

Section 7

The 2004 FSIS Import Monitoring Plan Pesticides

Phase I. Generating and Ranking the List of Candidate Compounds

The list of compounds of concern for the Import Monitoring Plan is identical to that for the Domestic Monitoring Plan (see Section 6, Table 6.1). Furthermore, in ranking pesticides for inclusion in the Import Monitoring Plan, FSIS chose to employ the ranking scores generated for the Domestic Monitoring Plan (see Section 6), because FSIS does not have sufficient historical data on pesticides in imported products to predict their violation rates. However, if FSIS has reason to believe that a compound is being misused in a foreign country then it would add that compound/country pair to the Import Monitoring Plan.

Phase II. Selecting Pesticides for Inclusion in the 2004 Import Monitoring Program

The list of high priority compounds chosen for the Import Monitoring Plan by the Surveillance Advisory Team (SAT) is the same as that for the domestic plan. Once the high-priority compounds and compound classes had been identified, FSIS applied non-public health considerations to determine which compounds FSIS should sample. The principal non-public health factor was the availability of laboratory resources, especially the availability of appropriate analytical methods within the FSIS laboratories. Based on these constraints, only the chlorinated hydrocarbon/chlorinated organophosphate (CHC/COP)¹ compound class can be included in the NRP. The compounds that can be identified by this multiresidue method are listed in Section 6, Phase II, page 76.

Phase III. Identifying the Compound/Product Class Pairs

As with the domestic program, the FSIS decided to sample for CHCs and COPs as a means of monitoring incidents of accidental contamination.

Phase IV. Allocation of Sampling Resources

Allocation among Different Product Classes

Egg Products

The samples for residue analysis for imported egg products are selected in a different manner than the other product classes. As stated in Section 2, in order to establish a history of compliance with the U.S. requirements for each category for egg products, the first ten shipments from individual foreign establishments are subjected to 100% reinspection. If the egg product is in compliance, the rate of inspection is reduced to a random selection of one reinspection out of eight product lots from each foreign establishment. This reinspection rate will continue as long as the product is in compliance.

¹Phenylbutazone is also detected by this method.

Animal Product Classes

Table 5.2, *Estimated Annual Amount (in lbs.) of Product Imported*, lists the estimated amounts of all product classes imported into the U.S. and the percentage of each of the product classes. The percentage of each product class imported annually is calculated using the following formula:

$$\% \text{ Product Class Imported } (P_C) = \frac{\text{Amount Product Class Imported}}{\text{Total Product Imported}} \times 100 \quad (7.1)$$

The relative sampling priority is obtained by multiplying the percent product class imported (P_C) by the pesticide scores obtained in Phase I, using the following equation:

$$\text{Relative Sampling Priority} = (P_C) \times \text{Pesticide Score} \quad (7.2)$$

Based on the scores, one of the following sampling options is chosen: (1) very high regulatory concern (460 analyses/year); (2) high regulatory concern (300 analyses/year); (3) moderate regulatory concern (230 samples/year); or (4) low regulatory concern (90 samples/year). This is indicated in Table 7.1, *Number of Pesticide Samples/Product Class*, in the column labeled “Number of Samples.”

FSIS in its Import Monitoring Plan will not test (1) processed products from eligible foreign countries that also ship fresh products to the United States; and (2) processed products from countries that source all their raw materials from other foreign countries that are eligible to ship fresh products and are actively exporting to the United States. Processed chicken products from Hong Kong and Mexico, processed turkey products from Hong Kong, and processed pork products from Belgium will not be sampled since the raw materials used are from countries that are eligible to ship raw products to the U.S.

As stated in Section 5, if a product class represents less than one percent (by weight) of total combined U.S. imports of meat, poultry and egg products, then the total number of samples analyzed for any compound or compound class is eight times the number of countries from which that product is imported. For example, if processed turkey is imported from only three countries and the amount imported is 0.10 % relative to total U.S. imports, 24 samples of processed turkey would be taken for each analysis, eight from each country.

The adjusted number of samples is listed in Table 7.1, *Number of Pesticide Samples/Product Class*, in the column labeled “Adjusted No. of Samples.” The final number of samples for a compound/product class is obtained after the allocation of samples among different countries is completed. The final number of samples is listed in Table 7.1 in the column labeled “Final No. of Samples.” The numbers in columns labeled “Adjusted Number of Samples” and “Final Number of Samples” may vary slightly because of the rounding upwards or downwards of the samples.

