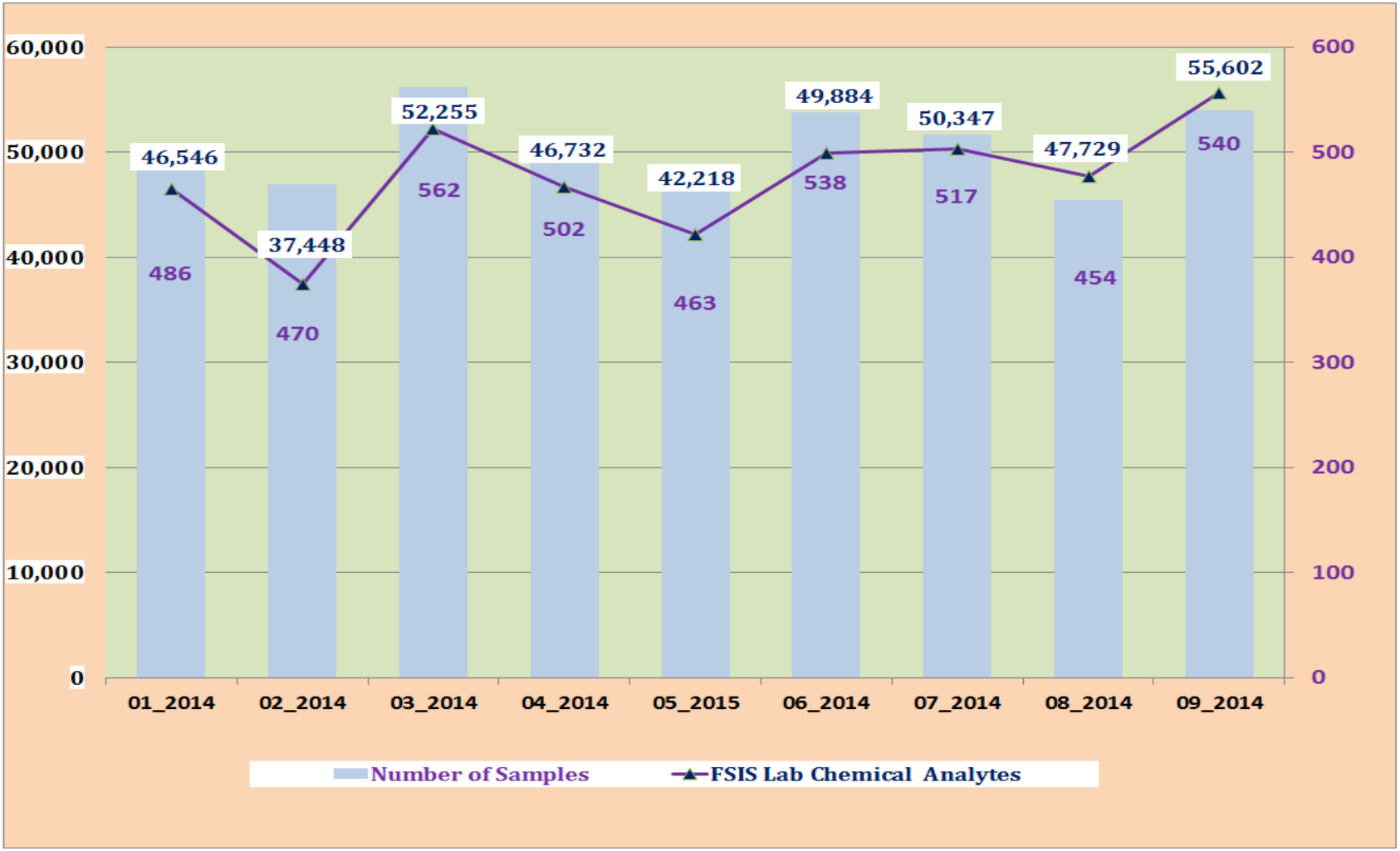
Table 10: NRP Import Samples Analyses by Chemical Residue Results, Oct.–Dec. 2014
Number of import reinspection program arranged by results of chemical residue. Multiple import residue results may be associated with the same sample. Note: No Import sampling chemical violations were found.

