

**2005 FSIS National  
Residue Program  
Scheduled Sampling Plans**

**2005 FSIS National Residue Program  
Scheduled Sampling Plans**

United States Department of Agriculture  
Food Safety and Inspection Service  
Office of Public Health Science

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## **Preface**

The Food Safety and Inspection Service (FSIS) National Residue Program (NRP), *Blue Book* is a summary of the scheduled domestic and import sampling plans and includes a summary of adjustments to the 2005 NRP. Detailed discussions describing the principals and methods used to plan and design the NRP sampling plans are provided. Development of the sampling plans is divided into individual sections for domestic and import products for veterinary drugs, pesticides, and environmental contaminants. For convenience, tables that report summaries of FSIS sampling plans are provided before the detailed discussions. Four appendices (I-IV) are also provided: tissues required for laboratory analysis; established tolerances for veterinary drugs; established action levels and tolerances for pesticides; FSIS laboratory analytical methods; and a statistical table that describes the probability of detecting a violation given a specified sample size.

## **Contacts and Comments**

Questions about the FSIS NRP should be directed to the USDA-FSIS Zoonotic Diseases and Residue Surveillance Division, Residue Branch, 344 Aerospace Center, 1400 Independence Avenue, SW, Washington, DC 20250-3700, telephone (202) 690-6566, fax (202) 690-6565.

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# Introduction

The Food Safety and Inspection Service (FSIS), the U.S. Department of Agriculture's public health regulatory agency, works with the Environmental Protection Agency (EPA) and the Department of Health and Human Service's Food and Drug Administration (FDA), to control animal drug, pesticide, and contaminant residues in meat, poultry, and egg products. Residue control is a cooperative effort. EPA and FDA have statutory authority for establishing residues tolerances\*, and FSIS, through the National Residue Program (NRP) tests animal tissues and egg products to verify that tolerance levels are not violated.

FDA, under the Federal Food Drug and Cosmetic Act, establishes tolerance levels for animal drugs, food additives, and unavoidable contaminants. EPA, through the Federal Insecticide, Fungicide and Rodenticide Act (as modified by the Food Quality Protection Act), sets tolerance levels for registered pesticides. For cancelled pesticides, action levels (similar to tolerances, but less formal) are established by FDA or FSIS, based on recommendations that EPA published in the Federal Register. FDA and EPA also have the authority to ensure compliance with established tolerance levels.

FSIS protects consumers from chemical residues by analyzing meat, poultry, and egg products, and to prevent product adulterated with chemical residues from entering the food supply. This authority is provided under the Federal Meat Inspection Act, the Poultry Products Inspection Act, and the Egg Products Inspection Act. FSIS regulations are published in Title 9 of the Code of Federal Regulations (9 CFR), chapter III.

Since 1967, FSIS has administered the NRP to collect data on chemical residues in domestic and imported meat, poultry, and egg products. The NRP is designed to provide: (1) a structured process for identifying and evaluating compounds of concern by production class; (2) the capability to analyze for compounds of concern; (3) appropriate regulatory follow-up of reports of violative tissue residues; and (4) collection, statistical analysis, and reporting of the results of these activities.

With the implementation of the Hazard Analysis and Critical Control Points (HACCP) inspection system, another important component of the NRP is to provide verification of residue control in HACCP systems. As part of the HACCP regulation, slaughter and production establishments are required to identify all chemical residue hazards that are reasonably likely to occur, and develop systems to guard against them. A vigilant chemical residue prevention program is essential to foster the prudent use of drugs and pesticides in food animals. In 1999, the NRP was modified to make residue evaluation more consistent with risk assessment principals.

The NRP includes a variety of sampling plans to prevent violative residues from entering the food supply. The range of chemical compounds evaluated for inclusion in the various NRP sampling plans is comprehensive. It includes approved and unapproved animal drugs and pesticides known or suspected to be present in domestic food animals and egg products or in countries exporting products to the U.S. It also includes any other xenobiotic or naturally occurring compounds that may appear in meat, poultry, and egg products and may pose a potential human health hazard.

A violation in a production class (food animal or egg product) occurs when a chemical residue is found and the residue is in excess of an established tolerance. When a violative chemical residue is detected in an animal presented for slaughter or in an egg product, FSIS condemns the adulterated product. If the product has been distributed into commerce, it is subject to a voluntary recall. FSIS notifies FDA of the

violation and assists in obtaining the names of producers and, in the case of food animal products, other parties involved in offering the animals for sale. FDA and cooperating state agencies follow-up with on-site visits to these firms for an educational visit.

If a problem is not corrected, subsequent FDA visits could result in enforcement action, including prosecution. FSIS posts a Repeat Violator List on the agency web site, listing the names and addresses of parties FDA has determined are responsible for more than one drug, pesticide, or other chemical residue violation in a 12-month period. The list provides information helpful to processors and producers working to avoid residue contamination and serves as a deterrent for violators, while enabling FSIS to make better use of resources.

Data gathered in the NRP is used to verify the safety of meat, poultry, and egg products in the United States. The program aids FSIS, FDA, and EPA to enforce Federal laws and regulations, and assists the agencies to design programs to enhance the nation's residue control programs.

\*Tolerance levels established by FDA are published in 21 CFR.

Tolerance levels established by EPA are published in Title 40 CFR.

# Components of the National Residue Program

The NRP is comprised of sampling plans to address chemical and drug residues in domestic and imported food animals and egg products. All products, whether domestic or imported, must fall within the tolerance levels set by Food and Drug Administration (FDA) and Environmental Protection Agency (EPA).

## I. Domestic Sampling Plan

- *Scheduled sampling* is random sampling of the healthy animal population. FSIS Headquarters schedules samples for testing once Residue Branch has determined the number of scheduled samples for each compound-production class pair. The number of samples for each compound-production class pair is determined in cooperation with FSIS Senior Management Staff, FSIS Laboratories, the FDA, and the EPA. Samples are scheduled by FSIS on FSIS Form 10,201-3. This form directs public health veterinarians to collect tissue samples for laboratory analysis for a determination of residue levels. Residue level data are used by FSIS for exposure and exploratory assessments and by FDA for regulatory action when a sample is found to contain violative levels of residues. Residue Branch conducts exploratory assessments to obtain information on the occurrence of residues for which there are no tolerances.
- *Inspector generated sampling* is not scheduled and is not directed by FSIS Headquarters. Inspector generated sampling is conducted by in-plant public health veterinarians, using FSIS sample form, “Form 10,000-2,” when there is reason to believe that an animal may have violative levels of residues. Currently, inspector generated sampling targets *individual suspect animals* and *suspect populations of animals*. In inspector generated sampling, the carcass is held pending the results of laboratory testing and a carcass that is found to contain violative levels of residues is condemned.
  - *Sampling for individual suspect animals* is performed in-plant using residue screening tests: Fast antimicrobial screening test (FAST) and swab test on premises (STOP). The FAST and STOP tests are used only for the detection of antimicrobial and sulfonamide residues. If the result of a screening test is positive, the sample is sent to an FSIS laboratory for confirmation. The in-plant inspector selects a carcass for sampling based on professional judgment and public health criteria developed by FSIS. These criteria include the following: Animal disease signs and symptoms; producer history; and results from random scheduled sampling.
  - *Sampling for suspect animal populations* is generally directed by regulation, directive, or a notice (e.g. show animals and bob veal).

## II. Import Sampling Plan

Animal and egg products imported to the US have passed inspection in their country; therefore, import sampling is reinspection. The levels of reinspection are:

- *Normal sampling*, which is defined as random sampling from a lot;
- *Increased sampling (random sampling)*, which is defined as above the normal sampling as the result of an Agency management decision; and
- *Intensified sampling (biased sampling)*, which is defined as occurring when a previous sample for a type of inspection failed to meet U.S. requirements.

For both normal and increased sampling, the lot is not required to be retained pending laboratory results; however, the importer may retain the lot pending the laboratory results. For intensified sampling, the lot must be held pending laboratory results. The level of reinspection that is applied depends on the country's performance history. The data obtained from laboratory analysis are entered into an FSIS Data Base System, the Automated Import Information System (AIIS). Import sampling is designed to verify that the chemical residue programs in countries exporting meat, poultry, or egg products to the U.S. are equivalent to those in the U.S.

**2005 NRP Summary Table I  
Rank and Status of AMDUCA\* Prohibited Drugs  
2005 FSIS NRP, Domestic and Import Scheduled Sampling**

AMDUCA Prohibited Drug	Scheduled Samples		Total
	Domestic	Import	
Chloramphenicol	230, 90, 90, 230, 90, 90, and 90 samples for dairy cows, formula-fed veal, non-formula-fed veal, young chickens, mature chickens, young turkeys and mature turkeys, respectively	93 samples for fresh beef and 91 samples for fresh veal	1,094
Nitrofurans, including furazolidone and nitrofurazone (antimicrobials)	NIP		NIP
Clenbuterol**	1,000 samples for steers	No samples	1,000
Fluoroquinolones	NIP		NIP
Ronidazole (nitroimidazole; antimicrobial use)	NIP		NIP
Nitroimidazoles (FSIS MRW: dimetridazole and ipronidazole; antiprotozoal use)	NIP		NIP
Avoparcin (glycopeptide)	NIP		NIP
Vancomycin (glycopeptide)	NIP		NIP
Diethylstilbestrol (DES; synthetic hormone)	NIP		NIP
Phenylbutazone (NSAID)	1,000 samples for steers (by ELISA) 5,452 samples as part of the CHC/COP MRM	No samples	6,452

\*Drugs banned from extralabel use under AMDUCA are not evaluated using the ranking formula. Instead, these drugs are automatically assigned a high sampling priority and will be included in the NRP if methodologies and resources are available.

\*\*The clenbuterol methodology employs a screen that has been officially validated for clenbuterol (bovine and porcine) and has been extended to salbutamol and cimaterol (bovine). The method has also demonstrated the ability to detect other beta agonists, including ractopamine. The follow-up confirmatory method may detect several unapproved beta agonists, including the following: clenbuterol; cimaterol; fenoterol; mabuterol; salbutamol; brombuterol; and terbutaline.

**2005 NRP Summary Table I I**  
**Rank and Status of Veterinary Drugs**  
**2005 FSIS NRP, Domestic and Import Scheduled Sampling**

Rank	Veterinary Drug	Score	Scheduled Samples		Total
			Domestic	Import	
1	Antibiotics: at present, the following antibiotics are quantitated using the 7-plate bioassay after a specific identification is made using mass spectroscopy (MS) or using high performance liquid chromatography (HPLC): tetracycline, oxytetracycline, chlortetracycline, gentamicin, streptomycin, dihydrostreptomycin, erythromycin, tylosin, neomycin, beta-lactams (quantitated as penicillin-G; penicillins and cephalosporins are not differentiated within this category), and tilmicosin (quantitated by HPLC). The following antimicrobials can be identified by MS; however, no quantitative methods are available: spectinomycin, hygromycin, amikacin, kanamycin, apramycin, tobramycin, lincomycin, pirlimycin, clindamycin, and oleandomycin.	15.0	300, 300, 90, 460, 300, 300, 300, 230, and 300 samples for market hogs, dairy cows, formula-fed veal, heifers, bob veal, beef cows, sows, heavy calves, and non-formula-fed veal, respectively  300 samples for FSIS exploratory projects	874 samples for all fresh product classes	3,794
2	Avermectins (antiparasitic doramectin, ivermectin, and moxidectin)	14.0	1,000, 300, 230, 300, 230, 90, and 90 samples for steers, bulls, lambs, goats, heavy calves, non-formula fed veal, and sheep production classes, respectively	794 samples for beef, pork, veal, lamb/mutton fresh and lamb/mutton processed	3,034

**2005 NRP Summary Table I I**  
**Rank and Status of Veterinary Drugs**  
**2005 FSIS NRP, Domestic and Import Scheduled Sampling**

Rank	Veterinary Drug	Score	Scheduled Samples		Total
			Domestic	Import	
3	Carbadox (antimicrobial)	12.4	300 samples for roaster pigs for an FSIS exploratory project	No samples	300
4	Sulfonamides in FSIS MRM (sulfapyridine, sulfadiazine, sulfathiazole, sulfamerazine, sulfamethazine, sulfachloropyridazine, sulfadoxine, sulfamethoxy pyridazine, sulfaquinoxaline, sulfadimethoxine, sulfisoxazole, sulfacetamide, sulfamethoxazole, sulfamethizole, sulfanilamide, sulfaguanidine, sulfabromomethazine, sulfasalazine, sulfaethoxy pyridazine, sulfaphenazole, and sulfatroxazole) (antimicrobials, some are coccidiostats)*	12.0	3,680 samples in all production classes except egg products, sows, mature chickens, bison, ducks, goats, ratites, geese, and squab  300 samples for FSIS exploratory projects	1,051 samples in all production classes	5,105
5	Florfenicol (chloramphenicol derivative)	10.1	230, 90, and 90 samples for dairy cows, formula-fed veal, and non-formula-fed veal, respectively	No samples	410
6	Trenbolone	10.1	1,000 samples for formula-fed veal	No samples	1,000
7	Zeranol (hormone, synthetic)	9.0	1,000 samples for formula-fed veal	No samples	1,000
8	Thyreostats (incl. thiouracil)	8.5	600 samples are scheduled for steers and for heifers for FSIS exploratory projects	No samples	600
9	Dipyron (NSAID)	7.9	NIP		NIP
10	Dexamethasone (glucocorticoid)	7.2	NIP		NIP
11	Thiamphenicol (chloramphenicol derivative)	7.0	NIP		NIP
12	Methyl prednisone (glucocorticoid)	6.9	NIP		NIP

**2005 NRP Summary Table I I**  
**Rank and Status of Veterinary Drugs**  
**2005 FSIS NRP, Domestic and Import Scheduled Sampling**

13	Arsenicals (detected as As)	6.8	NIP		NIP
14	Berenil (antiprotozoal)	6.7	NIP		NIP
15	Prednisone (glucocorticoid)	6.0	NIP		NIP
16	Etodolac (NSAID)	5.8	NIP		NIP
17	Flunixin (NSAID)	5.8	NIP		NIP
18	Amprolium (coccidiostat)	5.8	NIP		NIP
19	Eprinomectin (ivermectin)	5.3	NIP		NIP
Rank	Veterinary Drug	Score	Scheduled Samples		Total
			Domestic	Import	
20	Lasalocid (coccidiostat)	5.1	NIP		NIP
21	Clorsulon (anthelmintic, Trematodes)	4.9	NIP		NIP
22	Benzimidazoles in FSIS MRM (thiabendazole and its 5-hydroxythiabendazole metabolite, albendazole 2-animosulfone metabolite, benomyl in the active hydrolyzed form carbendazim, oxfendazole, mebendazole, cambendazole, and fenbendazole) (anthelmintics)	4.6	NIP		NIP
23	Halofuginone (antiprotozoal, coccidiostat)	4.6	NIP		NIP
24	Hormones, naturally-occurring (17-estradiol, testosterone, and progesterone)	4.5	NIP		NIP
25	Levamisole (anthelmintic)	3.5	NIP		NIP
26	Melengestrol acetate (MGA; hormone, synthetic)	3.3	300 samples for heifers	No samples	300
27	Ractopamine (beta agonist)	3.0	230, 90, and 90 samples for steers, formula-fed veal, and market hogs	No samples	410
28	Nicarbazin (coccidiostat)	3.0	NIP		NIP
29	Morantel and pyrantel (anthelmintic)	2.9	NIP		NIP
30	Veterinary tranquilizers (azaperone and its metabolite azaperol, xylazine, haloperidol, acetopromazine, propionylpromazine, and chlorpromazine)	2.6	NIP		NIP

**2005 NRP Summary Table III  
Rank and Status for Pesticides<sup>1</sup>  
2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Rank	Compound / Compound Class	Score	Status in the 2005 NRP		Total
			Domestic	Import	
1	COPs and OPs not in FSIS CHC/COP MRM (azinphos-methyl, azinphos-methyl oxon, chlorpyrifos, diazinon, diazinon oxon, diazinon met G-27550, dichlorvos, dimethoate, dimethoate oxon, dioxathion, ethion, ethion monooxon, fenthion, fenthion oxon, fenthion oxon sulfone, fenthion oxon sulfoxide, fenthion sulfone, fenthion sulfoxide, malathion, malathion oxon, naled, phosmet, phosmet oxon, pirimiphos-methyl, trichlorfon, tetrachlorvinphos, tetrachlorvinphos-4 metabolites, acephate, methamidophos, chlorpyrifos-methyl, fenamiphos, fenamiphos sulfoxide, fenamiphos sulfone, fenamiphos sulfoxide desisopropyl, fenamiphos sulfone desisopropyl, isofenphos, isofenphos oxon, isofenphos desisopropyl, isofenphos oxon desisopropyl, methidathion, ODM, parathion (ethyl), parathion oxon, parathion methyl, parathion methyl oxon, phorate, phorate oxon, phorate oxon sulfone, phorate oxon sulfoxide, phorate sulfone, phorate sulfoxide, profenofos, sulprofos, sulprofos oxon, sulprofos oxon sulfone, sulprofos oxon sulfoxide, sulprofos sulfone, sulprofos sulfoxide, tribufos (DEF))	18.4	NIP		NIP
2	Imazalil	18.4	NIP		NIP
3	Triazines NOT in FSIS Triazine MRM (atrazine chloro metabolites, metribuzin, metribuzin DADK, metribuzin DA, metribuzin DK, amitraz, amitraz 2,4-DMA metab., desdiethyl simazine, desethyl simazine, simazine chloro metab.)	17.3	NIP		NIP
4	Carbamates in FSIS Carbamate MRM (aldicarb, aldicarb sulfoxide, aldicarb sulfone, carbaryl, carbofuran, carbofuran 3-hydroxy)	16.1	NIP		NIP
5	1-(2,4-dichlorophenyl)-2-(1H-imidazole-1-yl)-1-ethanol	16.1	NIP		NIP
6	1,1-(2,2-dichloroethylidene)bis(4-methoxybenzene)	16.1	NIP		NIP
7	1-methoxy-4-(1,2,2-tetrachloroethyl)benzene)	16.1	NIP		NIP

**2005 NRP Summary Table III (continued)**  
**Rank and Status for Pesticides<sup>1</sup>**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Rank	Compound / Compound Class	Score	Status in the 2005 NRP		Total
			Domestic	Import	
8	3-(1-(2,4-dichlorophenyl)-2-(1H-imidazole-1-yl)ethoxy)-1,2-propane diol	16.1	NIP		NIP
9	Fipronil	16.1	NIP		NIP
10	MB 45950	16.1	NIP		NIP
11	MB 46513	16.1	NIP		NIP
12	Methoxychlor olefin	16.1	NIP		NIP
13	Cyhalothrin, lambda-	16.1	NIP		NIP
14	Synthetic Pyrethrins in FSIS Synthetic Pyrethrin MRM (cypermethrin, cis-permethrin, trans-permethrin, fenvalerate, zeta-cypermethrin)	16.1	NIP		NIP
15	CHCs and COPs in FSIS CHC/COP MRM (HCB, alpha-BHC, coumaphos, coumaphos oxon, lindane, heptachlor, dieldrin, aldrin, endrin, ronnel, linuron, oxychlordane, chlorpyrifos, nonachlor, heptachlor epoxide A, heptachlor epoxide B, endosulfan I, endosulfan I sulfate, endosulfan II, trans-chlordane, cis-chlordane, chlordanevinphos, p,p'-DDE, p, p'-TDE, o,p'-DDT, p,p'-DDT, carbophenothion, captan, tetrachlorvinphos [stirofos], kepone, mirex, methoxychlor, phosalone, coumaphos-O, coumaphos-S, toxaphene, famphur, PCB 1242, PCB 1248, PCB 1254, PCB 1260, dicofol*, PBBs*, polybrominated diphenyl ethers*, deltamethrin*) (*identification only)	16.0	5,380 samples for all domestic production classes except: minor species (rabbits, ratites, squab, geese, ducks, and bison); horses; and bob-veal.	1,051 samples for all import production classes.	6,431

1. Only those pesticides that have been designated as representing a broad potential public health risk are included in this summary table. For a complete list of pesticides that were considered for the 2005 NRP, see Table 28.