Allocation of Samples among Different Countries

The total number of samples chosen for each compound/product class pair is subdivided among the different countries. The number of samples for each country is based on the relative amount of total product class imported: less than one percent and greater than one percent.

Allocation of Samples in Product Classes Whose Total Volume Imported is Less than 1%

As stated above, if the amount of an import product class is less than 1%, eight samples per compound/compound class are taken from each country. The relative amounts of beef/pork processed, eggs processed, chicken fresh, goat fresh, turkey processed and mutton/lamb processed are less than 1%. Also, as stated above, if a country is exporting both fresh and processed products or sources all their raw materials from eligible sources then no residue samples will be scheduled for the processed products from that country. The numbers of samples per country per product class for each compound/compound class are listed in Tables 7.2 - 7.6.

Allocation of Samples in Product Classes Whose Total Volume Imported is Greater than 1%

For major product classes, the number of samples was allocated to each country depending upon the relative amount of product imported from that country. Table 5.3, *Estimated Annual Amount (in lbs.) of Product Imported/Country*, lists the amount of product imported from each country. The percent of a product class imported from a country was calculated as follows and is in Table 5.4, *Relative Annual Amount of Product Imported/Country*.

$$\text{Percent Product Class Imported per Country (P}_{C/C}) = \frac{\text{Amount of Product Class from Country}}{\text{Total Amount of Product Class}} \times 100 \quad (7.3)$$

Based upon the relative amount of product class imported per country, the number of samples that should be taken at the port of entry was calculated using the following formula:

$$\text{Unadjusted Number of Samples per Country (U}_{C/S}) = \text{Total Number of Samples} \times \frac{(P}_{C/C})}{100} \quad (7.4)$$

This is indicated in the column labeled “Unadjusted Number of Samples (U_{C/S}),” in Tables 7.7 to 7.14.

After the determining of the number of samples required from each country, each country with less than eight samples was assigned a minimum of eight samples. This is indicated in the column labeled “Adjustment # 1” in Tables 7.7 to 7.14. The results of this adjustment are in the column labeled “Initial Adj.” If the total number of samples for a compound/product class resulted in more than the total number of samples allocated to that compound/product class pair, then a second adjustment had to be made so that the total number of samples would be within an allocated number. This adjustment was made only to those countries from which greater than eight samples were to be taken. This adjustment will be accomplished by using the following equation:

$$\text{Number of Samples after Adjustment \# 2} = (U_{C/S}) - \frac{[N \times (P_{C/C})]}{(P_{T/C})} \quad (7.5)$$

where,

$$N = (N_1) - (N_T)$$

N_1 = Total Number of Samples after Adjustment #1

N_T = Total Number of Samples Allocated

$P_{T/C}$ = Total Percent of Product Class from the Countries That Had Greater Than Eight Samples

$P_{C/C}$ = Percent Product Class Imported per Country

$U_{C/S}$ = Unadjusted Number of Samples

As mentioned above, if a country is exporting both fresh and processed products or sources all their raw materials from eligible sources then no residue samples will be processed from that country. The final numbers of products sampled are indicated in Tables 7.2 - 7.6 in the column labeled "Final number of samples."

**Table 7.1
Number of Pesticide Samples/Product Class
2004 FSIS NRP, Import Monitoring Plan**

No. of Countries	Product	Pesticide	Pesticide Score	Percent Product	Relative Sampling Priority	Number of Samples	Adjusted Number of Samples	Final Number of Samples
8	Beef, fresh	CHCs/COPs	16	54.43	871	460	460	456
8	Beef, processed	CHCs/COPs	16	20.08	321	300	300	104
7	Pork, fresh	CHCs/COPs	16	12.16	195	230	239	239
16	Pork, processed	CHCs/COPs	16	5.49	88	230	230	80
3	Beef/Pork, processed	CHCs/COPs	16	0.86	14	90	24	8
3	Veal fresh	CHCs/COPs	16	0.38	6	90	90	90
2	Veal processed	CHCs/COPs	16	0.07	1	90	16	0
4	Mutton/Lamb, fresh	CHCs/COPs	16	2.29	37	90	90	90
3	Mutton/Lamb, processed	CHCs/COPs	16	0.005	0.1	90	24	0
2	Goat, fresh	CHCs/COPs	16	0.24	4	90	16	16
1	Chicken, fresh	CHCs/COPs	16	0.30	5	90	8	8
4	Chicken, processed	CHCs/COPs	16	1.27	20	90	90	16
4	Turkey, processed	CHCs/COPs	16	0.13	2	90	32	32
1	Other fowl fresh	CHCs/COPs	16	0.002	0.03	0	0	0
1	Other fowl processed	CHCs/COPs	16	0.01	0.2	0	8	0
6	Varied combination	CHCs/COPs	16	1.91	31	90	48	48
	Total					2120	1675	1187