Chemical Residue	Residue Detected - Not-Violative	Residue Not Detected	Total
Arsenic	-	226	**226**
Avermectins	-	183	**183**
Barium	1	-	**1**
Beta Agonists	-	244	**244**
Boron	1	-	**1**
Cadmium	2	-	**2**
Cobalt	1	-	**1**
Doramectin	1	-	**1**
Fluoroquninolones	-	244	**244**
Hormones	-	244	**244**
Ivermectin	7	-	**7**
Lead	2	-	**2**
Manganese	19	-	**19**
Molybdenum	7	-	**7**
Pesticides	-	131	**131**
Selenium	1	-	**1**
Strontium	1	-	**1**
Sulfas	-	313	**313**
Thallium	1	-	**1**
Trace Elements	36	-	**36**
Vanadium	1	-	**1**
Total	**81**	**1,585**	**1,666**

Appendix

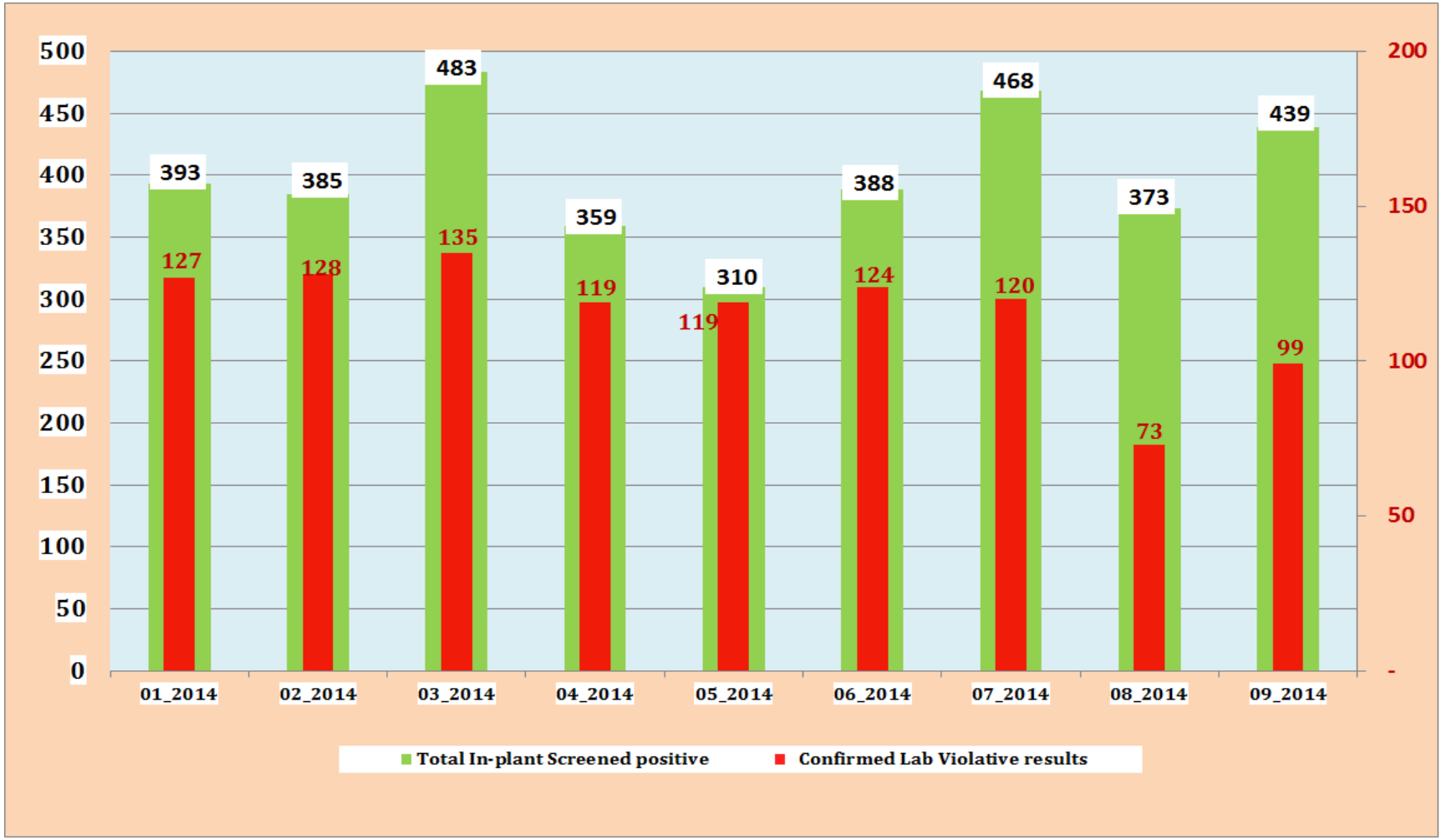
Summary of NRP Domestic Sample Data (Scheduled and Inspector-generated: KIS™ Test) From Jan. to Sept. 2014