**Key:**

MRM = Multiresidue Method

NIP = Not Included in 2005 FSIS National Residue Program

CHC = Chlorinated hydrocarbon

COP = Chlorinated organophosphate

OP = Organophosphate

**2005 FSIS NRP Summary Table IV  
Rank and Status of Environmental Contaminants<sup>1</sup>  
Domestic Scheduled Sampling**

<b>Metals</b>	<b>Scheduled Samples</b>		<b>Total</b>
	<b>Domestic</b>	<b>Import</b>	
Lead and cadmium	300 samples for steers	No samples	300

1. Environmental contaminants are not assigned a ranking score in the NRP

# Overview of the National Residue Program Design

The USDA's Food Safety and Inspection Service (FSIS) obtains information on the occurrence of residues in meat, poultry, and egg products from two principal sources: the domestic and import scheduled sampling plans. The design of these sampling plans is detailed in this document, the FSIS National Residue Program (NRP), *Blue Book*.

The design of the domestic and import sampling plans begins with the generation of a list of residues that may occur in meat, poultry and egg products and that are of concern to human health. To develop this list, FSIS coordinates a meeting of the Surveillance Advisory Team (SAT). The SAT is an interagency committee comprised of members from the Environmental Protection Agency (EPA), the Food and Drug Administration (FDA), the Centers for Disease Control and Prevention (CDC), the Animal and Plant Health Inspection Service (APHIS), the Agricultural Marketing Service (AMS), the Agricultural Research Service (ARS), and FSIS. The SAT identifies the priority public health compounds of concern, and provides FSIS with detailed information about each compound. FSIS then combines this information with its historical data on compound violation rates to develop the domestic scheduled sampling, and the import residue plan. These sampling plans guide the allocation of FSIS laboratory and inspection resources.

Factors taken into consideration in developing the domestic and import scheduled sampling plans are:

- The overall estimated relative public health concern associated with each compound or compound class in meat, poultry, and egg products;
- The production or product classes in which each compound or compound class is likely to be of concern;
- The availability of analytical methods, which determines which compounds or compound classes can be analyzed; and
- The analytical capacity of the FSIS laboratories, which determines how many analyses of each compound or compound class can be performed.

The process used to design the import plan is similar to that of the domestic plans, with two important exceptions. First, since many countries ship processed products only, it is often not possible to test raw product at the U.S. port-of-entry. Further, even when raw product is shipped, it often consists of muscle tissue only. By contrast, domestic residue testing often is targeted towards organ tissues (typically kidney and liver). This is because many residues concentrate in organs, which makes them easier to detect. Because of this concentration effect, FDA often bases its tolerances for veterinary drugs upon the levels found in kidney or liver. Second, while countries are required to identify the animal species used in each product, they are not required to identify the production class. Testing on imported meat and poultry is subdivided by animal species (e.g., chicken vs. pig), and cannot be further subdivided within a species (e.g., steer vs. heifer vs. dairy cow. vs. formula-fed veal). Egg products, however, can be distinguished as a separate category.

Because different countries have different approved compounds and different use practices, the compounds analyzed in the import plan may not necessarily be the same as those in the domestic plan.

# **Design of the Domestic Scheduled Sampling Plan for Veterinary Drugs**

## I. Selecting and Ranking Candidate Veterinary Drugs

The candidate veterinary drugs of concern selected by members of the Surveillance Advisory Team (SAT) are presented below. Since FSIS prioritizes *analyses*, drugs that are, or are likely to be, detected by the same analytical methodology are grouped together. Some of the drugs are prohibited from extra label use in food animals under the Animal Medicinal Drug Use Clarification Act (AMDUCA). AMDUCA prohibited compounds are high regulatory priorities.

### *Antibiotics:*

- At present, the following antibiotics are quantitated using the 7-plate bioassay<sup>1</sup> after a specific identification is made using mass spectroscopy (MS) or using high performance liquid chromatography (HPLC): tetracycline, oxytetracycline, chlortetracycline, gentamicin, streptomycin, dihydrostreptomycin, erythromycin, tylosin, neomycin, beta-lactams (quantitated as penicillin-G; penicillins and cephalosporins are not differentiated within this category), and tilmicosin (quantitated by HPLC). The following antimicrobials can be identified by MS; however, no quantitative methods are available: spectinomycin, hygromycin, amikacin, kanamycin, apramycin, tobramycin, lincomycin, pirlimycin, clindamycin, and oleandomycin
- Avoparcin (classification: glycopeptide; AMDUCA prohibited)
- Chloramphenicol (classification: antibiotic; AMDUCA prohibited)
- Florfenicol (classification: antibiotic; chloramphenicol derivative)
- Fluoroquinolones in FSIS MRM (classification: antibiotic; AMDUCA prohibited; compounds: ciprofloxacin, desethyleneciprofloxacin, danofloxacin, difloxacin, enrofloxacin, marbofloxacin, orbifloxacin, and sarafloxacin)
- Thiamphenicol (classification: antibiotic; chloramphenicol derivative)
- Vancomycin (classification: glycopeptide; AMDUCA prohibited)

### *Other Veterinary Drugs:*

- Amprolium (classification: coccidiostat)
- Arsenicals (detected as elemental arsenic)
- Avermectins (classification: antiparasitics; compounds in FSIS MRM: doramectin, ivermectin, and moxidectin)

Benzimidazoles (classification: anthelmintics; compounds in FSIS MRM: thiabendazole and its 5-hydroxythiabendazole metabolite, albendazole 2-animosulfone metabolite, benomyl in the active hydrolyzed form carbendazim, oxfendazole, mebendazole, cambendazole, and fenbendazole)

- Berenil (classification: antiprotozoal)
- Carbadox (classification: antimicrobial)
- *beta*-Agonists (clenbuterol, cimaterol, and salbutamol; AMDUCA prohibited growth promotants<sup>2</sup>)

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<sup>1</sup> FSIS quantitates most antibiotics using a 7-plate bioassay that measures microbial inhibition. The pattern of inhibition (i.e., the combination of plates showing inhibition) is used to identify the antibiotic. There are some antibiotics, however, that share the same pattern of inhibition. For these antibiotics, it is necessary to undertake follow-up testing (High Performance Liquid Chromatography, HPLC, or mass spectrometry) to establish their identities, where such follow-up methodologies are available. Tetracycline, oxytetracycline, and chlortetracycline share patterns of inhibition and are individually identified by follow-up with the HPLC method for tetracyclines; tilmicosin, tylosin, lincomycin, clindamycin, erythromycin, and pirlimycin, which are individually identified by ion-trap LC/MS/MS. Tissues found to be positive for tilmicosin are quantitated by a NADA method using HPLC. Amikacin, apramycin, dihydrostreptomycin, gentamycin, hygromycin, kanamycin, neomycin, spectinomycin, streptomycin, and tobramycin are individually identified by ion-trap LC/MS/MS. Confirmation for sulfa drugs and flunixin are also provided by the residue chemistry section at the FSIS, Midwestern Laboratory.

<sup>2</sup>The screening test used by FSIS has been officially validated for clenbuterol (bovine and porcine) and has been extended to salbutamol and cimaterol (bovine). The method has also demonstrated the ability to detect other beta

- Ractopamine (classification: *beta*-agonist)
- Clorsulon (classification: anthelmintic)
- Dexamethasone (classification: glucocorticoid)
- Diethylstilbestrol (DES; AMDUCA prohibited synthetic hormone)
- Dipyronone (classification: NSAID<sup>3</sup>)
- Eprinomectin (classification: antiparasitic; avermectin)
- Etodolac (classification: NSAID)
- Flunixin (classification: NSAID)
- Halofuginone (classification: antiprotozoal, coccidiostat)
- Hormones, naturally-occurring (17- $\beta$  estradiol, progesterone, testosterone)
- Lasalocid (classification: coccidiostat)
- Levamisole (classification: anthelmintic)
- Melengestrol acetate (MGA; classification: synthetic hormone)
- Methyl prednisone (classification: glucocorticoid)
- Morantel and pyrantel (classification: anthelmintic)
- Nicarbazine (classification: coccidiostat)
- Nitrofurans (compounds: furazolidone, nitrofurazone; AMDUCA prohibited antimicrobials)
- Nitromidazoles (classification: antiprotozoals; compounds in FSIS MRM: dimetridazole, ipronidazole)
- Phenylbutazone (classification: NSAID)
- Prednisone (classification: glucocorticoid)
- Ronidazole (classification: antimicrobial; compound: nitroimidazole)
- Sulfonamides (classification: antimicrobials, and some are coccidiostats; compounds in FSIS MRM: sulfapyridine, sulfadiazine, sulfathiazole, sulfamerazine, sulfamethazine, sulfachlorpyridazine, sulfadoxine, sulfamethoxy pyridazine, sulfaquinolaxine, sulfadimethoxine, sulfisoxazole, sulfacetamide, sulfamethoxazole, sulfamethizole, sulfanilamide, sulfaguanidine, sulfabromomethazine, sulfasalazine, sulfaethoxy pyridazine, sulfaphenazole, and sulfatroxazole)
- Sulfanitran (classification: antibacterial, coccidiostat)<sup>4</sup>
- Thyreostats (compound: thiouracil)
- Trenbolone (classification: synthetic hormone)
- Veterinary tranquilizers (compounds in FSIS MRM: azaperone and its metabolite azaperol, xylazine, haloperidol, acetopromazine, propionylpromazine, and chlorpromazine)
- Zeranol (classification: synthetic hormone)

### ***Drugs Banned from Extralabel use under AMDUCA***

FDA has advised FSIS that drugs banned from extralabel use under AMDUCA, are of high public health concern. Therefore, these drugs are not evaluated for inclusion using the ranking formula presented below. Instead, all AMDUCA drugs are automatically assigned a high sampling priority, and are included in the NRP if methodologies and resources are available. AMDUCA drugs are listed in Table 2A, *Drugs Banned from Extralabel use under AMDUCA*.

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agonists, including ractopamine. The follow-up confirmatory method may detect several unapproved beta agonists, including the following: clenbuterol; cimaterol; fenoterol; mabuterol; salbutamol; brombuterol; and terbutaline.

<sup>3</sup> non-Steroidal anti-inflammatory drug

<sup>4</sup> FSIS, in consultation with FDA, has rotated sulfanitran out of the NRP for 2005.

## ***Compound Scoring***

Using a simple 4-point scale (4 = high; 3 = moderate; 2 = low; 1 = none), the SAT scored each of the above veterinary drugs or drug classes in each of the following categories:

- FSIS Historical Testing Information on Violations
- Regulatory Concern
- Lack of FSIS Testing Information on Violations
- Withdrawal Time
- Impact on New and Existing Human Disease
- Relative Number of Animals Treated
- Acute or Chronic Toxicity Concerns

Definitions of each of these categories, and the criteria used for scoring, appear at the end of this section in the "*Scoring Key for Veterinary Drugs, 2005 Domestic Residue Program.*"

The results of the compound scoring process are presented in Table 1, *Scoring Table for Veterinary Drugs.*

## ***Compound Ranking***

### 1. Background

As stated above, FSIS employs techniques and principles from the field of risk assessment to obtain a ranking of the relative public health concern represented by each of the above candidate compounds or compound classes.

If FSIS were in possession of detailed historical data on the distribution of levels of each of the candidate compounds or compound classes in meat, poultry, and egg products, then that information could be combined with consumption data to estimate exposure. By combining these exposure data with toxicity information, risk is estimated for each compound or compound class from the following:

$$\begin{aligned} \text{Risk} &= \text{Exposure} \times \text{Toxicity} && \text{(Equation 1)} \\ &= \text{Consumption} \times \text{Residue Levels} \times \text{Toxicity} \\ &= \text{Consumption} \times \text{Risk per Unit of Consumption} \end{aligned}$$

Given the limited resources available for this priority-setting effort, FSIS did not attempt to associate different degrees of risk with different amounts or percentages by which the tolerance or action level was exceeded. FSIS instead determined that the best available method for the measurement of relative toxicity is the tolerance or action level of a compound or compound class. *Specifically, the frequency of violation of a tolerance or action level is used as an indicator of the risk per unit of consumption of a product.*

The category, *FSIS Historical Testing Information on Violations* (Table 1), is based on the percent of tested carcasses found to have residues in excess of the tolerance or action level. This percentage is determined from data obtained from the FSIS domestic scheduled sampling program. Drug compounds were scored by two methods: (a) the maximum violation rate seen in any production class (averaged over 1994-2003); and (b) the maximum, for any class, of the violation rate (again, averaged over 1994-2003), but weighted by the size of the production class. The final score for each drug was assigned based on the

higher of these two scores.<sup>5</sup> Therefore, it can be seen from Equation 1 that the violation rate scores assigned in Table 1 represent a rough overall estimate of *relative* risk per unit of consumption.<sup>6</sup> However, for the many candidate compounds or compound classes of concern that have never been included in the FSIS NRP, data on violation rates are not available. It was therefore necessary to generate an estimate of the overall violation rate for each these untested compounds and compound classes.

## 2. Estimating the Violation Rate

"Regulatory Concern," "Withdrawal Time," and "Relative Number of Animals Treated" were chosen as scoring categories because it is expected that they are positively correlated with the violation rate. Therefore, they are expected to serve as predictors of violations in those compounds or compound classes for which no reliable historical testing information was available. As indicated in the *Scoring Key for Veterinary Drugs*, the category, "Regulatory Concern," was designed to predict the "likelihood of occurrence of violations, based on regulatory intelligence information about possible misuse." The category, "Withdrawal Time," is expected to correlate with "FSIS Historical Testing Information on Violations" because a longer withdrawal time is less likely to be properly observed. When a withdrawal time for a drug is not observed prior to slaughter, the carcass may contain violative levels of residues, since the time necessary for sufficient metabolism and elimination of the drug would not have passed. The category, "Relative Number of Animals Treated," is expected to correlate with "FSIS Historical Testing Information on Violations" simply because heavy compound use increases the likelihood of violations.

Violation rate data are available for selected compounds and compound classes. Using the scores assigned to these compounds and compound classes, it was possible to evaluate how well the above criteria were correlated. In an effort to impute values for the missing data, a linear regression model was applied. The dependent variable in this model is the category, "FSIS Historical Testing Information on Violations," while the only significant independent variable are the product of the scores for "Regulatory Concern" and "Relative Number of Animals Treated." A scatter plot for the dependent and independent variables is shown in Graph III, *Scatterplot for Violation Rate vs. the Product of Regulatory Concern times Number of Animals Treated*.

Table 1 lists 11 compounds or compound classes for which current, reliable data were available to score the category "FSIS Historical Testing Information on Violations," and 19 compounds or compound classes for which there were not. A least squares linear regression model, using the value of the independent variable from the 11 scored compounds or compound classes, was then used to predict scores in the category "FSIS Historical Testing Information on Violations" for the 19 compounds for which this information is not available. The following equation was derived:

$$V_p = 1.72 + 0.1 * (R*N) \quad \text{(Equation 2)}$$

$V_p$  = Predicted score for "FSIS Historical Testing Information on Violations"  
 $N$  = score for "Relative Number of Animals Treated"

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<sup>5</sup> For a more detailed explanation, refer the *Scoring Key for Veterinary Drugs*.

<sup>6</sup> While some consideration was given to the size of the production class in scoring "FSIS Historical Testing Information on Violations," no systematic weighting was applied to the scores in this category based upon consumption. Hence, the scores assigned to this category represent relative risk *per unit of consumption*, rather than relative risk. To obtain values for relative risk, the scores in this category must be multiplied by the consumption data for each individual production class. This calculation is implemented subsequently, in Phase IV, using Equation 6; the results are presented in Table 5.

R = score for "Regulatory Concern"  
R\*N = product of R and N.

This model is the result of using a stepwise regression with several possible independent variables. The independent variables available for the stepwise regression are:

- A score for Regulatory Concern (R)
- A score for Withdrawal Time (W)
- A score for Relative Number of Animals Treated (N)
- $R^2$
- $W^2$
- $N^2$
- The product of R and W
- The product of R and N
- The product of W and N.

No terms involving "Withdrawal Time" were included in the final equation since none were found to be significant factors in the regression model.

The model represented by Equation 2 was found to be insignificant at the standard 0.05 level. The overall model p-value is 0.1887 and the  $R^2$  value is 0.18, which accounts for 18 percent of the variability in the data. The trend for this model (1999-2004) has been for the  $R^2$  value to drop; overall the model has become less significant to the point where it is not significant.

Where current, reliable historical testing data are available for a compound or compound class, FSIS used the score assigned in Table 1. Where current, reliable historical data were not available, FSIS used the predicted score generated by Equation 2.

### 3. Rating the Veterinary Drugs According to Relative Public Health Concern

As indicated above, the score for the category, "FSIS Historical Testing Information on Violations," combines information on residue levels and toxicity, and thus represents a rough overall estimate of the relative risk per unit of consumption for each drug or drug class. This score, once multiplied by relative consumption data for each production class, yields a purely risk-based ranking. In addition to historical violation data, FSIS includes scores for acute and chronic toxicity concerns, impact on new and existing human disease and lack of testing information on violations as parameters for the relative public health concern calculation. The general form of the calculation is given in Equation 3 and the scores for relative public health concern are summarized in Table 1.

Relative Public Health Concern = *Predicted or Actual* score for "FSIS Historical Testing Information on Violations" (Estimate of Relative Hazard) multiplied by:

- a *modifier* for "Acute or Chronic Toxicity Concerns;"
- a *modifier* for "Impact on New and Existing Human Disease;" and
- a *modifier* for "Lack of FSIS Testing Information on Violations."

A drug violation means that a compound was found at a level where the likelihood of a toxic effect exceeds the Food and Drug Administration's (FDA's) standards. However, this does not address the *severity* of the effect associated with the toxic endpoint. To capture this concern FSIS has added the

category "Acute or Chronic Toxicity Concerns." Compounds in this category that have the highest degree of human toxicity receive the highest score.

The category, "Impact on New and Existing Human Disease," represents the extent to which the use or misuse of a compound will contribute to new and existing human disease. For example, there is a possibility that the creation of antibiotic-resistant human pathogens may result from the use of antibiotics in animals. This represents a potential public health concern that is not captured by the violation rate.

Finally, the category, "Lack of FSIS Testing Information on Violations," has been incorporated because violation data for a compound may be absent, dated or sparse. The lack of test information increases the relative public health need to obtain information on residue violations for a compound or compound class. For example, consider two hypothetical compounds, A and B. Compound A has been tested extensively and has a measured violation rate; however, there are no test data for compound B. Since there are no test data for B, a violation rate is calculated. If the measured violation rate for A and the calculated rate for B are identical and if their scores for the categories "Regulatory Concern," "Withdrawal Time," and "Number of animals treated" are also identical, FSIS believes there is greater need to sample for B than for A, because there is extensive information on A, but not for B.

The categories for acute and chronic toxicity concerns, impact on new and existing human disease and lack of testing information on violations introduces an element of arbitrariness into the calculation for the relative public health concern because there are no fundamentally "correct" assumptions for the appropriate weight that should be given to each. FSIS considered several possible sets of weighting factors for use in Equation 3. The various formulas that were considered differed principally in the relative weights given to the categories, "Acute or Chronic Toxicity Concerns" versus "Impact on New and Existing Human Disease," and in the magnitude of the calculated value for "Lack of FSIS Testing Information on Violations." FSIS selected the formula shown in the column for "Relative Public Health Concern Score" in Table 1. The selection is based on a consensus by the SAT about the relative importance of each category, and how much each category should be allowed to alter the underlying risk-based score, "V," in Equation 4. In this formula, the score for "FSIS Historical Testing Information on Violations" has been multiplied by a weighted average of the categories for "Acute or Chronic Toxicity Concerns" and "Impact on New and Existing Human Disease." These last two categories were combined because they both represent the negative potential public health effects associated with the use of a compound or compound class. The product of the above categories was then multiplied by a modifier for "Lack of FSIS Testing Information on Violations." The selected formula formalizes the basis of FSIS's judgment for relative public health concern for each compound and enables others to observe and understand the adjustments that were made. It also ensures consistency in how these adjustments were applied across a wide range of compounds. Equation 4 summarizes the way final adjustments were made.