Table 7.2
Number of Samples/Product Class - Chicken, Fresh
2004 FSIS NRP, Import Monitoring Plan

CHICKEN, FRESH/ CHC/COP	PERCENT PRODUCT	UNADJUSTED NUMBER OF SAMPLES	FINAL NUMBER OF SAMPLES
Canada	100	8	8
Total		8	8

Table 7.3
Number of Samples/Product Class - Turkey, Processed
2003 FSIS NRP, Import Monitoring Plan

CHICKEN, FRESH/ CHC/COP	PERCENT PRODUCT	UNADJUSTED NUMBER OF SAMPLES	FINAL NUMBER OF SAMPLES
Costa Rica	73.69	8	8
Germany	0.12	8	8
Italy	12.62	8	8
Netherlands	14.00	8	8
Total		32	32

Table 7.4
Number of Samples/Product Class – Mutton/Lamb Processed
2003 FSIS NRP, Import Monitoring Plan

MUTTON/LAMB, PROCESSED/CHC/COP	PERCENT PRODUCT	UNADJUSTED NUMBER OF SAMPLES	FINAL NUMBER OF SAMPLES
Australia	48.66	8	0 ¹
Canada	30.86	8	0 ¹
New Zealand	20.49	8	0 ¹
Total		8	0

Table 7.5
Number of Samples /Product Class - Goat, Fresh
2004 Import Residue Plan

GOAT, FRESH/CHC/COP	PERCENT PRODUCT	UNADJUSTED NUMBER OF SAMPLES	FINAL NUMBER OF SAMPLES
Australia	91.62	8	8
New Zealand	8.38	8	8
Total		16	16

Table 7.6
Number of Samples /Product Class - Varied Combination, Processed
2004 FSIS NRP, Import Monitoring Plan

VARIED COMBINATION, PROCESSED/CHC/COP	PERCENT PRODUCT	UNADJUSTED NUMBER OF SAMPLES	FINAL NUMBER OF SAMPLES
Australia	9.54	8	8
Canada	80.33	8	8
France	0.09	8	8
Mexico	5.89	8	8
New Zealand	3.16	8	8
Uruguay	0.99	8	8
Total		48	48

Table 7.7
Number of Samples/Product Class - Beef/Pork, Processed
2004 FSIS NRP, Import Monitoring Plan

BEEF/PORK, PROCESSED/CHC/COP	PERCENT PRODUCT (P_{C/C})	UNADJUSTED NUMBER OF SAMPLES (U) = 460*[(P_{C/C})/100]	ADJUSTMENT #1 (8 MINIMUM/COUNTRY)	INITIAL ADJ.#	ADJUST. # 2	FINAL ADJ.#
Australia	0.04	0	8	8	8	8
Canada	99.54	24		24	8	0 ¹
Mexico	0.42	0	8	8	8	0 ¹
Total		24		40	24	8

Table 7.8
Number of Samples/Product Class - Beef, Fresh
2004 FSIS NRP, Import Monitoring Plan

BEEF, FRESH/CHC/COP	PERCENT PRODUCT (P_{C/C})	UNADJUSTED NUMBER OF SAMPLES (U) = 460*[(P_{C/C})/100]	ADJUSTMENT #1 (8 MINIMUM/COUNTRY)	INITIAL ADJ.#	ADJUST. # 2	FINAL ADJ.#
Australia	25.26	116		116	108	108
Canada	49.57	228		229	212	212
Costa Rica	0.89	4	8	8	8	8
Honduras	0.01	0	8	8	8	8
Mexico	0.25	1	8	8	8	8
New Zealand	22.43	103		104	96	96
Nicaragua	1.54	7	8	8	8	8
Uruguay	0.06	0	8	8	8	8
Total		460	40	489	456	456