Figure A:[1] Distribution of NRP Domestic Scheduled Samples by month, Includes FSIS Lab Chemical Analytes by Month, Jan.–Sept. 2014



[1] Number of residue domestic scheduled sample in **PURPLE**.

Figure B [2]: Distribution of NRP Inspector Generated (In-plant) Positive Screenings (KIS™ Test) and Confirmed Lab Violative Results by Month, Jan.–Sept. 2014



[2] Number of violative carcasses in RED.

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

Residue Name	Jan. 2014	Feb. 2014	Mar. 2014	Apr. 2014	May 2014	June 2014	July 2014	Aug. 2014	Sept. 2014	Total
Ampicillin	2	1	-	3	4	2	2	1	1	**16**
Cefazolin	2	2	-	-	1	-	-	1	-	**6**
Chloramphenicol	-	-	-	1	-	-	-	-	-	**1**
Ciprofloxacin	2	2	1	1	6	-	3	2	1	**18**
Desethylene ciprofloxacin	-	-	-	-	1	-	-	-	-	**1**
Ceftiofur	34	35	36	24	22	29	27	9	33	**249**
Dihydrostreptomycin	2	-	1	2	-	-	-	-	-	**5**
Enrofloxacin	1	-	1	1	1	-	-	-	-	**4**
Florfenicol	5	3	4	6	15	5	5	4	5	**52**
Flunixin	7	9	12	4	7	13	8	4	9	**73**
Gentamycin Sulfate	3	4	2	1	1	1	3	2	2	**19**
Lincomycin	1	-	-	1	-	1	-	-	1	**4**
Neomycin	13	18	17	12	18	22	9	6	9	**124**
Oxyphenylbutazone	-	-	-	-	-	-	-	-	1	**1**
Oxytetracycline	-	2	2	2	-	2	1	3	1	**13**

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

Residue Name	Jan. 2014	Feb. 2014	Mar. 2014	Apr. 2014	May 2014	June 2014	July 2014	Aug. 2014	Sept. 2014	Total
Penicillin	30	23	28	43	18	29	24	24	20	**239**
Ractopamine	-	-	-	-	1	-	-	-	-	**1**
Spectinomycin	-	-	-	1	-	-	-	-	-	**1**
Sulfadiazine	-	-	-	-	-	1	-	1	-	**2**
Sulfadimethoxine	7	3	7	3	2	8	17	7	5	**59**
Sulfadoxine	-	-	1	1	1	-	1	-	-	**4**
Sulfamethazine	8	16	8	6	14	6	15	7	6	**86**
Sulfamethoxazole	1	2	5	4	2	1	-	-	-	**15**
Tetracycline	-	-	3	-	-	-	-	-	-	**3**
Tilmicosin	7	7	4	2	4	1	4	2	4	**35**
Tulathromycin	2	1	3	1	1	2	1	-	1	**12**
Zeranol	-	-	-	-	-	1	-	-	-	**1**
****Total****	**127**	**128**	**135**	**119**	**119**	**124**	**120**	**73**	**99**	**1,044**

Figure C: Comparison of Selected NRP Bob Veal and Dairy Cows Chemical Residue Violations – Inspector-Generated Program (In-plant) Screenings (KIS™ Test) – Residue Violative Samples by Quarter, Jan.–Sept. 2014

Note: Multiple violations may be associated with one carcass.