Relative public health concern, R, rating for veterinary drugs:

$$R = V*((D+3*T)/4) * \{1+[(L-1)*0.05]\} \quad \text{Equation 4}$$

V = *Predicted* or *Actual* score for "FSIS Historical Testing Information on Violations"

D = score for "Impact on New and Existing Human Disease"

T = score for "Acute or Chronic Toxicity Concerns"

L = score for "Lack of FSIS Testing Information on Violations"

In this formula, the category, "Acute or Chronic Toxicity Concerns," was given three times the weight of "Impact on New and Existing Human Disease," because the former represents known direct health effects, while the latter represents possible indirect health effects. Further, the final ratings of compounds

or compound classes receiving scores of 4, 3, 2, and 1 in "Lack of FSIS Testing Information on Violations" would be increased by 15%, 10%, 5%, and 0% respectively. In other words, the rating of a compound or compound class that had never been tested by FSIS (in the production classes and matrices of concern) would be increased by 15%, while the rating of one that had been recently tested by FSIS (again, in the production classes and matrices of concern) would remain unchanged.

The formulas used in this section for the veterinary drugs and in for the pesticides have been normalized to give the same maximum value. Because the formula for the pesticides uses scoring categories that are different from the veterinary drugs, their scores are not comparable in a quantitative sense. However, as a result of the normalization, the scores for the pesticides and veterinary drugs are comparable in magnitude which enables a rough comparison to be made between the two different categories of compounds.

In Table 2B, *Rank and Status for Veterinary Drugs*, the drugs are ranked by their rating scores, as generated using the above weighting formula. The scores presented in Table 2B enable FSIS to bring consistency, grounded in formal risk-based considerations, to its efforts to differentiate among a very diverse range of drugs and drug classes in a situation that is marked by minimal data on relative exposures. These rankings do not account for differences in exposure due to differences in overall consumption.<sup>7</sup> Data on relative consumption are applied subsequently, in Phase IV, when relative exposure values for each compound/production class (C/PC) pair are estimated.

## II. Prioritizing Candidate Drugs

Once the ranking of the veterinary drugs was completed, the ranking scores for relative public health concern were used as criteria for selecting compounds and compound classes to include in the 2005 NRP and to determine which compounds and compound classes to include in the 2005 NRP based on the availability of laboratory resources.

The consensus of FSIS and FDA was that those compounds and compound classes ranked 11<sup>th</sup> or higher (out of a total of 30) represent a potential public health concern sufficient to justify their inclusion in the 2005 NRP. In addition, based on information from the field, FDA expressed an interest in having FSIS perform limited testing on three compounds that fell below the ranking of 11 or higher: veterinary tranquilizers (ranked 30<sup>th</sup>); ractopamine (ranked 27<sup>th</sup>) and MGA (ranked 26<sup>th</sup>).

Once the high-priority compounds and compound classes had been identified, it was necessary for FSIS to apply practical considerations to determine the compounds for which the Agency would sample. The principal consideration was the availability of laboratory resources, especially the availability of appropriate analytical methods within the FSIS laboratories. Based on these considerations, FSIS plans to schedule the following veterinary drugs in the 2005 NRP for domestic sampling:

- Antibiotics
- Avermectins
- *beta*-Agonists<sup>8</sup>
- Carbadox
- Chloramphenicol
- Florfenicol
- Melengestrol acetate (MGA)

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<sup>7</sup> See footnote 4.

<sup>8</sup> See footnote 2.

- Phenylbutazone (NSAID)
- Phenylbutazone (ELISA)
- Ractopamine
- Sulfonamides
- Thyreostats
- Trenbolone
- Zeranol

In the 2005 NRP, FSIS will employ a number of analytical methodologies to characterize (identity and quantity) veterinary drug residues. The methodologies are effective for the analysis of individual compounds and there are also multi residue methods (MRM) for antibiotics, avermectins, beta-agonists, and sulfonamides that distinguish individual compounds in a compound class.

Table 2 lists all of the original candidate veterinary drugs in rank order. This table specifies the compounds and compound classes that will be scheduled for domestic sampling in the 2005 NRP. For each highly ranked compound or compound class that is not included for domestic sampling in the 2005 NRP, a brief explanation of the reason for its exclusion is provided. This table will be used to identify future method development needs for veterinary drugs for the FSIS NRP.

### III. Identifying Compound/Production Class (C/PC) Pairs

The SAT participants identify the production classes of concern for each of the drugs and drug classes to be included in the 2005 NRP. These determinations were based upon professional judgment of the likelihood of finding violations within each production class (information examined included use approvals, extent of use, evidence of misuse and, if available, past violation history), combined with the proportion of total domestic meat consumption each production class represented. The results are presented in Table 3, *Production Classes to be Considered for Each Veterinary Drug/Drug Class*. Compound/Production Class pairs included in the 2005 NRP are designated by a "●." Those C/PC pairs that are of regulatory concern, but that could not be included in the 2005 NRP because of laboratory resource constraints, are marked with a "○." Since all production classes will be sampled by the chlorinated hydrocarbon/chlorinated organophosphate (CHC/COP) method (see Pesticides), and since this method also detects phenylbutazone, the latter will, by default, likewise be sampled in all production classes. However, phenylbutazone is not of regulatory concern in all production classes. Those production classes in which phenylbutazone will be sampled, but where it is not of regulatory concern, are designated by a "◐" (i.e., these production classes will be sampled for phenylbutazone, but only because it is automatically detected through the CHC/COP methodology). In addition, FSIS has suspended scheduled testing for certain production classes in 2005; these are marked with a "■."

Production class nomenclature:

- Bulls are mature, intact male cattle;
- Beef cows are sexually mature female cattle of beef type, ordinarily having given birth to one or more calves;
- Dairy cows are sexually mature female cattle of dairy type, ordinarily having given birth to one or more calves;
- Heifers are young, female cattle that have not yet given birth to a calf;
- Steers are male cattle castrated before sexual maturity;
- Calves/veal definitions are under FSIS review;

- Market hogs are swine usually marketed near six months of age and 200 to 300 pounds live weight;
- Boars are mature swine showing male sexual characteristics;
- Stags are male swine castrated after they have reached sexual maturity;
- Sows are mature female swine ordinarily having given birth to one or more litters;
- Sheep include mature sheep with no distinction by gender;
- Lambs are generally defined as sheep younger than 14 months and having a break joint in at least one leg;
- Goats are of both sex and any age;
- Horses are of either sex or any age;
- Other livestock include bison, deer, elk, etc.;
- Young chickens include: broilers/fryers that are usually less than 10 weeks of age, roasting chickens are young chickens of either sex usually less than 12 weeks of age, and capons that are surgically neutered male chickens usually less than 8 months of age;
- Mature chickens are adult female chickens usually more than 10 months of age;
- Young turkeys include fryer/roaster turkeys that are either male or female and usually less than 12; weeks of age, and turkeys that are either male or female usually less than 6 months of age;
- Mature turkeys are of both sex and usually more than 15 months of age;
- Ducks are of both sex and any age;
- Geese are of both sex and any age;
- Other poultry include ratites (typically ostriches, emus and rheas), guineas, squabs (young, unfledged pigeons), adult pigeons, pheasants, grouse, partridge, quail etc.;
- Rabbits are any of several lagomorph mammals;
- Egg products are yolks, whites, or whole eggs after breaking and can be dried, frozen, or liquid.

#### IV. Allocation of Sampling Resources

##### *"Full-Resource" Sampling*

Table 4 lists the estimated consumption of each production class as a percentage of the total consumption of all the production classes in the table. To obtain these estimates, production data for animals (and egg products) that were presented for slaughter (or processing) in federally inspected establishments during calendar year 2003 were employed as a surrogate for consumption. The production data for calves were collected, collated and reported by FSIS, using the Automated Data Reporting System. The production data for all other production classes, including egg products, were collected by FSIS, and collated and reported by the National Agricultural Statistical Service. As shown in Equation 5, the estimated relative percent of consumption represented by each production class was obtained by dividing the estimated total annual U.S. domestic production (pounds dressed weight) for that class by the total poundage for all production classes that are listed in Table 4.3:

Percent Estimated Relative Percent of Domestic Consumption (ERC)

$$ERC = AP/TP \times 100 \quad \text{Equation 5}$$

AP = Annual Production (dressed weight in pounds)

TP = Total Annual Production of all Production Classes

All calculations and results are presented in Table 4, *Estimated Relative Consumption, Domestically Produced Meat, Poultry, and Egg Products*.

FSIS has the analytical capability to sample production classes of concern for the following compounds and compound classes: antibiotics (by bioassay); arsenicals; avermectins; sulfonamides; and phenylbutazone (via the CHC/COP methodology). To establish a relative sampling priority for each compound-production class pair, the ranking score (as calculated in Table 1) was multiplied by the estimated relative percent of domestic consumption for each production class (as calculated in Table 5 and as presented in Table 4). The resulting priority score for compound-production class pairs is shown in tables 5 and 6 and is calculated as follows (Equation 6):

Priority Score (PS)

$$PS = CP \times RPC \quad \text{Equation 6}$$

CP = compound priority score rating

RPC = relative percent consumption

Equation 6 is analogous to the equation used to estimate risk in Equation 1, in which risk per unit of consumption is multiplied by consumption. While the results of Equation 6 do not constitute an estimate of risk, they provide a numerical representation of the relative public health concern represented by each C/PC pair, and thus can be used to prioritize FSIS analytical sampling resources according to the latter. Note that the risk ranking provided by Equation 6 is based upon average consumption across the entire U.S. population, rather than upon maximally exposed individuals.

In Table 5, *Veterinary Drug Compound-Production Class Pairs, Sorted by Sampling Priority Score, "Full Resource" Sampling*, the calculation shown in Equation 6 has been carried out for the antibiotics, arsenicals, avermectins, and sulfonamides, for each production class in which the specified drug might appear (as indicated in Table 6). The compound-production class pairs were sorted by their sampling priority scores, and roughly divided into quartiles. Initially, compound-production class pairs in the first through fourth quartiles were assigned sampling numbers of 460, 300, 230, and 90, respectively. The cutoff scores for Relative Public Health Concern corresponding to each sampling level were as follows: > 84 = 460 samples; 5.54 – 47.66 = 300 samples; 0.2 – 2.68 = 230 samples; < 0.17 = 90 samples. These priority scores were combined with historical violation rate information for each individual compound-production class pair, information on laboratory sampling capacity, and the number of slaughter facilities to select, for each pairing, from among four different sampling options: very high regulatory concern (460 analyses/year); high regulatory concern (300 analyses/year); moderate regulatory concern (230 samples/year); low regulatory concern (90 samples/year). The larger sample sizes, which provide the greater chance of detecting violations, are directed towards those compound-production class pairs that have been identified as representing higher levels of relative public health concern. Statistically, if  $v$  is the true violation rate in the population and  $n$  is the number of samples, the probability,  $P$ , of finding at least one violation among the  $n$  samples (assuming random sampling) is:  $P = 1 - (1 - v)^n$ . Therefore, if the true violation rate is 1%, the probabilities of detecting at least one violation with sampling levels of 460, 300, 230, and 90 are 99%, 95%, 90%, and 60%, respectively. The higher sampling levels are useful when FSIS wishes to schedule slaughter classes with somewhat lower violation rates (which is typically done for larger slaughter classes, since these represent a larger potential consumer exposure). For example, if the true violation rate is 0.5%, increasing the sampling level from 300 to 460 increases the chance of detecting a violation from 78% to 90%. By contrast, the lower sampling levels enable FSIS to ensure, without expending excessive resources that gross residue violation problems do not exist in minor slaughter classes. For example, while 90 samples offers only a 60% probability of violation detection at a violation rate of 1%, at a violation rate of 3% the detection probability increases to 94%.

Horses, rabbits, ratites, squab, geese, ducks, and bison will not be scheduled for the 2005 domestic scheduled sampling program for the 2005 NRP because the minor species are low production animals. However, horses are of concern for residue violations and inspector generated sampling will continue. Not scheduling the minor species will allow FSIS to focus those resources on the development of methodologies in areas that are of high public health concern.

## **Adjusting Relative Sampling Numbers**

### ***Adjusting for historical data on violation rates of individual C/PC pairs***

As described above, FSIS uses "FSIS Historical Testing Information on Violations" as a critical factor in ranking the various drugs and drug classes according to their relative public health concern. Because this information is available for each production class individually, it can also be used to further refine the relative priority of sampling each C/PC pair. Table 6A, *Adjusted Number of Analyses for Each Veterinary Drug Compound/Production Class Pair, "Full Resource" Sampling*, lists the number of analyses assigned to each C/PC pair in Table 5. The table also reports the total number of samples analyzed in the FSIS scheduled sampling plan for the period 01/01/1994-12/31/2003, and the percent of samples found to be violative (i.e., present at a level in excess of the action level or regulatory tolerance; or, for those compounds that are prohibited, present at any detectable level) for each compound-production class pair. Using these data, the following rules were applied to adjust the sampling numbers:

- If less than 300 samples were tested in the FSIS scheduled sampling plan for a compound-production class pair (for the period 01/01/1994-12/31/2003), increase the sampling level by +1 level (e.g., from 230 samples to 300 samples).
- If the number of samples tested in the FSIS scheduled sampling plan for a compound-production class pair (for the period 01/01/1994-12/31/2003) was greater than or equal to 300 samples, and a violation rate of equal to or greater than 50%, and less than 70% ( $\geq 0.50\%$ , and  $< 0.70\%$ ) was found, increase the sampling level by +1 level.
- If at least 300 samples were tested in the FSIS scheduled sampling plan for a compound-production class pair (for the period 01/01/1994-12/31/2003), and a violation rate of greater than or equal to 70% ( $\geq 0.70\%$ ) was found, increase the sampling level by +2 levels.
- If at least 300 samples tested in the FSIS scheduled sampling plan for a compound-production class pair (for the period 01/01/2001-12/31/2003), and a violation rate of 0.00% was found, rotate the C/PC pair out of the NRP. The compound-production class pair will be reintroduced at a later date.
- The maximum number of samples to be scheduled for testing is 460.

All of the above adjustments were applied, and the sampling numbers obtained following these adjustments are listed in Table 6A and 6B under the heading "Initial Adjustment" (initial adjusted number of samples).

### ***Adjusting for laboratory capacity***

After adjusting for historical data, it was necessary to make a final set of adjustments to match the total sampling numbers for each compound class with the analytical capabilities of the FSIS laboratories.

For avermectins, it was decided to increase the number of scheduled samples in steers from 460 to 1000. The reason for the increase is that FSIS wants to establish a baseline violation rate for a single year, rather than a ten year period, for this compound-production class pair.

### ***Adjustment for the Number of Slaughter Facilities***

An adjustment to the total number of scheduled samples was made based on the number of production facilities. For this adjustment, FSIS considered the total number of production facilities (USDA Inspected Establishments for 2003) for each production class. If the total number of production facilities for a production class was found to be low relative to other production classes, the total number of scheduled samples was reduced for that production class. The number of samples selected for the reduction is based on FSIS professional judgment. If the number of facilities is less than 100, but greater than 10, the number of scheduled samples was adjusted down by 1 level. If the total number of facilities is less than 10, the number of scheduled samples was adjusted down by 2 levels. In either case, the total number of samples will not be reduced below 90. Based on these parameters, the number of scheduled samples was adjusted for the following production classes: "Formula-fed veal", "Bob Veal", "Young Turkeys", "Mature Chickens", and "Mature Turkeys." No adjustment will be made for the minor species (horses, bison, ducks, rabbits, geese, squab, and ratites) since these production classes are suspended from testing for the 2005 NRP.

### ***Adjustment for a zero (0%) violation rate for the three year period, 2001 – 2003***

FSIS historical violation data were examined for the 2001 - 2003 production years. For compound slaughter class pairs that had a zero percent violation rate for the three year period, the number of scheduled samples was reduced to zero.

### ***Final Adjustment***

The total number of scheduled samples for compound-production class pairs were obtained following adjustments for laboratory capacity, production, and violation rate data are listed in Table 6, under the heading "Final Adjustment."

### **"Limited Resource" Sampling**

The 2005 NRP includes a number of compounds for which FSIS does not have extensive sampling data. FSIS is concerned with obtaining information on their occurrence in production classes where it is suspected they might be of concern. To enable FSIS to sample this entire range of compounds, it is necessary to limit the number of samples taken per compound. In apportioning this "limited resource" sampling among the production classes of concern, it was particularly important to ensure that a sufficient number of samples be taken from each production class analyzed. If too few samples are taken from a production class, and no violations are detected, it would be difficult to interpret such a result. Where possible, a minimum of 300 analyses are scheduled in each production class to be sampled. This yields a 95% chance of detecting a violation, if the true violation rate is 1%. However, because of laboratory resource limitations, it is not always possible to sample at this level.

For the 2005 NRP, selection of production classes for the limited resource sampling for compounds (Table 6B) was made as follows:

- *beta*-Agonists (clenbuterol, cimaterol, and salbutamol) are of concern in steers, formula-fed veal, and market hogs. The analytical capacity for the *beta*-agonists in 2005 is 1,000 samples. FSIS will schedule 1,000 analyses for clenbuterol in steers for domestic sampling.
- Carbadox is of concern in market hogs. The analytical capacity is 300 samples for carbadox for the 2005 NRP. FSIS will schedule 300 analyses for carbadox in market hogs for domestic sampling.
- Chloramphenicol is of concern in dairy cows, formula-fed veal, non-formula-fed veal, young chickens, mature chickens, young turkeys, and mature turkeys. The analytical capacity is 1,094 samples for chloramphenicol for the 2005 NRP. FSIS will schedule 1,094 analyses for chloramphenicol for dairy cows, formula-fed veal, non-formula-fed veal, young chickens, mature chickens, young turkeys, and mature turkeys for domestic and import sampling.
- Florfenicol is of concern in dairy cows, formula-fed veal, and non-formula-fed veal. The analytical capacity is 410 samples for florfenicol for the 2005 NRP. FSIS will schedule 410 analyses for florfenicol in dairy cows, formula-fed veal, and non-formula-fed veal for domestic sampling.
- Melengestrol Acetate (MGA) is of concern in heifers, steers, formula-fed veal, and non-formula-fed veal. The analytical capacity for MGA in 2005 is 300 samples, and the top priority production class is heifers. FSIS will schedule 300 analyses for MGA in heifers for domestic sampling.
- Phenylbutazone is of concern in steers. The analytical capacity for phenylbutazone is 1,000 samples in the 2005 NRP. FSIS will schedule 1,000 analyses for phenylbutazone in steers for domestic sampling.
- Ractopamine is of concern in steers, formula-fed veal, and market hogs. The analytical capacity for ractopamine in the 2005 NRP is 410 samples. FSIS will schedule 410 analyses for ractopamine in steers, formula-fed veal, and market hogs for domestic and import sampling.
- Thyreostats are of concern in steers and heifers. The analytical capacity for thyreostats in 2005 is 600 samples. FSIS will schedule 600 analyses for thyreostats
- Trenbolone is of concern in formula-fed veal. The analytical capacity for trenbolone is 1,000 samples in 2005. FSIS will schedule 1,000 samples for trenbolone.
- Zeranol is of concern in formula-fed veal. The analytical capacity for zeranole is 1,000 samples in 2005. FSIS will schedule 1,000 samples for zeranol.

The above information is presented in tabular format at the end of the section, “Summary of Domestic and Import Sampling,” in Table 49 *Detailed Sampling Plan, 2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys*, Table 50, *Summary, 2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys*, and in Table 54, *Combined Summary, 2005 FSIS NRP, Domestic and Import Scheduled Sampling, and Specifically Designed Surveys*.

## **V. Scoring Key**

### ***FSIS Historical Testing Information on Violations (01/01/1994 - 12/31/2003)***

Violation rate scores were calculated by two different methods (see below), using violation rate data from FSIS random sampling of animals entering the food supply:

Method A: Maximum Violation Rate. Identify the production class exhibiting the highest average violation rate (the number of violations over the period from 1994 - 2003, divided by the total number of samples analyzed). Score as follows:

4 = > 0.70%

3 = 0.31% - 0.70 %

2 = 0.15% - 0.30%

1 = < 0.15%

NT = Not tested by FSIS

NA = Tested by FSIS, but violation information does not apply

*Note that the above violation rate criteria are different from those used in planning the 1998 – 2002 NRP's. For previous NRP's the criteria were as follows: 4 = > 1.0%; 3 = 0.50% - 1.0 %; 2 = 0.15% - 0.49%; and 1 = < 0.15%. These new cutoffs permit FSIS to better distinguish between "high-violation" and "low-violation" slaughter classes.*

Method B: Violation Rate Weighted by Size of Production Class. For each production class analyzed, multiply the average violation rate (defined above) by the relative consumption value for that class (weighted annual U.S. production for that class, divided by total production for all classes for which FSIS has regulatory responsibility). Add together the values for all production classes. Score as follows:

4 = > 0.15%

3 = 0.076% - 0.15%

2 = 0.01% - 0.075%

1 = < 0.01%

NT = Not tested by FSIS

NA = Tested by FSIS, but violation information does not apply

A final score is determined by assigning, to each drug or drug class, the greater of the scores from Method A and Method B.