Table 7.9
Number of Samples /Product Class - Lamb/Mutton, Fresh
2004 FSIS NRP, Import Monitoring Plan

LAMB/ MUTTON, FRESH/ CHC/COP	PERCENT PRODUCT (P _{C/C})	UNADJUSTED NUMBER OF SAMPLES (U _{C/S}) =90*(P _{C/C})/100]	ADJUSTMENT #1 (8 MINIMUM/ COUNTRY)	INITIAL ADJ.#	ADJUST. # 2	FINAL ADJ.#
Australia	66.34	60		60	49	50
Canada	0.77	1	8	8	8	8
Iceland	0.10	0	8	8	8	8
New Zealand	32.78	29		30	24	24
Total		90		106		90

Table 7.10
Number of Samples/Product Class - Pork, Processed
2004 FSIS NRP, Import Monitoring Plan

PORK, PROCESSED/ CHC/COP	PERCENT PRODUCT (P _{C/C})	UNADJUSTED NUMBER OF SAMPLES (U _{C/S}) =230*(P _{C/C})/100]	ADJUSTMENT #1 (8 MINIMUM/ COUNTRY)	INITIAL ADJ.#	ADJUST. # 2	FINAL ADJ.#
Australia	0.00002	0	8	8	8	8
Austria	0.02	0	8	8	8	8
Belgium	3.14	7		8	8	0 ¹
Canada	61.98	143		142	58	0 ¹
Croatia	0.11	0	8	8	8	8
Czechoslovakia	0.003	0	8		8	8
Denmark	15.63	36		13	13	0 ¹
France	0.24	1	8	8	8	0 ¹
Germany	0.42	1	8	8	8	8
Hungary	1.98	5		8	8	8
Ireland	0.31	1	8	8	8	0 ¹
Italy	2.47	6		8	8	8
Mexico	0.70	2	8	8	8	0 ¹
Netherlands	4.76	11		8	8	8
Poland	7.78	18		7	7	8
Spain	0.47	0	8	8	8	8
Total		230		258	174	80

Table 7.11
Number of Samples /Product Class - Pork, Fresh
2004 FSIS NRP, Import Monitoring Plan

PORK, FRESH/ CHC/COP	PERCENT PRODUCT (P_{C/C})	UNADJUSTED NUMBER OF SAMPLES (U_{C/S}) =230*(P_{C/C})/100	ADJUSTMENT #1 (8 MINIMUM/ COUNTRY)	INITIAL ADJ.#	ADJUST.# 2	FINAL ADJ.#
Canada	80	183		183	161	161
Denmark	19	43		56	38	38
Finland	1	1	8	8	8	8
France	0.01	0	8	8	8	8
Ireland	1	3		8	8	8
Mexico	0.02	0	8	8	8	8
United Kingdom	0.02	0	8	8	8	8
Total		230		279	239	239

Table 7.12
Number of Samples/Product Class - Chicken, Processed
2004 FSIS NRP, Import Monitoring Plan

CHICKEN, PROCESSED/ CHC/COP	PERCENT PRODUCT (P_{C/C})	UNADJUSTED NUMBER OF SAMPLES (U)= 90*(P_{C/C})/100	ADJUSTMENT #1 (8 MINIMUM/ COUNTRY)	INITIAL ADJ.#	ADJUST.# 2	FINAL ADJ.#
Canada	96	86		0	0	0 ¹
France	0.2	0	8	8	8	8
Israel	2.0	2		8	8	8
Mexico	1.7	2		8	8	0 ¹
Total		90		24	24	16

Table 7.13
Number of Samples /Product Class - Beef, Processed
2004 FSIS NRP, Import Monitoring Plan