It can be seen that Method A identifies those drugs that are of regulatory concern because they exhibit high violation rates, independent of the relative consumption value of the production class in which the violations have occurred. Method B identifies those drugs that may not have the highest violation rates, but would nevertheless be of concern because they exhibit moderate violation rates in a relatively large proportion of the U.S. meat supply. By employing methods A and B together, and assigning a final score based on the highest score received from each, both of the above concerns are captured.

### ***Regulatory Concern***

This consists of professional judgments made about the likelihood of occurrence of violations, based on regulatory intelligence information about possible misuse. Due to the public health significance of drug residue violations, information concerning a compound must meet only one of the requirements listed under each number below to receive that numerical ranking.

- 4 = Well-documented intelligence information gathered from a variety of reliable sources indicates possible widespread misuse of the compound, and/or this compound not approved for use in food animals in the U.S.
- 3 = Intelligence information gathered through a variety of sources indicates only occasional misuse of this compound. The dosage form/packaging of this compound has potential for misuse.
- 2 = Intelligence information rarely indicates misuse of this compound.
- 1 = Intelligence information has never indicated misuse of this compound.

### ***Lack of FSIS Testing Information on Violations***

This represents the extent to which FSIS analytical testing information on a residue is limited, absent or obsolete. Scores for lack of testing information are assigned as follows:

- A score of 4 for the following conditions:
  - FSIS has not included this compound in its sampling program within the past 10 years (1/1/1994 - 12/31/2003);
  - FSIS has included this compound within its program only between 6 and 10 years ago (1/1/1994 - 12/31/1998), but the sampling does not meet the criteria specified for a "3;"
  - FSIS has included this compound in its sampling program, but the information is not at all useful in predicting future violation rates, because of subsequent significant changes in the conditions of use of the compound (e.g., the reduction in withdrawal time for carbadox), or because regulatory intelligence information indicates that the situation has changed significantly since the last time the compound was sampled; or
  - Because the compound is of concern in several production classes of interest, but testing has been carried out in only one.
  
- A score of 3 for the following conditions:
  - FSIS has tested within the past 5 years (1/1/1998 - 12/31/2003), but in fewer than 75% of the production classes of interest;
  - If 75% of production classes were tested and there was no production class from which at least 300 samples have been analyzed;
  - The only testing was between 6 and 10 years ago, where FSIS has analyzed at least 75% of production classes of interest for at least 2 of these 5 years, with a total of at least 500 samples per production class during this 5-year period and, in the case of a multiresidue method (MRM), the method used covers all compounds of interest with the compound class;
  - A compound would normally have qualified for a "1" or "2," but the method used was not sufficiently sensitive to permit accurate determination of the true violation rate.
  
- A score of 2 for the following conditions:
  - FSIS has included this compound in its sampling program within the past 5 years in at least 75%, but less than 100% of the production classes of interest, with at least 300 samples in at least one production class; or

- 100% of the production classes of interest have been sampled, but the amount and duration of sampling has been insufficient to qualify for a "1."
- A score of 1 for the following conditions:
  - FSIS has included this compound in its sampling program within the past 5 years, and has analyzed 100% of the production classes of interest for at least 2 of these 5 years, with a total of at least 500 samples per production class during this 5-year period, and in the case of an MRM, the method used covers all compounds of interest with the compound class; or
  - FSIS has included this compound in its sampling program for at least 4 of the past 5 years, and at least 6,000 samples have been analyzed during this period.

### ***Withdrawal Time***

Producers using approved animal drugs are required to follow approved "conditions of use." For each drug, in each production class in which it is approved, the conditions of use specify the dosing regimen and the withdrawal time. The withdrawal time is the number of days that must pass between completion of the dosing regimen and the time of slaughter. This allows sufficient time for the concentration of drug in the animal to decrease below the tolerance. For approved drugs, the following scores were used:

- Score = 4, when the withdrawal time greater than 14 days;
- Score = 3, when the withdrawal time is between 8 and 14 days;
- Score = 2, when the withdrawal time is between 1 and 7 days; and
- Score = 1, when there is a zero-day withdrawal time

For unapproved drugs, scores in this category were assigned based on estimates of their half-lives.

### ***Impact on New and Existing Human Disease***

This represents the extent to which the use or misuse of a drug may contribute to new and existing human disease by changing the patterns of antibiotic resistance in human pathogens. A score for impact on new and existing human disease is determined as follows:

- 4= Scientific information gathered from a variety of reliable sources indicate that possible widespread use of this compound might significantly modify drug resistance patterns of human pathogenic organisms.
- 3 = Limited scientific information is available to suggest or document public health risk but compound has the potential to affect microflora.
- 2 = No scientific information available to suggest or document public health risk.
- 1 = Current scientific information available suggests no public health risk.

### ***Relative Number of Animals Treated***

These scores are based on economic data on doses sold, as well as surveys of treatment practices in animal populations that are representative of national feedlot, dairy, poultry, and swine production.

- 4 = Products containing this drug fall within the top third of those administered to animals treated within a particular category and dosage form of active ingredient.
- 3 = Products containing this drug fall within the middle third of those administered to animals treated within a particular category and dosage form of active ingredient.
- 2 = Products containing this drug fall within the bottom third of those administered to animals treated within a particular category and dosage form of active ingredient (but have more usage than products given a score of “1,” as defined below).
- 1 = Products containing this drug are estimated to have extremely limited usage.

Note: Where data were unavailable, scores were estimated, based on comparison to related drugs with known usage levels. Numbers estimated in this way are contained within parentheses.

#### ***Acute or Chronic Toxicity Concerns***

This represents a combination of the toxicity of the compound and the severity associated with the compound’s toxic endpoint.

- 4 = Compound is a carcinogen, or potentially life threatening, or has significant acute effects including the anaphylactic response to an allergen.
- 3 = Systemic No Observed Effect Levels (NOEL's) seen at intermediate to low doses in laboratory test animals. Antimicrobial effects with a high potential to alter intestinal microflora.
- 2 = Systemic NOEL's seen at high oral doses in laboratory test animals. Antimicrobial effects with a moderate potential to alter intestinal microflora.
- 1 = Compound generally shows no toxicity in laboratory test animals even at doses much higher than present in edible tissues at zero-day withdrawal.

**Table 1**  
**Scoring Table for Veterinary Drugs**  
**2005 FSIS NRP, Domestic Scheduled Sampling**

Compound / Compound Class	Historical Testing Info. on Violations (FSIS) (V)	Regulatory Concern (CVM) (R)	Withdrawal Time (CVM) (W)	Relative Number Animals Treated (CVM) (N)	Predicted V = $0.1*(R*N) + 1.72$	Predicted V, Except When Actual V is Available	Impact New & Existing Human Disease (CDC) (D)	Acute or Chronic Toxicity Concerns (CVM) (T)	Lack of Testing Info. on Violations (FSIS) (L)	Relative Public Health Concern Score = $V*[(D+3*T)/4] * \{1+[(L-1)*0.05]\}$
Antibiotics quantitated by the FSIS Bioassay MRM	4	4	4	4	3.32	4.00	3	4	1	15.00
Carbadox (antimicrobial)	3	4	4	3	2.92	3.00	3	4	3	12.38
Sulfonamides (antimicrobials, some are coccidiostats)	4	4	3	4	3.32	4.00	3	3	1	12.00
Florfenicol (chloramphenicol deriv.)	NT	3	4	4	2.92	2.92	3	3	4	10.07
Avermectins in FSIS MRM (incl. doramectin, ivermectin, moxidectin) (antiparasitics)	4	3	4	4	2.92	4.00	2	4	1	14.00
Arsenicals (detected as As)	3	4	2	4	3.32	3.00	3	2	1	6.75
Flunixin	3	4	2	3	2.92	3.00	1	2	3	5.78
Ractopamine (beta agonist)	1	4	2	3	2.92	1.00	2	3	3	3.03
Thyreostats (incl. thiouracil)	NT	4	3	1	2.12	2.12	2	4	4	8.53
Dipyron (NSAID)	NT	4	3	1	2.12	2.12	1	4	4	7.92
Berenil (antiprotozoal, Histomonas)	NT	4	4	1	2.12	2.12	2	3	4	6.70
Trenbolone (hormone, synthetic)	NT	4	1	3	2.92	2.92	3	3	4	10.07
Zeranol (hormone, synthetic)	NT	3	1	3	2.62	2.62	3	3	4	9.04
Methyl prednisone (glucocorticoid)	NT	4	2	2	2.52	2.52	1	3	3	6.93
Eprinomectin (avermectin)	NT	2	2	3	2.32	2.32	2	2	4	5.34
Clorsulon (anthelmintic, Trematodes)	NT	2	3	2	2.12	2.12	2	2	4	4.88
Dexamethasone (glucocorticoid)	NA-O	4	2	2	2.52	2.52	1	3	4	7.25
Thiamphenicol (chloramphenacol derivative)	NT	3	2	1	2.02	2.02	3	3	4	6.97
Amprolium (coccidiostat)	NT	4	2	2	2.52	2.22	3	2	4	5.75
Hormones (naturally-occurring)	NT	2	1	4	2.52	1.97	2	2	4	4.54

**Table 1 - Continued**  
**Scoring Table for Veterinary Drugs**  
**2005 FSIS NRP, Domestic Scheduled Sampling**

Compound / Compound Class	Historical Testing Info. on Violations (FSIS) (V)	Regulatory Concern (CVM) (R)	Withdrawal Time (CVM) (W)	Relative Number Animals Treated (CVM) (N)	Predicted V = $0.1*(R*N) + 1.72$	Predicted V, Except When Actual V is Available	Impact New & Existing Human Disease (CDC) (D)	Acute or Chronic Toxicity Concerns (CVM) (T)	Lack of Testing Info. on Violations (FSIS) (L)	Relative Public Health Concern Score = $V*[(D+3*T)/4] * \{1+[(L-1)*0.05]\}$
Lasalocid (coccidiostat)	NT	2	1	3	2.32	1.95	3	2	4	5.05
Melengestrol Acetate (MGA; synthetic hormone)	1	3	1	4	2.92	1.00	3	3	3	3.30
Levamisole (anthelmintic, Nematodes)	3	3	3	2	2.32	3.00	1	1	4	3.45
Prednisone (glucocorticoid)	NT	2	2	1	1.92	2.10	1	3	4	6.05
Etodolac (NSAID)	NT	3	2	1	2.02	2.12	1	3	3	5.84
Halofuginone (antiprotozoal, coccidiostat)	2	1	2	2	1.92	2.00	2	2	4	4.60
Benzimidazoles (anthelmintic)	NT	1	3	2	1.92	2.30	1	2	4	4.62
Veterinary tranquilizers	NT	4	2	2	2.52	2.22	1	1	4	2.56
Nicarbazin (coccidiostat)	NT	2	2	1	1.92	2.10	2	1	4	3.02
Morantel and pyrantel (anthelmintic)	2	1	1	2	1.92	2.00	2	1	4	2.88

**Key:**

MRM = multiresidue method

NT = not tested by FSIS (01/01/1994 - 12/31/2003)

NA-O = data are preliminary; useable data on this compound (i.e., data are not subject to any of the various problems listed immediately above) have been collected for only one year

FSIS = scores in this column supplied by FSIS

CVM = scores in this column supplied by CVM

CDC = scores in this column supplied by CDC.

**Table 2A  
Drugs Banned from Extralabel use under AMDUCA\*  
2005 FSIS NRP, Domestic Scheduled Sampling**

AMDUCA Prohibited Drug	Status in the 2005 NRP
Chloramphenicol	Domestic: 230, 90, 90, 230, 90, 90, and 90 samples are scheduled for dairy cows, formula-fed veal, non-formula-fed veal, young chickens, mature chickens, young turkeys and mature turkeys, respectively. Import: 93 samples for fresh beef and 91 samples for fresh veal
Nitrofurans, including furazolidone and nitrofurazone (antimicrobials)	NIP
Clenbuterol**	Domestic: 1,000 samples are scheduled for steers. Confirmation done by FDA-NCTR Import: No samples scheduled for 2005
Fluoroquinolones	NIP
Ronidazole (nitroimidazole; antimicrobial use)	NIP
Nitroimidazoles (FSIS MRW: dimetridazole and ipronidazole; antiprotozoal use)	NIP
Avoparcin (glycopeptide)	NIP
Vancomycin (glycopeptide)	NIP
Diethylstilbestrol (DES; synthetic hormone)	NIP
Phenylbutazone (NSAID)	Domestic: 1,000 samples are scheduled for steers (by ELISA); 5,452 samples are scheduled as part of the CHC/COP MRM Import: No samples are scheduled for 2005

\*Drugs banned from extralabel use under AMDUCA were not evaluated using the ranking formula for inclusion in Table 2A. Instead, these drugs were automatically assigned a high sampling priority and will be included in the NRP if methodologies and resources are available.

\*\*The clenbuterol methodology employs a screen that has been officially validated for clenbuterol (bovine and porcine) and has been extended to salbutamol and cimaterol (bovine). The method has also demonstrated the ability to detect other beta agonists, including ractopamine. The follow-up confirmatory method may detect several unapproved beta agonists, including the following: clenbuterol; cimaterol; fenoterol; mabuterol; salbutamol; brombuterol; and terbutaline.

**Table 2B**  
**Rank and Status of Veterinary Drugs**  
**2005 FSIS NRP, Domestic Scheduled Sampling**

Rank	Drug	Score	Status in the 2005 NRP
1	Antibiotics At present, the following antibiotics are quantitated using the 7-plate bioassay after a specific identification is made using mass spectroscopy (MS) or using high performance liquid chromatography (HPLC): tetracycline, oxytetracycline, chlortetracycline, gentamicin, streptomycin, dihydrostreptomycin, erythromycin, tylosin, neomycin, beta-lactams (quantitated as penicillin-G; penicillins and cephalosporins are not differentiated within this category), and tilmicosin (quantitated by HPLC). The following antimicrobials can be identified by MS; however, no quantitative methods are available: spectinomycin, hygromycin, amikacin, kanamycin, apramycin, tobramycin, lincomycin, pirlimycin, clindamycin, and oleandomycin.	15.0	Domestic Scheduled Sampling: 300, 300, 90, 460, 300, 300, 300, 230, and 300 samples are scheduled for market hogs, dairy cows, formula-fed veal, heifers, bob veal, beef cows, sows, heavy calves, and non-formula-fed veal, respectively
			Imported: All fresh product classes.
2	Avermectins (antiparasitic doramectin, ivermectin, and moxidectin)	14.0	Domestic Scheduled Sampling: 300, 230, 300, 230, 90, and 90 samples are scheduled for bulls, lambs, goats, heavy calves, non-formula fed veal, and sheep production classes, respectively
			Imported: Beef, pork, veal, lamb/mutton fresh and lamb/mutton processed
3	Carbadox (antimicrobial)	12.4	Monitoring Plan: Not scheduled for 2005
			Special designed project: 300 samples are scheduled for roaster pigs
			Imported: Not scheduled for 2005
4	Sulfonamides in FSIS MRM (sulfapyridine, sulfadiazine, sulfathiazole, sulfamerazine, sulfamethazine, sulfachloropyridazine, sulfadoxine, sulfamethoxy pyridazine, sulfaquinoxaline, sulfadimethoxine, sulfisoxazole, sulfacetamide, sulfamethoxazole, sulfamethizole, sulfanilamide, sulfaguanidine, sulfabromomethazine, sulfasalazine, sulfaethoxy pyridazine, sulfaphenazole, and sulfatroxazole) (antimicrobials, some are coccidiostats)*	12.0	Domestic Scheduled Sampling: All production classes except egg products, sows, mature chickens, bison, ducks, goats, ratites, geese, and squab
			Imported: All production classes
5	Florfenicol (chloramphenicol derivative)	10.1	Domestic Scheduled Sampling: 230, 90, and 90 samples for dairy cows, formula-fed veal, and non-formula-fed veal, respectively
			Imported: Not scheduled for 2005
6	Trenbolone	10.1	Domestic Scheduled Sampling: 1,000 samples are scheduled for formula-fed veal
			Imported: Not scheduled for 2005
7	Zeranol (hormone, synthetic)	9.0	Domestic Scheduled Sampling: 1,000 samples are scheduled for formula-fed veal
			Imported: Not scheduled for 2005
8	Thyreostats (incl. thiouracil)	8.5	Exploratory Project: 600 samples are scheduled for steers and for heifers.
			Imported: Not scheduled for 2005

**Table 2B - continued**  
**Rank and Status for Veterinary Drugs**  
**2004 FSIS NRP, Domestic Scheduled Sampling**

Rank	Drug	Score	Status in the 2005 NRP
9	Dipyron (NSAID)	7.9	NIP
10	Dexamethasone (glucocorticoid)	7.2	NIP
11	Thiamphenicol (chloramphenicol derivative)	7.0	NIP
12	Methyl prednisone (glucocorticoid)	6.9	NIP
13	Arsenicals (detected as As)	6.8	NIP NIP
14	Berenil (antiprotozoal)	6.7	Domestic Scheduled Sampling: Not scheduled for 2005 Imported: Not scheduled for 2005
15	Prednisone (glucocorticoid)	6.0	NIP
16	Etodolac (NSAID)	5.8	NIP
17	Flunixin (NSAID)	5.8	Domestic Scheduled Sampling: Not scheduled for 2005 Imported: Not scheduled for 2005
18	Amprolium (coccidiostat)	5.8	NIP
19	Eprinomectin (ivermectin)	5.3	NIP
20	Lasalocid (coccidiostat)	5.1	NIP
21	Clorsulon (anthelmintic, Trematodes)	4.9	NIP
22	Benzimidazoles in FSIS MRM (thiabendazole and its 5-hydroxythiabendazole metabolite, albendazole 2-animosulfone metabolite, benomyl in the active hydrolyzed form carbendazim, oxfendazole, mebendazole, cambendazole, and fenbendazole) (anthelmintics)	4.6	NIP
23	Halofuginone (antiprotozoal, coccidiostat)	4.6	NIP
24	Hormones, naturally-occurring (17-estradiol, testosterone, and progesterone)	4.5	NIP
25	Levamisole (anthelmintic)	3.5	NIP
26	MGA (hormone, synthetic)	3.3	Domestic Scheduled Sampling: 300 samples are scheduled for heifers. Imported: Not scheduled for 2005
27	Ractopamine (beta agonist)	3.0	Domestic Scheduled Sampling: 230, 90, and 90 samples are scheduled for steers, formula-fed veal, and market hogs Imported: Not scheduled for 2005
28	Nicarbazin (coccidiostat)	3.0	NIP
29	Morantel and pyrantel (anthelmintic)	2.9	NIP
30	Veterinary tranquilizers (azaperone and its metabolite azaperol, xylazine, haloperidol, acetopromazine, propionylpromazine, and chlorpromazine)	2.6	

\*FDA has not set a tolerance for the following sulfonamides: sulfapyridine, sulfadiazine, sulfadoxine, sulfamethoxyypyridazine, sulfisoxazole, sulfacetamide, sulfamethoxazole, sulfamethizole, sulfanilamide, sulfaguanidine, sulfasalazine, sulfaphenazole, and sulfatroxazole.

**Table 2B - *continued***  
**Rank and Status for Veterinary Drugs**  
**2004 FSIS NRP, Domestic Scheduled Sampling**

**Key:**

MRM = Multiresidue method

CHC/COP = Chlorinated hydrocarbon/chlorinated organophosphate

NIP = Not included in 2004 FSIS National Residue Program (NRP)

NSAID = Non-steroidal anti-inflammatory drug

FDA-NCTR = Food and Drug Administration, National Center for Toxicological Research, Jefferson, AR.

In the second column, where multiple compounds have been grouped together for analysis or potential analysis by a single MRM, the title of that group has been bolded (e.g., “Antibiotics in FSIS Bioassay MRM”).

**Table 3A**  
**Production Classes to be Considered for Each Veterinary Drug/Drug Class**  
**2005 FSIS NRP, Domestic Scheduled Sampling**

ERC	Production Class	AMDUCA Drugs			
		Chloramphenicol	<i>beta</i> -Agonists (clenbuterol, cimaterol, and salbutamol)	Phenylbutazone (ELISA method)	Phenylbutazone (CHC method)
		--	--	--	--
0.025	Horses				●
0.562	Bulls				●
1.844	Beef cows			○	●
1.667	Dairy cows	●		○	●
8.013	Heifers			○	●
13.629	Steers		●	●	●
0.028	Bob veal	○			
0.136	Formula-fed veal	●	○		●
0.009	Non-formula-fed veal	●			●
0.017	Heavy calves			○	●
0.021	Bison				
0.009	Sheep				●
0.179	Lambs				●
0.032	Goats				●
18.544	Market hogs		○		●
0.011	Roaster pigs				●
0.057	Boars/Stags				●
1.001	Sows				●
43.790	Young chickens	●			●
0.815	Mature chickens	●			●
7.009	Young turkeys	●			●
0.081	Mature turkeys	●			●
0.159	Ducks				
0.003	Geese				
>0.01	Squab				
0.007	Ratites				
0.002	Rabbits				
2.352	Egg products				○

**Table 3B**  
**Production Classes to be Considered for Each Veterinary Drug/Drug Class**  
**2005 FSIS NRP, Domestic Scheduled Sampling**

ERC	Production Class	Drug and Priority Rating				
		Antibiotics 15.0	Arsenicals 6.8	Avermectins 14.0	Carbadox 12.4	Florfenicol 10.1
0.025	Horses	■		■		
0.562	Bulls	■		●		
1.844	Beef cows	●	■	■		
1.667	Dairy cows	●		■		●
8.013	Heifers	●		■		
13.629	Steers	■		■		
0.028	Bob veal	●		■		
0.136	Formula-fed veal	●		■		●
0.009	Non-formula-fed veal	●		●		●
0.017	Heavy calves	●		●		
0.021	Bison	■		■		
0.009	Sheep	■		●		
0.179	Lambs	■		●		
0.032	Goats	■	■	●		
18.544	Market hogs	■	■	■	●	
0.011	Roaster pigs	●	■	■	○	
0.057	Boars/Stags	■	■	■		
1.001	Sows	●	■	■		
43.790	Young chickens	■	■			
0.815	Mature chickens	■	■			
7.009	Young turkeys	■	■			
0.081	Mature turkeys	■	■			
0.159	Ducks	■	■			
0.003	Geese	■	■			
>0.01	Squab	■				
0.007	Ratites	■		■		
0.002	Rabbits	■				
2.352	Egg products	○	■			

**Table 3B - continued**  
**Production Classes to be Considered for Each Veterinary Drug/Drug Class**  
**2005 FSIS NRP, Domestic Scheduled Sampling**

ERC	Production Class	Drug and Priority Rating					
		Melengestrol Acetate (MGA) 3.3	Ractopamine 3.0	Sulfonamides 12	Thyreostats 8.5	Trenbolone 10.1	Zeranol 9.0
0.025	Horses			■			
0.562	Bulls			●			
1.844	Beef cows			●			
1.667	Dairy cows			●			
8.013	Heifers	●	○	■	●		
13.629	Steers	○	●	●	●		
0.028	Bob veal			●			
0.136	Formula-fed veal	○	●	●		●	●
0.009	Non-formula-fed veal	○		●		○	○
0.017	Heavy calves			●		○	○
0.021	Bison			■			
0.009	Sheep			■			
0.179	Lambs			●			
0.032	Goats			■			
18.544	Market hogs		●	●			
0.011	Roaster pigs		○	●			
0.057	Boars/Stags			●			
1.001	Sows			■			
43.790	Young chickens			■			
0.815	Mature chickens			■			
7.009	Young turkeys		○	■			
0.081	Mature turkeys			●			
0.159	Ducks			■			
0.003	Geese			■			
>0.01	Squab			■			
0.007	Ratites			■			
0.002	Rabbits			■			
2.352	Egg products			■			

**Table 3B - *continued***  
**Production Classes to be Considered for Each Veterinary Drug/Drug Class**  
**2005 FSIS NRP, Domestic Scheduled Sampling**

**Key:**

ERC = Estimated relative percent of domestic consumption, calendar year 2003. This was derived by estimating the total annual U.S. domestic production (pounds dressed weight) for each production class, and dividing by the total poundage for all production classes on this list (see Table 4.4).

● = Scheduled for sampling under the 2005 FSIS NRP

○ = Of potential regulatory concern, but not be sampled under the 2005 FSIS NRP

◐ = Not of regulatory concern, but sampled anyway because comes through during CHC/COP method

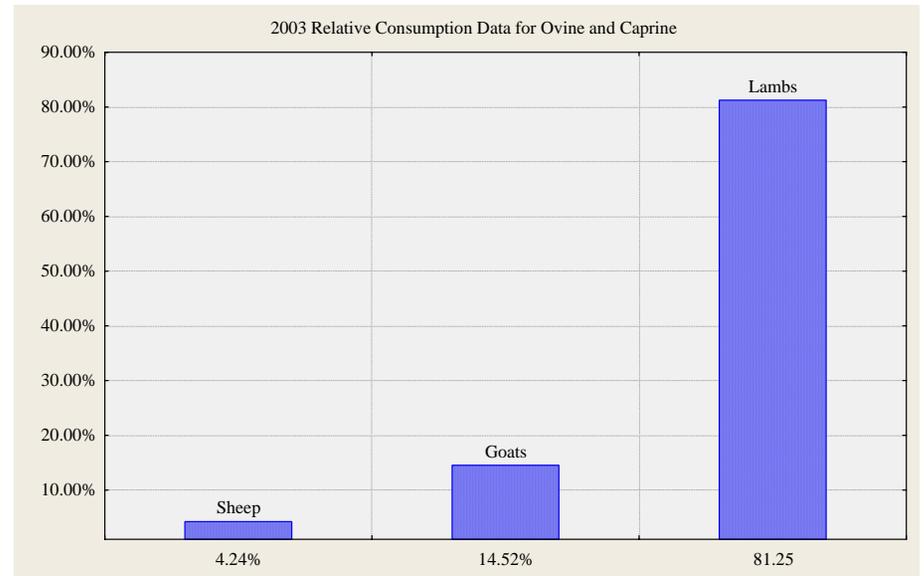
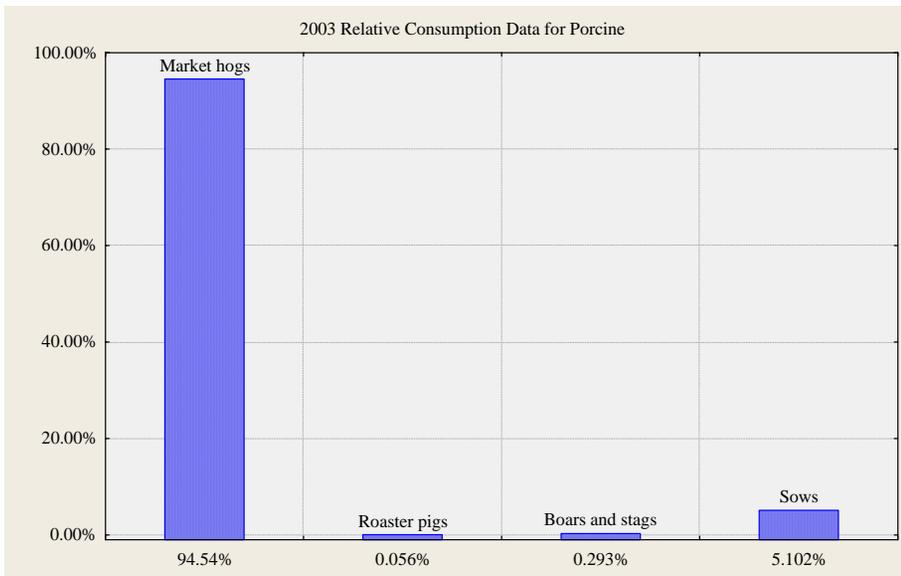
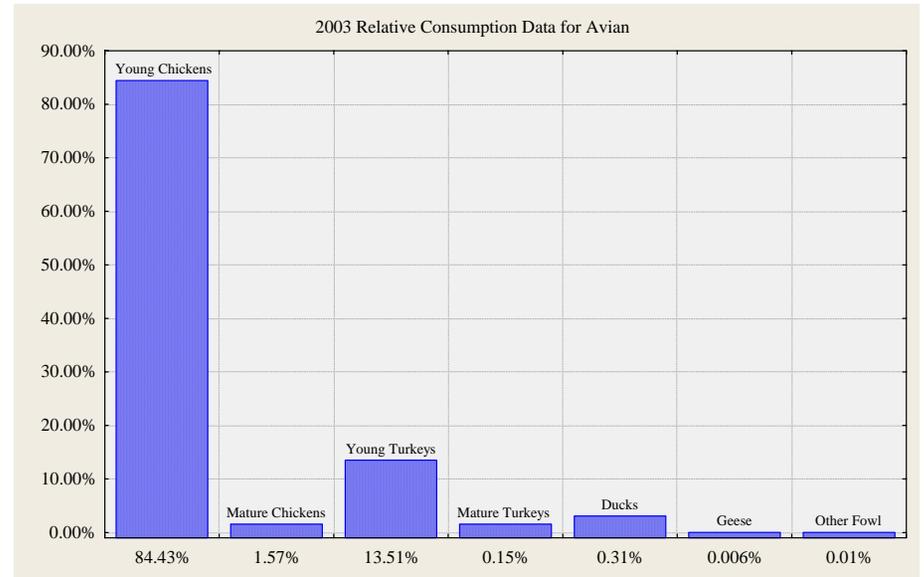
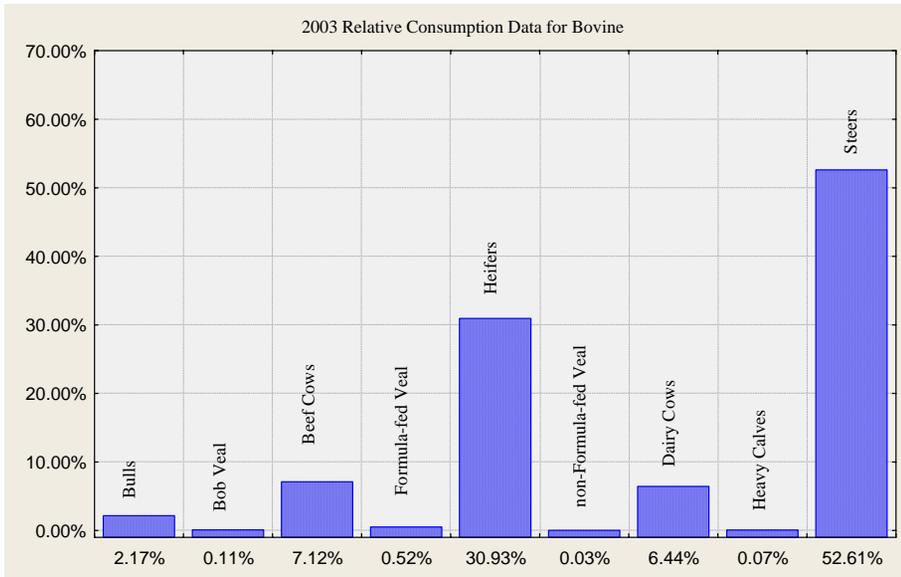
■ = FSIS has suspended scheduled sampling for this drug/production class pair in 2005.

**Table 4**  
**Estimated Relative Consumption, Domestically Produced Meat, Poultry, and Egg Products**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

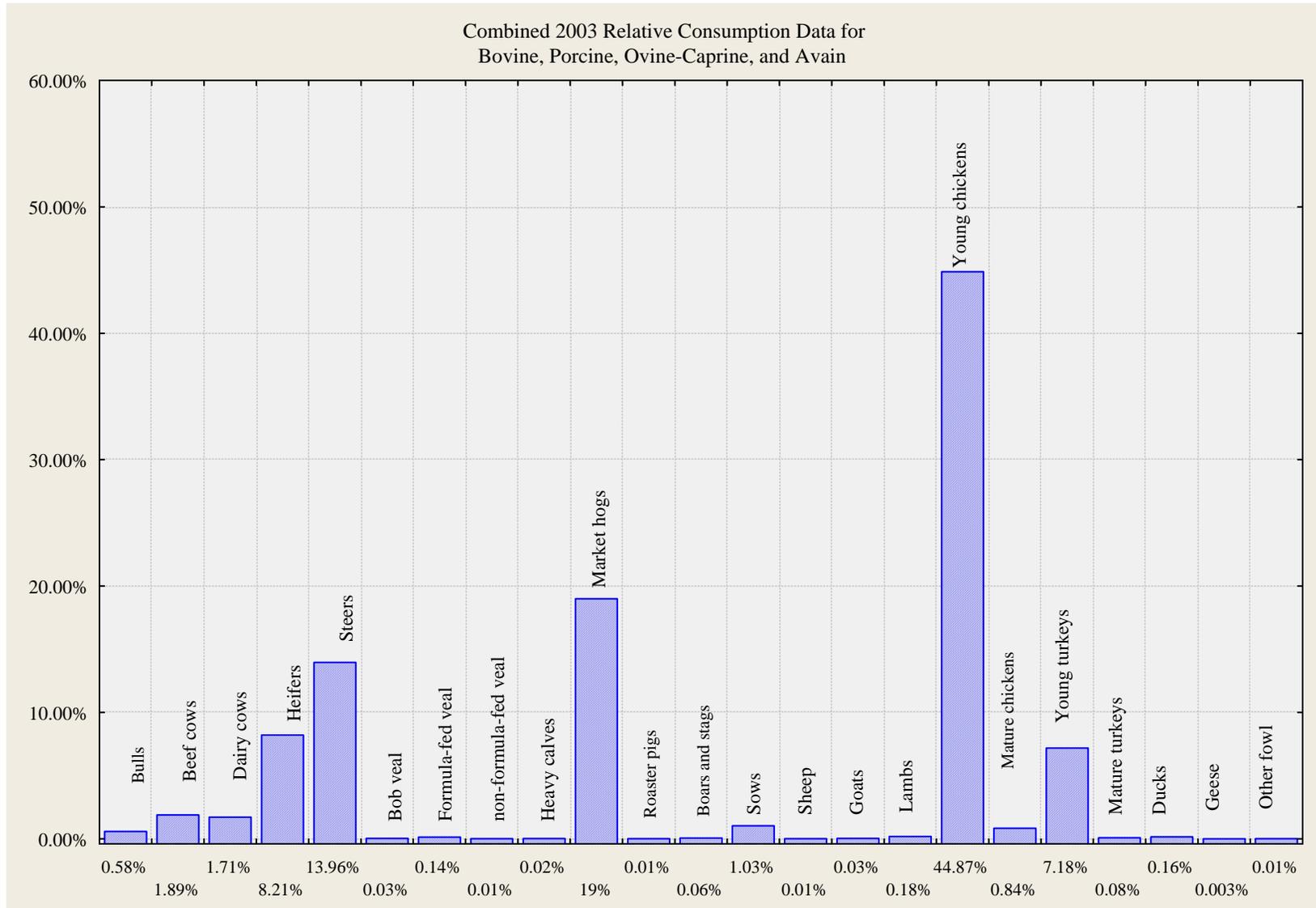
Production Class	Number of Head Slaughtered	Pounds per Animal (dressed weight)	Total Pounds (dressed weight)	Percent Estimated Relative Consumption
Bulls	629,000	904	568,616,000	0.562
Beef cows	3,163,000	590	1,866,170,000	1.844
Dairy cows	2,860,000	590	1,687,400,000	1.667
Heifers	11,078,200	732	8,109,242,400	8.013
Steers	17,177,000	803	13,793,131,000	13.629
Bob veal	382,692	75	28,701,900	0.028
Formula-fed veal	561,716	245	137,620,420	0.136
non-Formula-fed veal	26,036	350	9,112,600	0.009
Heavy calves	42,776	400	17,110,400	0.017
<b>Subtotal, Cattle</b>	<b>35,920,420</b>		<b>26,217,104,720</b>	<b>25.905</b>
Market hogs	96,242,000	195	18,767,190,000	18.544
Roaster pigs	160,000	70	11,200,000	0.011
Boars/Stags	241,200	241	58,129,200	0.057
Sows	3,215,300	315	1,012,819,500	1.001
<b>Subtotal, Swine</b>	<b>99,858,500</b>		<b>19,849,338,700</b>	<b>19.613</b>
Sheep	143,000	66	9,438,000	0.009
Goats	646,954	50	32,347,700	0.032
Lambs	2,662,000	68	181,016,000	0.179
<b>Subtotal, Ovine</b>	<b>3,451,954</b>		<b>222,801,700</b>	<b>0.220</b>
Horses	50,062	500	25,031,000	0.025
Bison	34,804	610	21,230,440	0.021
<b>Total, All Livestock</b>	<b>139,315,740.00</b>		<b>46,335,506,560</b>	<b>45.7839</b>
Young chickens	8,536,865,000		44,317,531,000	43.790
Mature chickens	147,569,000		824,973,000	0.815
Young turkeys	264,753,000		7,093,431,000	7.009
Mature turkeys	3,028,000		81,480,000	0.081
Ducks	24,301,000		160,871,000	0.159
Geese	215,109		3,014,303	0.003
Other fowl (include ratites)	8,251,275		6,253,088	0.006
<b>Subtotal, Poultry</b>	<b>8,984,982,384</b>		<b>52,487,553,391</b>	<b>51.8627</b>
Rabbits			1,720,481	0.002
Egg products			2,380,132,000	2.352
<b>GRAND TOTAL, ALL PRODUCTION CLASSES</b>			<b>101,204,912,432</b>	<b>100</b>

**Notes on Table - Sources of data:** The numbers in this table were derived from National Agricultural Statistical Service (NASS) data on animals (and egg products) presented for slaughter (or processing) in federally inspected establishments, for calendar year 2003 (CY '03), with the exception of the numbers for veal and calves, which were obtained from the FSIS Automated Data Reporting System. **Livestock:** For livestock, NASS does not provide figures for total pounds dressed weight. Therefore, CY '03 NASS figures for number of head slaughtered were multiplied by CY '03 NASS values for average pounds dressed weight per animal (where indicated by square brackets, the latter was unavailable and estimates were used instead), to calculate total pounds dressed weight. **Poultry, rabbits, and egg products:** For these production classes, figures for total pounds dressed weight, CY '03, were available from NASS, and it was therefore not necessary to calculate them from the number of head slaughtered. **Purpose:** The purpose of this table is to estimate, for each individual production class for which FSIS has regulatory responsibility, the amount of domestically-produced product consumed relative to the total for all of these production classes. This was estimated by assuming that the relative amount of each production class consumed would be approximately proportional to the total poundage (based on dressed weight) of each production class presented for slaughter or processing in federally inspected establishments. Dressed weight, which represents the weight of the carcass after hide, hoof, hair, and viscera have been removed, was used instead of live weight, because the former was thought to be more closely representative of total pounds consumed. *Note: this table estimates the amount of domestically produced product that is consumed, regardless of who consumes it (i.e., no distinction is made between domestically produced product consumed domestically, vs. that which is exported).*

Chart I  
Relative Consumption data for Bovine, Porcine, Ovine and Caprine, and Avian