BEEF, PROCESSED CHC/COP	PERCENT PRODUCT (P_{C/C})	UNADJUSTED NUMBER OF SAMPLES (U_{C/S}) =460*(P_{C/C})/100	ADJUSTMENT #1 (8 MINIMUM/ COUNTRY)	INITIAL ADJ.#	ADJUST. # 2	FINAL ADJ.#
Argentina	6	27	0	27	27	27
Australia	49	225	0	225	225	0 ¹
Brazil	15	69	0	69	69	69
Canada	29	132	0	132	132	0 ¹
France	0.01	0	8	8	0	8
Mexico	0.1	0	8	8	0	0 ¹
New Zealand	0.4	2	8	8	2	0 ¹
Uruguay	1	4	8	8	4	0 ¹
Total		460	32	485	459	104

Table 7.14
Number of Samples /Product Class – Veal Fresh
2004 FSIS NRP, Import Monitoring Plan

VEAL FRESH, CHC/COP	PERCENT PRODUCT (P_{C/C})	UNADJUSTED NUMBER OF SAMPLES (U_{C/S}) =90*(P_{C/C})/100]	ADJUSTMENT #1 (8 MINIMUM/ COUNTRY)	INITIAL ADJ.#	ADJUST. # 2	FINAL ADJ.#
Australia	8	7		7	7	7
Canada	52	47		47	47	47
New Zealand	40	36		36	36	36
Total		90		90	90	90

¹ There will be no sampling of processed products from countries that also ship products to the United States or source their raw materials from other foreign countries that are eligible to ship fresh product and are actually exporting to the United States.

Section 8

The 2004 FSIS Domestic and Import Monitoring Exploratory Projects: Environmental Contaminants

The candidate environmental and processing contaminants of concern selected by members of the Surveillance Advisory Team (SAT) were as follows:

A. Environmental Contaminants

- heavy metals
- mycotoxins

B. Processing Contaminants

- nitrosamines
- maillard reaction products (from charring)
- compounds migrating from packaging
- polyaromatic hydrocarbons
- breakdown products of oils used in deep frying

Of these, the heavy metals were identified by the Surveillance Advisory Team as meriting inclusion in the NRP. FSIS will conduct an exploratory project to survey the heavy metals, lead and cadmium, in the following production classes: dairy cows, boars and stags, and mature chickens. Sampling for the survey began in 2003 (October through December; 62 samples) and will continue in 2004. Production classes and sample numbers are summarized in table 8.1.

No processing contaminants have been designated for analysis this year.

Even if a contaminant is not scheduled for inclusion in the FSIS NRP, should a contamination incident occur during the year, FSIS can initiate residue sampling as part of an FSIS Emergency Response Project.

Table 8.1
2004 FSIS NRP Domestic Exploratory Project
Number of Samples/Product Class for Lead and Cadmium

Production Class	Number of Samples
Dairy Cows	300
Boars/Stags	90
Mature Chickens	230
Total	620

Section 9

The 2004 FSIS National Residue Program

Exploratory Projects: Residues

Exploratory Projects

Flunixin meglumine is a non-steroidal anti-inflammatory drug (NSAID) that has been approved for use in beef cattle. Tolerances of 0.125 and 0.025 parts per million (ppm) have been established in liver and muscle tissue, respectively. Flunixin may be used to disguise lameness in animals since it has an immediate analgesic effect on bone, joint, and soft-tissue inflammation and has been experimentally shown to be effective in suppressing the cough and fever associated with influenza in calves. Because of its effectiveness, flunixin shows a great potential for overuse, abuse, and extra-label use without adequate withdrawal times being followed. To determine the extent of misuse, USDA Food Safety Inspection Service (FSIS) initiated an exploratory project to examine the number of flunixin residue violation in dairy cows. Cattle “at-risk” for flunixin meglumine residues are animals subject to Fast Antimicrobial Screening Testing (FAST). Animals that are expected to be “at-risk” are: down/disabled cows, cows with active inflammatory conditions, cows receiving an injection of flunixin immediately prior to or during transport to reduce pain and improve mobility, and cows with arthritis and/or chronic traumatic injuries. For the project, tissues from 840 cows will be taken over a 12-month period (16/week) for 2003 and 2004. The samples will be taken at the top 20 establishments that kill at least 50% dairy cows. These plants accounted for approximately 46% of all the dairy cows slaughtered in the U.S. during 2002. Production class and sample numbers for the flunixin special project are summarized in Table 9.1.

Table 9.1
2004 FSIS NRP Domestic Exploratory Project for Flunixin
Production Class and Number of Samples

Production Class	Number of Samples
Dairy Cows	300
Total	300