Graph II



**Table 5**  
**Veterinary Drug Compound/Production Class Pairs,**  
**Sorted by Sampling Priority Score**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Rank	Compound Class	Compound Priority Rating (P)	Production Class	Relative Percent Consumption in 2002 (C)	Priority Score (P * C)	Unadjusted Number of Samples
1	Antibiotic	15	Young chickens	43.790	656.849	460
2	Sulfonamides	12	Young chickens	43.790	525.479	460
3	Antibiotic	15	Market hogs	18.544	278.156	460
4	Avermectins	14	Market hogs	18.544	259.613	460
5	Carbadox	12.4	Market hogs	18.544	229.943	460
6	Sulfonamides	12	Market hogs	18.544	222.525	460
7	Antibiotic	15	Steers	13.629	204.434	460
8	Avermectins	14	Steers	13.629	190.805	460
9	Sulfonamides	12	Steers	13.629	163.547	460
10	Antibiotic	15	Heifers	8.013	120.190	460
11	Avermectins	14	Heifers	8.013	112.178	460
12	Antibiotic	15	Young turkeys	7.009	105.135	460
13	Sulfonamides	12	Heifers	8.013	96.152	460
14	Thyreostats	4.5	Steers	13.629	61.330	300
15	Ractopamine	3.0	Market hogs	18.544	55.631	300
16	Melengestrol acetate (MGA)	3.3	Steers	13.629	44.975	300
17	Ractopamine	3.0	Steers	13.629	40.887	300
18	Thyreostats	4.5	Heifers	8.013	36.057	300
19	Avermectins	14	Egg products	2.352	32.925	300
20	Sulfonamides	12	Egg products	2.352	28.222	300
21	Antibiotic	15	Beef cows	1.844	27.659	300
22	Melengestrol acetate (MGA)	3.3	Heifers	8.013	26.442	300
23	Avermectins	14	Beef cows	1.844	25.815	300
24	Antibiotic	15	Dairy cows	1.667	25.010	300
25	Ractopamine	3.0	Heifers	8.013	24.038	300
26	Avermectins	14	Dairy cows	1.667	23.342	300
27	Sulfonamides	12	Beef cows	1.844	22.127	300
28	Zeranol	9	Egg products	2.352	21.166	300
29	Ractopamine	3.0	Young turkeys	7.009	21.027	300
30	Sulfonamides	12	Dairy cows	1.667	20.008	300
31	Florfenicol	10.1	Dairy cows	1.667	16.840	300
32	Antibiotic	15	Sows	1.001	15.011	300
33	Avermectins	14	Sows	1.001	14.011	300
34	Berenil	6.7	Beef cows	1.844	12.354	300
35	Antibiotic	15	Mature chickens	0.815	12.227	300
36	Sulfonamides	12	Sows	1.001	12.009	300
37	Berenil	6.7	Dairy cows	1.667	11.171	300
38	Sulfonamides	12	Mature chickens	0.815	9.782	300
39	Antibiotic	15	Bulls	0.562	8.428	300

**Table 5 - continued**  
**Veterinary Drug Compound/Production Class Pairs,**  
**Sorted by Sampling Priority Score**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

<b>Rank</b>	<b>Compound Class</b>	<b>Compound Priority Rating (P)</b>	<b>Production Class</b>	<b>Relative Percent Consumption in 2002 (C)</b>	<b>Priority Score (P * C)</b>	<b>Unadjusted Number of Samples</b>
40	Avermectins	14	Bulls	0.562	7.866	300
41	Melengestrol acetate (MGA)	3.3	Egg products	2.352	7.761	300
42	Sulfonamides	12	Bulls	0.562	6.742	300
43	Antibiotic	15	Lambs	0.179	2.683	230
44	Avermectins	14	Lambs	0.179	2.504	230
45	Sulfonamides	12	Lambs	0.179	2.146	230
46	Antibiotic	15	Formula-fed veal	0.136	2.040	230
47	Avermectins	14	Formula-fed veal	0.136	1.904	230
48	Sulfonamides	12	Formula-fed veal	0.136	1.632	230
49	Florfenicol	10.1	Formula-fed veal	0.136	1.373	230
50	Trenbolone	10.1	Formula-fed veal	0.136	1.373	230
51	Zeranol	9	Formula-fed veal	0.136	1.224	230
52	Antibiotic	15	Mature turkeys	0.081	1.208	230
53	Sulfonamides	12	Mature turkeys	0.081	0.966	230
54	Antibiotic	15	Boars/Stags	0.057	0.862	230
55	Avermectins	14	Boars/Stags	0.057	0.804	230
56	Sulfonamides	12	Boars/Stags	0.057	0.689	230
57	Antibiotic	15	Goats	0.032	0.479	230
58	Melengestrol acetate (MGA)	3.3	Formula-fed veal	0.136	0.449	230
59	Avermectins	14	Goats	0.032	0.447	230
60	Antibiotic	15	Bob veal	0.028	0.425	230
61	Ractopamine	3.0	Formula-fed veal	0.136	0.408	230
62	Avermectins	14	Bob veal	0.028	0.397	230
63	Sulfonamides	12	Goats	0.032	0.384	230
64	Sulfonamides	12	Bob veal	0.028	0.340	230
65	Antibiotic	15	Heavy calves	0.017	0.254	230
66	Avermectins	14	Heavy calves	0.017	0.237	230
67	Sulfonamides	12	Heavy calves	0.017	0.203	230
68	Trenbolone	10.1	Heavy calves	0.017	0.171	90
69	Antibiotic	15	Roaster pigs	0.011	0.166	90
70	Avermectins	14	Roaster pigs	0.011	0.155	90
71	Zeranol	9	Heavy calves	0.017	0.152	90
72	Antibiotic	15	Sheep	0.009	0.140	90
73	Carbadox	12.4	Roaster pigs	0.011	0.137	90
74	Antibiotic	15	Non-formula-fed veal	0.009	0.135	90
75	Sulfonamides	12	Roaster pigs	0.011	0.133	90
76	Avermectins	14	Sheep	0.009	0.131	90
77	Avermectins	14	Non-formula-fed veal	0.009	0.126	90
78	Sulfonamides	12	Sheep	0.009	0.112	90

**Table 5 - continued**  
**Veterinary Drug Compound/Production Class Pairs,**  
**Sorted by Sampling Priority Score**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

<b>Rank</b>	<b>Compound Class</b>	<b>Compound Priority Rating (P)</b>	<b>Production Class</b>	<b>Relative Percent Consumption in 2002 (C)</b>	<b>Priority Score (P * C)</b>	<b>Unadjusted Number of Samples</b>
79	Sulfonamides	12	Non-formula-fed veal	0.009	0.108	90
81	Trenbolone	10.1	Non-formula-fed veal	0.009	0.091	90
82	Florfenicol	10.1	Non-formula-fed veal	0.009	0.091	90
83	Zeranol	9	Non-formula-fed veal	0.009	0.081	90
84	Ractopamine	3.0	Roaster pigs	0.011	0.033	90
85	Melengestrol acetate (MGA)	3.3	Non-formula-fed veal	0.009	0.030	90

**Table 6A**  
**Adjusted Number of Analyses for Each Veterinary Drug Compound/Production Class Pair, "Full Resource" Sampling**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Antibiotics	Young chickens	656.849	4,252	0.02	0.00	460		460			0
Antibiotics	Market hogs	278.156	4,737	0.30	0.00	460		460			300
Antibiotics	Steers	204.434	3,884	0.03	0.00	460		460			0
Antibiotics	Heifers	120.190	3,623	0.06	0.08	460		460			460
Antibiotics	Young turkeys	105.135	4,287	0.07	0.00	460		460		-1	0
Antibiotics	Beef cows	27.659	4,013	0.12	0.11	300		300			300
Antibiotics	Dairy cows	25.010	4,978	0.48	0.82	300		300			300
Antibiotics	Sows	15.011	3,990	0.45	0.57	300		300			300
Antibiotics	Mature chickens	12.227	2,886	0.03	0.00	300		300		-1	0
Antibiotics	Bulls	8.428	2,596	0.00	0.00	300		300			0
Antibiotics	Lambs	2.683	3,843	0.10	0.00	230		230			0
Antibiotics	Formula-fed veal	2.040	5,387	0.46	0.28	230		230		-1	90
Antibiotics	Ducks	2.384	3,565	0.08							0
Antibiotics	Mature turkeys	1.208	1,819	0.00	0.00	230		230		-1	0
Antibiotics	Boars/Stags	0.862	2,919	0.24	0.00	230		230			0
Antibiotics	Goats	0.479	2,852	0.07	0.00	230		230			0
Antibiotics	Bob veal	0.425	4,135	1.57	3.37	230	+2	460		-1	300
Antibiotics	Horses	0.371	2,711	5.98							0
Antibiotics	Bison	0.315	62	0.00							0
Antibiotics	Heavy calves	0.254	2,996	0.43	0.53	230		230			230
Antibiotics	Roaster pigs	0.166	626	1.12	0.29	90	+2	300			0
Antibiotics	Squab	0.150	77	0.00							0
Antibiotics	Sheep	0.140	2,448	0.00	0.00	90		90			0
Antibiotics	Non-formula-fed veal	0.135	2,382	0.84	3.04	90	+2	300			300
Antibiotics	Ratites	0.105	181	0.00							0
Antibiotics	Geese	0.045	452	0.00							0
Antibiotics	Rabbits	0.030	1,350	3.11							0
<b>Total Samples</b>			<b>77,051</b>			<b>5,680</b>		<b>7,170</b>			<b>2,580</b>

**Table 6A - Continued**  
**Adjusted Number of Analyses for Each Veterinary Drug Compound/Production Class Pair, "Full Resource" Sampling**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Avermectins	Market Hogs	259.613	2,803	0.00	0.00	460		460			0
Avermectins	Steers	190.805	3,969	0.00	0.00	460		460	1,000		1,000
Avermectins	Heifers	112.178	2,913	0.00	0.00	460		460			0
Avermectins	Beef cows	25.815	3,150	0.13	0.00	300		300			0
Avermectins	Dairy Cows	23.342	2,850	0.11	0.00	300		300			0
Avermectins	Sows	14.011	2,180	0.00	0.00	300		300			0
Avermectins	Bulls	7.866	2,671	0.30	0.34	300		300			300
Avermectins	Lambs	2.504	2,559	0.12	0.22	230		230			230
Avermectins	Formula-fed Veal	1.904	2,442	0.08	0.00	230		230		-1	0
Avermectins	Boars/Stags	0.804	1,321	0.00	0.00	230		230			0
Avermectins	Goats	0.447	2,944	1.15	2.00	230	+1	300			300
Avermectins	Bob Veal	0.397	660	0.00	0.00	230		230		-1	0
Avermectins	Horses	0.346	2,047	0.73	0.82	90		90			0
Avermectins	Bison	0.294	45	0.00	0.00	90		90			0
Avermectins	Heavy Calves	0.237	2,416	0.21	0.17	230		230			230
Avermectins	Roaster Pigs	0.155	433	0.00	0.00	90		90			0
Avermectins	Sheep	0.131	1,818	0.28	1.02	90		90			90
Avermectins	non-Formula-fed veal	0.126	1,414	0.28	0.74	90		90			90
Avermectins	Ratites	0.098	148	0.00	0.00	90		90			0
<b>Total Samples</b>			<b>38,783</b>			<b>4,500</b>		<b>4,570</b>			<b>2,240</b>

**Table 6A - Continued**  
**Adjusted Number of Analyses for Each Veterinary Drug Compound/Production Class Pair, "Full Resource" Sampling**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Sulfonamides	Young Chickens	525.48	3,794	0.11	0.00	460		460			0
Sulfonamides	Market hogs	222.53	3,919	0.51	0.38	460	+1	460			460
Sulfonamides	Steers	163.55	3,204	0.19	0.11	460		460			460
Sulfonamides	Heifers	96.15	3,039	0.03	0.00	460		460			0
Sulfonamides	Young Turkeys	84.11	3,648	0.19	0.00	460		460		-1	0
Sulfonamides	Egg Products	28.22	1,161	0.00	0.00	300	-1	230			0
Sulfonamides	Beef cows	22.13	3,586	0.17	0.24	300		300			300
Sulfonamides	Dairy cows	20.01	3,314	0.27	0.64	300		300			300
Sulfonamides	Sows	12.01	4,087	0.59	0.00	300	+1	460			0
Sulfonamides	Mature Chickens	9.78	2,621	0.00	0.00	300	-1	230		-1	0
Sulfonamides	Bulls	6.74	2,923	0.14	0.11	300		300			300
Sulfonamides	Lambs	2.15	2,840	0.14	0.11	230		230			230
Sulfonamides	Ducks	1.907	2,681	0.04	0.00	90		90			0
Sulfonamides	Formula-fed veal	1.63	3,693	0.19	0.44	230		230		-1	90
Sulfonamides	Mature turkeys	0.97	2,029	0.30	0.41	230		230		-1	90
Sulfonamides	Boars/Stags	0.69	3,231	0.43	0.13	230		230			230
Sulfonamides	Bob veal	0.34	3,948	0.76	1.18	460	+2	460			460
Sulfonamides	Horses	0.297	1,569	0.19	0.00	90		90			0
Sulfonamides	Goats	0.38	2,596	0.19	0.00	230		230			0
Sulfonamides	Bison	0.252	138	0.00	0.00	90		230			0
Sulfonamides	Heavy calves	0.2	2690	0.19	0.55	230		230			230
Sulfonamides	Roaster pigs	0.13	508	0.98	1.23	90	+2	300			300
Sulfonamides	Squab	0.120	51	0.00	0.00	90		230			0
Sulfonamides	Non-formula-fed veal	0.11	2,371	0.67	0.59	90	+1	230			230
Sulfonamides	Sheep	0.11	1,094	0.00	NT	90	-1	90			0
Sulfonamides	Ratites	0.084	82	0.00	0.00	90	+1	230			0
Sulfonamides	Geese	0.036	134	0.75	0.00	90	+2	300			0
Sulfonamides	Rabbits	0.024	369	0.00	NT	90	-1	90			0
<b>Total Samples</b>						<b>6,750</b>		<b>7,290</b>			<b>3,680</b>

**Table 6B**  
**Adjusted Number of Analyses for Each Veterinary Drug Compound/Production Class Pair, "Limited Resource" Sampling**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Carbadox	Market hogs	229.943	332	0	0	460		460	300		300
Carbadox	Roaster pigs	0.14	310	1	0.32	90		90			0
<b>Total Samples</b>			<b>642</b>			<b>550</b>		<b>550</b>			<b>300</b>

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Chloramphenicol	Dairy cows	NA	637	0.00	0.00	45		45	230		230
Chloramphenicol	Formula-fed veal	NA	959	0.00	0.00	90	-1	45	90		90
Chloramphenicol	Non-formula-fed veal	NA	330	0.00	0.00	90	-1	45	90		90
Chloramphenicol	Young chickens	NA	NT	NT	NT	90		230			230
Chloramphenicol	Mature chickens	NA	NT	NT	NT	230		90			90
Chloramphenicol	Young turkeys	NA	NT	NT	NT	90		90			90
Chloramphenicol	Mature turkeys	NA	NT	NT	NT	230		90			90
<b>Total Samples</b>						<b>865</b>		<b>635</b>			<b>910</b>

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
<i>beta</i> -Agonists	Steers	NA	176	0.00	0.00	300		300			1,000
<i>beta</i> -Agonists	Formula-fed veal	NA	284	0.00	0.00	230		230	230		0
<i>beta</i> -Agonists	Market hogs	NA	381	0.00	0.00	300		300			0
<b>Total Samples</b>			<b>841</b>			<b>830</b>		<b>830</b>			<b>1,000</b>

**Table 6B - continued**  
**Adjusted Number of Analyses for Each Veterinary Drug Compound/Production Class Pair, "Limited Resource" Sampling**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Florfenicol	Dairy cattle	16.840	NT	NT	NT	230		230			230
Florfenicol	Formula-fed veal	1.37	NT	NT	NT	90		90			90
Florfenicol	non-Formula-fed veal	0.09	NT	NT	NT	90		90			90
<b>Total Samples</b>											<b>410</b>

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Melengestrol acetate (MGA)	Heifers	26.44	451	0.00	0.00	300		300			300
<b>Total Samples</b>						300		460			<b>300</b>

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Phenylbutazone (ELISA Method)	Steers	NA	NT	NT	NT			90	1,000		1,000
<b>Total Samples</b>								<b>90</b>			<b>1,000</b>

**Table 6B - continued**  
**Adjusted Number of Analyses for Each Veterinary Drug Compound/Production Class Pair, "Limited Resource" Sampling**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Ractopamine	Steers	40.887	576	0	135	300		300	230		230
Ractopamine	Formula-fed veal	0.408	NT	NT	NT						90
Ractopamine	Market hogs	55.631	768	0	768	300		300	90		90
<b>Total Samples</b>			<b>1,344</b>			<b>600</b>		<b>600</b>			<b>410</b>

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Thyreostats	Steers	61.330	NT	NT	NT						300
Thyreostats	Heifers	36.057	NT	NT	NT						300
<b>Total Samples</b>			NT								<b>600</b>

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Trenbolone	Formula-fed veal	1.373	NT	NT	NT						1,000
<b>Total Samples</b>			NT								<b>1,000</b>

**Table 6B - continued**  
**Adjusted Number of Analyses for Each Veterinary Drug Compound/Production Class Pair, "Limited Resource" Sampling**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

CC.	PC.	PS.	NS. <sup>a</sup>	VR. (%) (10 Year) <sup>b</sup>	VR. (%) (3 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adj. <sup>d</sup>	IA. <sup>e</sup>	ALC.	APV.	FA. <sup>f</sup>
Zeranol	Formula-fed veal	1.224	556	8.09							1,000
<b>Total Samples</b>											<b>1,000</b>

a. The total number of samples analyzed in the FSIS Scheduled Sampling Plan (01/01/1994 to 12/31/2003)

b. The percent of samples with residue concentrations exceeding the tolerance or action level (or, for a drug whose use was not permitted in the production class in which it was detected, the percent of samples with any detectable residue)

c. The number obtained from the last column of Table 4.5

d. For a discussion of adjustments to sampling levels (+1, +2, and -1), see the text discussion

e. Number of samples proposed following adjustment for historical violation rate information or lack of testing information

f. Final adjustment numbers were obtained following an assessment of laboratory capacity, production volume, and 3-year violation rate data. FSIS has suspended scheduled sampling for all drugs in horses and minor species (bison, ducks, ratites, geese, rabbits, and squab). FSIS has also suspended scheduled sampling for slaughter classes that have a violation rate of zero for the years 2001-2003.

g. The *beta*-Agonists in the FSIS multiresidue method are: clenbuterol, cimaterol, and salbutamol

**Key:**

CC. = Compound Class

PC. = Production Class

PS. = Priority Score

NS. = Number of Samples (1994-2003 analyzed by the FSIS Scheduled Sampling Plan (i.e., random sampling only)

VR. (10 Year) = Violation Rate (1994-2003) is the percent of samples with residue concentrations exceeding the tolerance or action level (or, for a drug whose use was not permitted in the production class in which it was detected, the percent of samples with any detectable residue).

VR. (3 Year) = Violation Rate (2001-2003) is the percent of samples with residue concentrations exceeding the tolerance or action level (or, for a drug whose use was not permitted in the production class in which it was detected, the percent of samples with any detectable residue).

UNS. = Unadjusted number of samples, which is obtained from last column of Table 4.7

Adj. = Adjustment based on FSIS Historical Testing Information (refer to text discussion in Section 4); +1 level, +2 levels, -1 level = There are four different sampling levels: 90, 230, 300 and 460. Sampling levels were increased or decreased (e.g., changed from 300 samples to 230 samples) based on the rules described in Section 4.

IA. = Number of samples proposed following adjustment for historical violation rate information or lack of testing information

ALC. = Adjustment for Laboratory Capacity (refer to text discussion in Section 4)

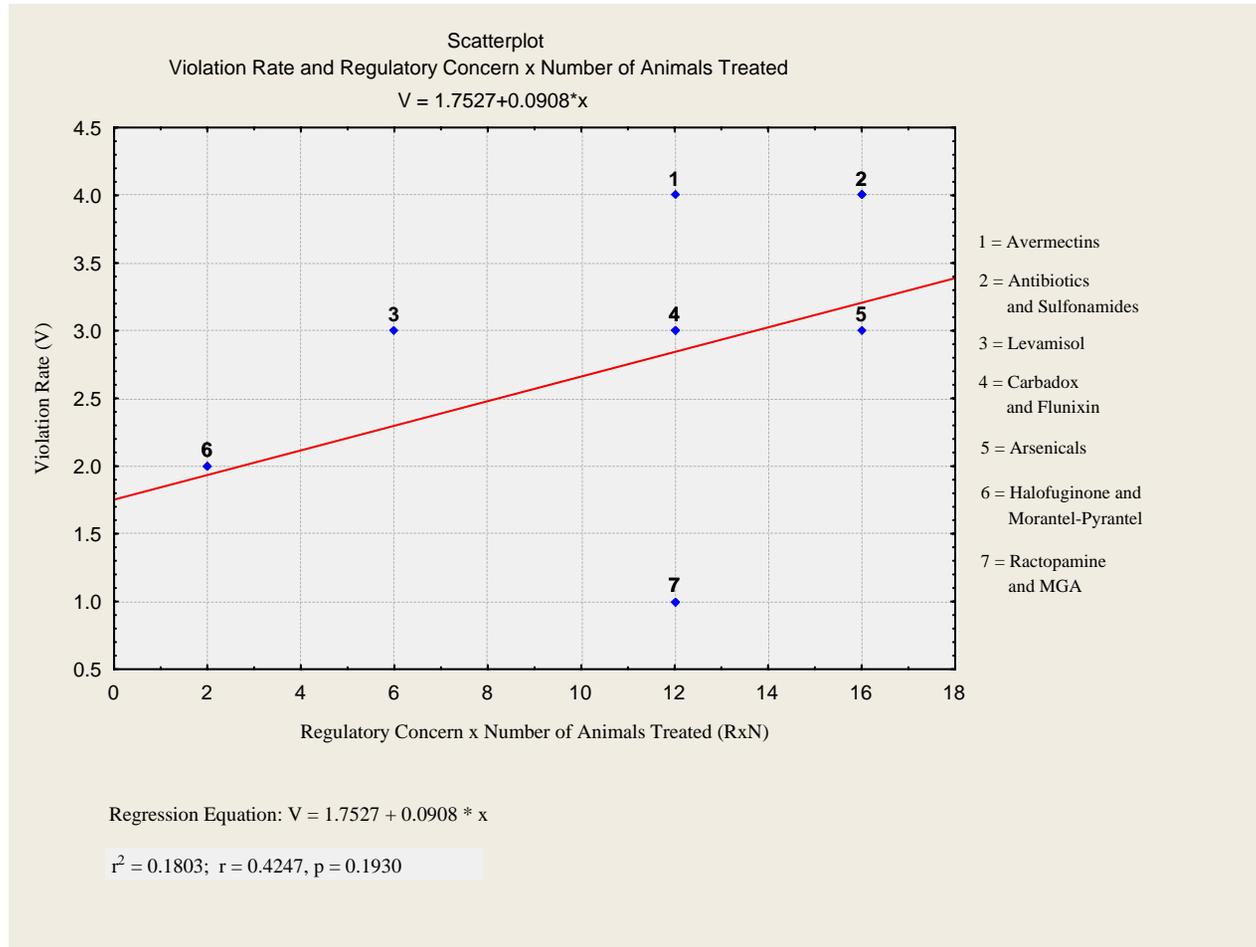
APV. = Adjustment for Production Volume (refer to text discussion in Section 4)

FA. = Final Adjustment. Finalized sample numbers, obtained following adjustments based on production volume, laboratory capacity, and 3 year violation rates

NA = Not applicable

NT = Not tested

Graph III



# **Design of the Domestic Scheduled Sampling Plan for Pesticides**

## I. Selecting and Ranking Candidate Pesticides

The candidate pesticides of concern selected by the Environmental Protection Agency (EPA) members of the Surveillance Advisory Team (SAT) are presented in Table 27, *Scoring Table for Pesticides*. Since the Food Safety and Inspection Service (FSIS) wishes to prioritize which *analyses* should be conducted, compounds that are, or are likely to be, detected by the same analytical methodology have been grouped together.

### *Compound Scoring*

Using a simple 4-point scale (4 = high; 3 = moderate; 2 = low; 1 = none), members of the SAT scored each of the pesticides in each of the following categories. Note that some of these categories differ from those used for the veterinary drugs:

- FSIS Historical Testing Information on Violations
- Regulatory Concern
- Lack of FSIS Testing Information on Violations
- Pre-slaughter Interval
- Bioconcentration Factor
- Endocrine Disruption
- Toxicity

Definitions of each of these categories, and the criteria used for scoring, appear below in the section, "*Scoring Key for Pesticides*."

The results of the compound scoring process are presented in Table 27. Where compounds were grouped together, the score assigned to each category is the highest score for all members of the group.

### *Compound Ranking*

#### 1. Background

Repeating Equation 1 (page 3), we have:

$$\begin{aligned}\text{Risk} &= \text{Exposure} \times \text{Toxicity} \\ &= \text{Consumption} \times \text{Residue Levels} \times \text{Toxicity} \\ &= \text{Consumption} \times \text{"Risk per Unit of Consumption"}\end{aligned}$$

As stated above, FSIS chose to employ techniques and principles from the field of risk assessment to obtain a ranking of the relative public health concern represented by each of the candidate compounds or compound classes. However, unlike the case with veterinary drugs, FSIS does not have historical data on a sufficient range of different pesticide compounds or compound classes to predict violation scores (and thus risk per unit of consumption) using a regression equation. Therefore, a somewhat different approach (although related to that used for the veterinary drugs) was necessary to estimate the "Risk per Unit of Consumption" term.

#### 2. Rating the Pesticides According to Relative Public Health Concern

The categories of "Regulatory Concern," "Pre-slaughter Interval" and "Bioconcentration Factor" were employed as predictors of risk per unit of consumption from pesticides in animal products. As indicated

above, the "Regulatory Concern" category reflects EPA's professional judgment of the likelihood that a compound or compound class will exceed EPA's level of concern in meat, poultry, or egg products. Thus, it combines residue level and toxicity information. As with the "Withdrawal Time" category for veterinary drugs, the "Pre-slaughter Interval" category is expected to correlate with residue level because longer pre-slaughter intervals are less likely to be properly observed. When the pre-slaughter interval is not observed, the carcass may contain violative levels of residues since the time necessary for sufficient metabolism and/or elimination of the pesticide may not have passed. Bioconcentration is a measure of the extent to which a pesticide concentrates within the fat deposits of animals. Pesticides that bioconcentrate are more likely to accumulate to higher levels within animal tissue, which is expected to increase the potential for human exposure.

The "Toxicity" category reflects both the dose required to achieve a toxic effect and the severity of that effect. Since the numerical value assigned to toxicity is independent of other parameters, it can be used directly as a term in equation 1.

EPA assigns a value to regulatory concern, pre-slaughter interval and bioconcentration factor to each pesticide compound or class of compounds. These values are multiplied by a weighted average and then by the toxicity value to give an estimate of the relative risk per unit of consumption. As with the veterinary drugs, we can refine the equation by adding a modifier for the category, "Lack of FSIS Testing Information on Violations." With an appropriate substitution, we obtain the following equation:

$$\begin{aligned}
 &\text{Relative Public Health Concern} && \text{Equation 12} \\
 &= \text{Estimated relative risk per unit of consumption} \\
 &\quad \times \text{modifier for "Lack of FSIS Testing Information on Violations"} \\
 &= \text{Estimated relative exposure} \times \text{Relative toxicity} \\
 &\quad \times \text{modifier for "Lack of FSIS Testing Information on Violations"} \\
 &= \text{Weighted average of {"Regulatory Concern," "Pre-slaughter Interval," "Bioconcentration} \\
 &\quad \text{factor"} \} \times \text{"Toxicity"} \times \text{modifier for "Lack of FSIS Testing Information on Violations"}
 \end{aligned}$$

Comparing Equation 12 to Equation 3, it can be seen that the "Weighted average of {'Regulatory Concern,' 'Pre-slaughter Interval,' 'Bioconcentration factor'}" has been used in place of "Predicted or Actual Score for 'FSIS Historical Testing Information on Violations'." Endocrine Disruption" was not included in Equation 12, because scores for this category were not available for most of the pesticides.

The pesticides in Table 27 are rated according to their relative public health concern by combining the scoring categories presented in Equation 12 using a weighting formula. The formula is presented in Equation 13 and in Table 27. FSIS selected this formula, based on a consensus about the relative importance of each modifier, and of how much each modifier should be allowed to alter the underlying risk-based score for Relative Public Health Concern. The value of the selected mathematical formula is that it formalizes the basis of FSIS's judgement. This enables others to observe and understand the adjustments that were made, and it ensures consistency in how these adjustments were applied across a wide range of compounds.

$$\text{Relative public health concern rating, pesticides} = \{[(2 * R + P + B) / 4] * T\} * \{[(L - 1) * 0.05] + 1\} \quad \text{Equation 13}$$

Where:

- R = score for "Regulatory Concern"
- P = score for "Pre-slaughter Interval"
- B = score for "Bioconcentration Factor"
- T = score for "Toxicity"
- L = score for "Lack of FSIS Testing Information on Violations"

In Equation 13, the variable for regulatory concern (R) is given twice as much weight as the pre-slaughter interval (P) and bioconcentration factor (B) because FSIS considers regulatory concern to be more of a direct measurement of exposure. Moreover, as with the veterinary drugs, the final ratings of compounds or compound classes receiving scores of 4, 3, 2, and 1 in "Lack of FSIS Testing Information on Violations" are increased by 15%, 10%, 5%, and 0% respectively. In other words, the rating of a compound or compound class that had never been tested by FSIS (in the production classes and matrices of concern) would be increased by 15%, while the rating of one that had been recently tested by FSIS (again, in the production classes and matrices of concern) would remain unchanged.

Equation 13 for pesticides and Equation 4 for veterinary drugs have been normalized to give the same maximum value so that their values appear to be comparable. However, because Equation 13 uses variables that are derived from terms (scoring categories) that are not the same as the terms used in Equation 4, their scores are not precisely comparable. The scores for the pesticides and drugs were normalized to provide a rough comparison between these two different categories of compounds.

In Table 28, *Rank and Status for Pesticides*, the pesticides are ranked by their rating scores, as generated using the selected weighting scheme given in Equation 13. The scores presented in Table 28 enable FSIS to bring consistency, grounded in formal risk-based considerations, to its efforts to differentiate among a very diverse range of pesticides and pesticide classes in a situation that is marked by minimal data on relative exposures. These rankings do not account for differences in exposure due to differences in overall consumption. Data on relative consumption are applied subsequently, in Phase IV, when relative exposure values for each compound/production class (C/PC) pair are estimated.

## II. Prioritizing Candidate Pesticides

Once SAT completed ranking the pesticides according to their relative public health concern, the ranking scores were used to select compounds for the 2005 NRP. Using professional judgment, SAT participants decided that the pesticide compounds and compound classes that received a ranking of fifteen or higher represent a potential public health concern that is sufficient to justify their inclusion in the 2005 NRP.

Once these high-priority compounds and compound classes had been identified, it was necessary for FSIS to apply considerations beyond those related to public health to determine the compounds that would be sampled. The principal consideration that was not related to public health was the availability of laboratory resources, especially the availability of appropriate analytical methods within the FSIS laboratories. Based on this constraint, only the chlorinated hydrocarbon/chlorinated organophosphate (CHC/COP) compound class can currently be included in the NRP. There are 39 compounds in this compound class that FSIS will analyze for quantity and chemical identity. There are 4 additional compounds that will only be identified. The compounds are:

HCB, alpha-BHC, lindane, heptachlor, dieldrin, aldrin, endrin, ronnel, linuron, oxychlorane, chlorpyrifos, nonachlor, heptachlor epoxide A, heptachlor epoxide B, endosulfan I, endosulfan I sulfate, endosulfan II, trans-chlordane, cis-chlordane, chlorfenvinphos, p,p'-DDE, p, p'-TDE, o,p'-DDT, p,p'-DDT, carbophenothion, captan, tetrachlorvinphos [stirofos], kepone, mirex, methoxychlor, phosalone, coumaphos-O, coumaphos-S, toxaphene, famphur, PCB 1242, PCB 1248, PCB 1254, PCB 1260, dicofol\*, PBBs\*, polybrominated diphenyl ethers\*, and deltamethrin\* (\*identification only; not quantitated)

The sampling status of each compound or compound class in the 2005 scheduled sampling plan is provided in Table 28. For each highly ranked compound or compound class that was not scheduled for

inclusion in the 2005 NRP, a brief explanation of the reason for its exclusion is provided. This table will be used to identify future method development needs for pesticides for the FSIS NRP.

It can be seen that a number of highly ranked pesticides could not be included in the 2005 NRP due to methodological limitations. FSIS will apply methodology capable of capturing chlorinated hydrocarbons and chlorinated and non-chlorinated organophosphates when such methodology can be implemented.

### III. Identifying the Compound/Production Class (C/PC) Pairs

The CHC/COP class includes pesticides that may be present in the foods animals eat, creating the potential for the occurrence of "secondary residues" (i.e., residues that are not the result of direct treatment) in all classes of animals. Other compounds within this class (such as the PCBs) are environmental contaminants to which any animal may be exposed. **For the 2005 NRP, FSIS has suspended scheduled sampling testing for CHCs and COPs for the following production classes: minor species (ducks, geese, ratites, rabbits, squab, and bison); horses; and bob veal. However, horses are of concern for residue violations and inspector generated testing will continue. Not scheduling the minor species will allow FSIS to focus those resources on the development of methodologies in areas that are of high public health concern.** FSIS will continue sampling for CHCs and COPs as a means of scheduled sampling for the occurrence of accidental contamination incidents.

### IV. Allocation of Sampling Resources

Since only the CHC/COP compound class will be included in the 2005 NRP, this phase is relatively straightforward. FSIS has sufficient analytical capability to implement CHC/COP analysis in all production classes. To establish a relative sampling priority for each C/PC pair, the ranking score for the CHC/COPs were calculated (see Table 27) and multiplied by the estimated relative percent of domestic consumption for each production class (presented in Table 4) and shown in Equation 14. This is identical to Equation 6, which was used to calculate the relative sampling priorities for the veterinary drugs:

$$(\text{Rel. sampling priority})_{C/PC} = (\text{Ranking score})_C \times (\text{Est. rel. \% domestic consumption})_{PC} \quad \text{Equation 14}$$

As stated above for veterinary drugs, Equation 14 is analogous to the equation used to estimate risk in Equation 1, in which risk per unit of consumption is multiplied by consumption. While the results of Equation 14 do not constitute an estimate of risk, they provide a numerical representation of the relative public health concern associated with each C/PC pair, and thus can be used to prioritize FSIS analytical sampling resources according to the latter. Note that the risk ranking provided by Equation 14 is based upon average consumption across the entire U.S. population, rather than upon maximally exposed individuals.

A ranking of the C/PC pairs within this single compound class could be obtained merely using the estimated relative percent of domestic consumption for each production class. In other words, the *rank order and the relative magnitude of the score* assigned to each of the C/PC pairs within this compound class is not changed by multiplying all the relative consumption values by the ranking score, since the ranking score is a constant term. Nevertheless, to maintain a rough parity between the sampling numbers assigned to the veterinary drugs and those assigned to the pesticides, all of the relative consumption figures were multiplied by the ranking score for the CHC/COP compound class. Then, rather than simply dividing the production classes into quartiles, the initial sampling levels were chosen using the same cutoff numbers employed in Table 5 for the veterinary drugs. The cutoff scores are as follows: > 84 = 460 samples; 5.54 – 47.66 = 300 samples; 0.2 – 2.68 = 230 samples; < 0.17 = 90 samples. The results are

presented in Table 29, *Pesticide Compound/Production Class Pairs, Sorted by Sampling Priority Score, with Adjusted Number of Analyses*. These sampling levels provide varying probabilities of detecting residue violations. Larger sample sizes, which provide the greater chance of detecting violations, are directed towards those C/PC pairs that have been identified as representing higher levels of relative public health concern.

Bob veal, Horses, rabbits, ratites, squab, geese, ducks, and bison will not be scheduled for the 2005 domestic scheduled sampling program for the 2005 NRP because the minor species are low production animals. However, horses are of concern for residue violations and inspector generated testing will continue. Not scheduling the minor species will allow FSIS to focus those resources on the development of methodologies in areas that are of high public health concern.

## Adjusting Relative Sampling Numbers

### *Adjusting for historical data on violation rates of individual C/PC pairs*

Extensive FSIS historical testing information on violations, subdivided by production class, is available for the CHC/COP compound class. This information has been used to further refine the relative priority of sampling each C/PC pair. Table 29 lists, for the period 01/01/1994 -12/31/2003 the total number of samples analyzed by FSIS in each production class under its scheduled sampling plan (i.e., random sampling only), and the percent of samples found to be violative (i.e., present at a level in excess of the action level or regulatory tolerance; or, for those compounds that are prohibited, present at any detectable level). Using these data, the following rules were applied to adjust the sampling numbers:

1. Less than 300 samples from the C/PC pair tested over the 10-year period: +1 level (i.e., increase by one sampling level, e.g., from 230 samples to 300 samples).
2. At least 300 samples tested over the 10-year period, violation rate  $\geq 0.25\%$ : +1 level.
3. At least 300 samples tested over the 10-year period, violation rate = 0.00%: -1 level.
4. The maximum number of samples to be scheduled for testing is 460.

Exceptions to these rules are:

1. Because the use of the CHC/COP method to test for phenylbutazone did not start until recently, FSIS has limited data on the occurrence of this drug in the production classes of interest. Therefore, all production classes for which phenylbutazone was designated as of potential concern (in Table 29, with a "●") were assigned a minimum of 300 samples.
2. **For the 2005 NRP, FSIS has suspended scheduled sampling testing for for CHCs and COPs for the following production classes: minor species (ducks, geese, ratites, rabbits, squab, and bison); horses; and bob veal** (marked with a "■" In Table 29).

All of the above adjustments were applied. The sampling numbers obtained following these adjustments are listed in Table 29 under the heading, "Initial Adjust," (initial adjusted number of samples).

### *Adjusting for laboratory capacity*

No adjustment for laboratory capacity was necessary for the 2005 NRP.

### ***Adjustment for the Number of Slaughter Facilities***

An adjustment to the total number of scheduled sampling samples was made based on the number of production facilities (Table 29). For this adjustment, FSIS considered the total number of production facilities (USDA Inspected Establishments for 2003) for each production class. If the total number of production facilities for a production class was found to be low relative to other production classes, the total number of scheduled sampling samples was reduced for that production class. The number of samples selected for the reduction is based on FSIS professional judgment. If the number of facilities is less than 100, but greater than 10, the number of scheduled sampling samples was adjusted down by 1 level. If the total number of facilities is less than 10, the number of scheduled sampling samples was adjusted down by 2 levels. Based on these parameters, the number of scheduled sampling samples was adjusted for the following production classes: “Young Turkeys”, “Mature Chickens”, “Ducks”, “Mature Turkeys” and “Horses.” As mentioned above, testing for horses and ducks has been suspended for the 2005 NRP.

## **V. Scoring Key for Pesticides**

### ***FSIS Historical Testing Information on Violations (01/01/1994 - 12/31/2003)***

Violation rate scores were calculated by two different methods, A and B, using violation rate data from FSIS random sampling of animals entering the food supply:

Method A: Maximum Violation Rate. Identify the production class exhibiting the highest average violation rate (the number of violations over the period from 1994 - 2003, divided by the total number of samples analyzed). Score as follows:

- 4 = > 0.5%
- 3 = 0.25% - 0.5 %
- 2 = 0.07% - 0.24%
- 1 = < 0.07%
- NT = Not tested by FSIS.
- NA = Tested by FSIS, but violation information does not apply.

Method B: Violation Rate Weighted by Size of Production Class. For each production class analyzed, multiply the average violation rate (defined above) by the relative consumption value for that class (weight annual U.S. production for that class, divided by total production for all classes for which FSIS has regulatory responsibility). Add together the values for all production classes. Score as follows:

- 4 = > 0.08%
- 3 = 0.035% - 0.08%
- 2 = 0.003% - 0.034%
- 1 = < 0.003%
- NT = Not tested by FSIS.
- NA = Tested by FSIS, but violation information does not apply.

*The final score is determined by assigning, to each pesticide or pesticide class, the greater of the scores from Method A and Method B.*

It can be seen that Method A identifies those pesticides that are of regulatory concern because they exhibit high violation rates, independent of the relative consumption value of the production class in

which the violations have occurred. Method B identifies those pesticides that may not have the highest violation rates, but would nevertheless be of concern because they exhibit moderate violation rates in a relatively large proportion of the U.S. meat supply. By employing Methods A and B together, and assigning a final score based on the highest score received from each, both of the above concerns are captured.

### ***Regulatory Concern***

These scores represent EPA's professional assessment of the extent to which the acute or chronic dietary exposure to this compound may exceed EPA's level of concern. For compounds other than carcinogens, this was determined by comparing a compound's Acute or Chronic Population Adjusted Dose (PAD) (whichever was lower) to the estimated level of exposure. The Acute and Chronic PAD's are calculated as follows:

The Acute Reference Dose (Acute RfD) is an estimate (with uncertainty spanning an order of magnitude or greater) of a single oral exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects.

The Chronic Reference Dose (Chronic RfD) is an estimate (with uncertainty spanning an order of magnitude or greater) of a daily oral exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a lifetime.

The Acute and Chronic RfD's are calculated by dividing the No Observed Adverse Effect Level (NOAEL) (i.e., the highest dose that gave no observable adverse effect) or the Lowest Observed Adverse Effect Level (LOAEL) (i.e., the lowest dose at which an adverse effect was seen) by Uncertainty Factors (UF). UF's are used to account for differences between different humans (intraspecies variability) and for differences between the test animals and humans (interspecies extrapolation). If the LOAEL is used, an additional UF is required.

$$\text{RfD} = (\text{NOAEL or LOAEL}) / \text{Total UF}$$

The Acute and Chronic Population Adjusted Dose (PAD) are the Acute and Chronic RfD, respectively, modified by the FQPA Safety Factor:

$$\text{Acute or Chronic PAD} = (\text{Acute or Chronic RfD}) / \text{FQPA Safety Factor}$$

The acute and chronic dietary risks are expressed as a percentage of the Acute or Chronic PAD. A dietary risk of 100% of the Acute or Chronic PAD (*whichever is lower*) is the target level of exposure that should not be exceeded (i.e., the estimated risk associated with any exposure that is less than 100% of the PAD has been judged not to be of concern). In the following, "PAD" is the lower of the Acute and Chronic PAD's.

- 4 = PAD exceeded or carcinogen.
- 3 = Close to PAD.
- 2 = Exposure estimated to be a low percentage of PAD.
- 1 = Exposure estimated to be a very low percentage of PAD.

### ***Lack of FSIS Testing Information on Violations***

A numerical value of 1, 2, 3 or 4 is assigned to a pesticide compound (or a group of compounds) for the category “Lack of Testing Information on Violations” (Table 27). To determine the numerical value, FSIS considers how long a pesticide substance has been in the scheduled sampling program, the number of production classes that were tested, the number of samples analyzed and any change in how the pesticide compound is used. These factors are assessed and a numerical score is assigned as follows:

- A value of 4 is assigned when:
  - FSIS has not included this compound in its sampling program within the past 10 years (1/1/94 - 12/31/03); or,
  - FSIS has included this compound within its program only between 6 and 10 years ago (1/1/94 - 12/31/98), but the sampling does not meet the criteria specified for a "3;" or,
  - FSIS has included this compound in its sampling program, but the information is not useful in predicting future violation rates because of significant changes in the conditions of use of the compound (e.g., the reduction in withdrawal time for carbadox) or because regulatory intelligence information indicates that the situation has changed significantly since the last time the compound was sampled; or,
  - The compound is of concern in several production classes of interest, but testing has been carried out in only one.
- A value of 3 is assigned when:
  - FSIS has tested within the past 5 years (1/1/99 - 12/31/03), but in fewer than 75% of the production classes of interest; or,
  - Testing was between 6 and 10 years ago, where FSIS has analyzed at least 75% of production classes of interest for at least 2 of these 5 years, with a total of at least 500 samples per production class during this 5-year period and, in the case of a multi-residue method, the method used covers all compounds of interest within the compound class; or,
  - The compound would normally have qualified for a "1" or "2," but the method used was not sufficiently sensitive to permit accurate determination of the true violation rate.
- A value of 2 is assigned when:
  - FSIS has included this compound in its sampling program within the past 5 years in at least 75%, but less than 100% of the production classes of interest; or,
  - 100% of the production classes of interest have been sampled, but the amount and duration of sampling has been insufficient to qualify for a "1."
- A value of 1 is assigned when:

FSIS has included this compound in its sampling program within the past 5 years, and has analyzed each production class of interest for at least 2 of these 5 years, with a total of at least 500 samples per production class during this 5-year period, and in the case of a multi-residue method, the method used covers all compounds of interest within the compound class.

### ***Pre-Slaughter Interval***

A numerical value of 1, 2, 3 or 4 is assigned by EPA to pesticides for the category “Pre-Slaughter Interval” (Table 27). Pesticides in this category have been accepted for direct dermal application and have a minimum pre-slaughter interval, which is the interval between the last dermal application and the time of slaughter. FSIS determines a value for a pesticide in this category as follows:

- A value of 4 is assigned when dermal application is permitted and the pre-slaughter interval is 1 day or greater.
- A value of 3 is assigned when dermal application is permitted and pre-slaughter interval 0 days.
- A value of 2 is assigned when dermal application is not permitted, but the treatment of premises (e.g., holding cells, feedlots, barns, etc.) is permitted.
- A value of 1 is assigned when neither dermal application nor premise treatment are permitted.

### ***Bioconcentration Factor***

A numerical value of 1, 2, 3 or 4 is assigned by EPA to pesticides for the category “Bioconcentration Factor” (Table 27). Bioconcentration is a measure of a compound's relative affinity for fat, as measured by the  $K_{o/w}$ . The  $K_{o/w}$  is defined as the logarithm of the partition coefficient between octanol and water ( $\log P_{o/w}$ ). Compounds that have a high affinity for octanol (and thus a high  $K_{o/w}$ ) tend to bioaccumulate in body fat. A bioconcentration value is determined according to the following criteria:

- A value of 4 is assigned if the  $\log K_{o/w}$  is greater than 3.
- A value of 3 is assigned if the  $\log K_{o/w}$  is between 2 and 3.
- A value of 2 is assigned if the  $\log K_{o/w}$  is between 1 and 2.
- A value of 1 is assigned if the  $\log K_{o/w}$  is less than 1.

### ***Endocrine Disruption***

A numerical value of 3 or 4 (or NT if not tested) is assigned by EPA to pesticides for the category “Endocrine Disruption” (Table 27). Endocrine disruption is a measure of the extent to which the compound changes endocrine function and causes adverse effects to individual organisms and/or their progeny, or to organism populations and subpopulations. A value for endocrine disruption is assigned as follows:

- A value of 4 is assigned if endocrine disruption is likely.
- A value of 3 is assigned if endocrine disruption is suspected.
- NT is reported if the compound has not been tested.

### ***Toxicity***

A numerical value of 1, 2, 3 or 4 is assigned by EPA to pesticides for the category “Toxicity” (Table 27). The toxicity value represents EPA’s professional judgment of the toxicity of the compound, including both the dose required to achieve a toxic effect, and the severity of the toxic effect. In the following, “RfD” is the lower of the Acute and Chronic RfD’s. [An explanation of Acute and Chronic RfD is provided in the description of Regulatory Concern, above.] A value for toxicity is determined as follows:

- A value of 4 is assigned if the pesticide compound is a cholinesterase inhibitor, carcinogen or has a low RfD.

- A value of 3 is assigned if the pesticide compound has a medium RfD.
- A value of 2 is assigned if the pesticide compound has a high RfD.
- A value of 1 is assigned if the pesticide compound has a high RfD.

**Table 27**  
**Scoring Table for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Compound / Compound Class	Hist. Viol. (FSIS)	Reg. Con. (R) (EPA)	PSI (P) (EPA)	Bioconc. (B) (EPA)	Endo. Disrup. (EPA)	Tox. (T) (EPA)	Lack Info. (L) (FSIS)	$\frac{((2 * R + P + B) / 4)^{*} T}{*((L - 1) * 0.05) + 1}$
<b>Benzimidazole Pesticides in FSIS Benzimidazole MRM</b> (5-hydroxythiabendazole, benomyl (as carbendazim), thiabendazole)	NT	3	1	4	3	4	4	<b>12.7</b>
<b>Carbamates in FSIS Carbamate MRM</b> (aldicarb, aldicarb sulfoxide, aldicarb sulfone, carbaryl, carbofuran, carbofuran 3-hydroxy)	NA	4	4	2	3	4	4	<b>16.1</b>
<b>Carbamates NOT in FSIS Carbamate MRM</b> (carbaryl 5,6-dihydroxy, chlorpropham, propham, thiobencarb, 4-chlorobenzylmethylsulfone, 4-chlorobenzylmethylsulfone sulfoxide)	NT	4	1	3	NV	4	4	<b>13.8</b>
<b>CHC's and COP's in FSIS CHC/COP MRM</b> (HCB, alpha-BHC, coumaphos, coumaphos oxon, lindane, heptachlor, dieldrin, aldrin, endrin, ronnel, linuron, oxychlordane, chlorpyrifos, nonachlor, heptachlor epoxide A, heptachlor epoxide B, endosulfan I, endosulfan I sulfate, endosulfan II, trans-chlordane, cis-chlordane, chlorfenvinphos, p,p'-DDE, p, p'-TDE, o,p'-DDT, p,p'-DDT, carbophenothion, captan, tetrachlorvinphos [stirofos], kepone, mirex, methoxychlor, phosalone, coumaphos-O, coumaphos-S, toxaphene, famphur, PCB 1242, PCB 1248, PCB 1254, PCB 1260, dicofol*, PBBs*, polybrominated diphenyl ethers*, deltamethrin*) (*identification only)	3	4	4	4	NV	4	1	<b>16.0</b>
<b>COP's and OP's NOT in FSIS CHC/COP MRM</b> (azinphos-methyl, azinphos-methyl oxon, chlorpyrifos, diazinon, diazinon oxon, diazinon met G-27550, dichlorvos, dimethoate, dimethoate oxon, dioxathion, ethion, ethion monooxon, fenthion, fenthion oxon, fenthion oxon sulfone, fenthion oxon sulfoxide, fenthion sulfone, fenthion sulfoxide, malathion, malathion oxon, naled, phosmet, phosmet oxon, pirimiphos-methyl, trichlorfon, tetrachlorvinphos, tetrachlorvinphos-4 metabolites, acephate, methamidophos, chlorpyrifos-methyl, fenamiphos, fenamiphos sulfoxide, fenamiphos sulfone, fenamiphos sulfoxide desisopropyl, fenamiphos sulfone desisopropyl, isofenphos, isofenphos oxon, isofenphos desisopropyl, isofenphos oxon desisopropyl, methidathion, ODM, parathion (ethyl), parathion oxon, parathion methyl, parathion methyl oxon, phorate, phorate oxon, phorate oxon sulfone, phorate oxon sulfoxide, phorate sulfone, phorate sulfoxide, profenofos, sulprofos, sulprofos oxon, sulprofos oxon sulfone, sulprofos oxon sulfoxide, sulprofos sulfone, sulprofos sulfoxide, tribufos (DEF))	NT	4	4	4	NV	4	4	<b>18.4</b>
<b>Synthetic Pyrethrins in FSIS Synthetic Pyrethrin MRM</b> (cypermethrin, cis-permethrin, trans-permethrin, fenvalerate, zeta-cypermethrin)	NT	3	4	4	3	4	4	<b>16.1</b>
<b>Triazines in FSIS Triazine MRM</b> (atrazine, simazine, propazine, terbuthylazine)	NT	4	2	3	4	4	4	<b>15.0</b>
<b>Triazines NOT in FSIS Triazine MRM</b> (atrazine chloro metabolites, metribuzin, metribuzin DADK, metribuzin DA, metribuzin DK, amitraz, amitraz 2,4-DMA metabs., desdiethyl simazine, desethyl simazine, simazine chloro metabs.)	NT	4	4	3	4	4	4	<b>17.3</b>
1-(2,4-dichlorophenyl)-2-(1H-imidazole-1-yl)-1-ethanol	NT	3	4	4	NV	4	4	<b>16.1</b>
1,1-(2,2-dichloroethylidene)bis(4-methoxybenzene)	NT	3	4	4	NV	4	4	<b>16.1</b>
1-methoxy-4-(1,2,2,2-tetrachloroethyl)benzene)	NT	3	4	4	NV	4	4	<b>16.1</b>

**Table 27 continued**  
**Scoring Table for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Compound / Compound Class	Hist. Viol. (FSIS)	Reg. Con. (R) (EPA)	PSI (P) (EPA)	Bioconc. (B) (EPA)	Endo. Disrup. (EPA)	Tox. (T) (EPA)	Lack Info. (L) (FSIS)	$\frac{((2 * R + P + B) / 4) * T}{*(((L - 1) * 0.05) + 1)}$
1-methyl cyromazine	NT	3	4	2	NV	4	4	<b>13.8</b>
1,2,4-Triazole	NT	4	1	3	NV	4	4	<b>13.8</b>
2-((2-ethyl-6-methylphenyl)-amino)-1-propanol	NT	3	1	3	3	4	4	<b>11.5</b>
2-(1-hydroxyethyl)-6-ethylaniline	NT	4	1	3	3	4	4	<b>13.8</b>
2-(4-((6-chloro-2-benzoxazolyl)oxy)phenoxy)propanoic acid	NT	3	1	4	NV	4	4	<b>12.7</b>
2,3-dihydro-3,3-dimethyl-2-oxo-5-benzofuranyl methyl sulfonate	NT	2	1	2	NV	2	4	<b>4.0</b>
2,4-D	NT	3	2	1	3	2	4	<b>5.2</b>
2,5-dichloro-4-methoxyphenol	NT	1	1	2	NV	3	4	<b>4.3</b>
2,6-diethylaniline	NT	4	1	3	3	4	4	<b>13.8</b>
2-aminobenzimidazole	NT	3	1	2	3	4	4	<b>10.4</b>
2-amino-n-isopropylbenzamide	NT	3	1	2	NV	3	4	<b>7.8</b>
2-carboxyisopropyl-4-(2,4-dichloro)-5-isopropoxyphenyl)-1,3,4-oxadiazolin-5-one	NT	3	1	4	NV	4	4	<b>12.7</b>
2-hydroxy-2,3-dihydro-3,3-dimethyl-5-benzofuranyl methyl sulfonate	NT	2	1	2	NV	2	4	<b>4.0</b>
2-t-butyl-4-(2,4-dichloro-5-hydroxyphenyl)-delta 2-1,3,4-oxadiazolin-1,3,4,5-one	NT	3	1	4	NV	4	4	<b>12.7</b>
3-(1-(2,4-dichlorophenyl)-2-(1H-imidazole-1-yl)ethoxy)-1,2-propane diol	NT	3	4	4	NV	4	4	<b>16.1</b>
3-(2-chloro-4-hydroxyphenyl)-6-(2-chlorophenyl)-1,2,4,5-tetrazine	NT	3	1	1	NV	4	4	<b>9.2</b>
3-(3,4-dichlorophenyl)-1-methoxyurea	NT	3	2	3	NV	4	4	<b>12.7</b>
3,4-dichloroaniline	NT	3	2	3	NV	4	4	<b>12.7</b>
3,4-dichlorophenylurea	NT	3	2	3	NV	4	4	<b>12.7</b>
3-carboxy-5-ethoxy-1,2,4-thiadiazole	NT	3	1	4	NV	3	4	<b>9.5</b>
3-t-butyl-5-chloro-6-hydroxymethyluracil	NT	1	1	1	NV	3	4	<b>3.5</b>
4-(2-ethyl-6-methylphenyl)-2-hydroxy-5-methyl-3-morpholinone	NT	3	1	3	3	4	4	<b>11.5</b>
4-chloro-2-trifluoromethylaniline	NT	3	1	4	NV	3	4	<b>9.5</b>
4-hydrocythidiazuron	NT	2	1	2	NV	4	4	<b>8.1</b>
6-chloro-2,3-dihydro-3,3,7-trimethyl-5H-oxazolo(3,2a)pyrimidin-5-one	NT	1	1	1	NV	3	4	<b>3.5</b>
6-chloro-2,3-dihydro-7-hydroxymethyl-3,3-dimethyl-5H-oxazolo(3,2-a)pyrimidin-5-one	NT	1	1	1	NV	3	4	<b>3.5</b>
6-chloro-2,3-dihydro-benzoxazol-2-one	NT	3	1	4	NV	4	4	<b>12.7</b>
6-chloronicotinic acid	NT	3	1	1	NV	3	4	<b>6.9</b>
6-chloropicolinic acid	NT	1	1	4	NV	3	4	<b>6.0</b>
6-methyl-2,3-quinoxalinedithiol	NT	3	1	2	NV	4	4	<b>10.4</b>
Abamectin	NT	2	1	4	NV	4	4	<b>10.4</b>
Abamectin delta 8,9 geometric isomer	NT	2	1	4	NV	4	4	<b>10.4</b>
Acifluorfen, amino analog	NT	3	1	2	NV	3	4	<b>7.8</b>
Alachlor	NT	4	1	3	3	4	4	<b>13.8</b>
Allophanate	NT	3	1	2	NV	4	4	<b>10.4</b>
Aminomethylphosphonic acid	NT	1	2	1	NV	1	4	<b>1.4</b>

**Table 27 continued**  
**Scoring Table for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Compound / Compound Class	Hist. Viol. (FSIS)	Reg. Con. (R) (EPA)	PSI (P) (EPA)	Bioconc. (B) (EPA)	Endo. Disrup. (EPA)	Tox. (T) (EPA)	Lack Info. (L) (FSIS)	$\frac{((2 * R + P + B) / 4) * T}{*((L - 1) * 0.05) + 1}$
Arsanilic acid	NT	4	1	4	NT	4	4	<b>15.0</b>
Azoxystrobin	NT	1	1	3	NV	2	4	<b>3.5</b>
Azoxystrobin Z isomer	NT	1	1	3	NV	2	4	<b>3.5</b>
Benoxacor	NT	1	1	3	NV	4	4	<b>6.9</b>
Bensulfuron methyl ester	NT		1	1	NV	2	4	<b>1.2</b>
Bentazon, 6-hydroxy bentazon, 8-hydroxy bentazon	NT	3	1	2	NV	3	4	<b>7.8</b>
Bifenthrin	NT	3	1	4	NV	4	4	<b>12.7</b>
Bifenthrin, 4'-hydroxy	NT	3	1	4	NV	4	4	<b>12.7</b>
Bis(trichloromethyl)disulfide	NT	3	1	4	NV	4	4	<b>12.7</b>
Bromoxynil	NT	3	1	1	NV	4	4	<b>9.2</b>
Buprofezin	NT	2	1	2	NV	4	4	<b>8.1</b>
Butylamine, sec-	NT	2	1	2	NV	2	4	<b>4.0</b>
Cacodylic acid	NT	3	3	3	3	4	4	<b>13.8</b>
Captan epoxide	NT	3	1	4	NV	4	4	<b>12.7</b>
Carboxin	NT	3	1	2	NV	4	4	<b>10.4</b>
Carboxin sulfoxide	NT	3	1	2	NV	4	4	<b>10.4</b>
Carfentrazone Ethyl	NT	1	1	4	NT	1	4	<b>2.0</b>
CGA 150829	NT	2	1	1	NV	4	4	<b>6.9</b>
CGA 161149	NT	1	1	1	NV	3	4	<b>3.5</b>
CGA 171683	NT	2	1	1	NV	4	4	<b>6.9</b>
CGA 195654	NT	1	1	1	NV	3	4	<b>3.5</b>
Chlorfenapyr	NT	1	1	2	NV	4	4	<b>5.8</b>
Chlorobenzilate	NT	3	1	4	NV	3	4	<b>9.5</b>
Chloroneb	NT	1	1	2	NV	3	4	<b>4.3</b>
Chloroneb, hydroxy-	NT	1	1	2	NV	3	4	<b>4.3</b>
Chlorsulfuron	NT	3	1	2	NV	3	4	<b>7.8</b>
Chlorsulfuron, 5-hydroxy-	NT	3	1	2	NV	3	4	<b>7.8</b>
Clethodim	NT		1	2	NV	3	4	<b>2.6</b>
Clofencet	NT	1	1	2	NV	3	4	<b>4.3</b>
Clofentezine	NT	3	1	1	NV	4	4	<b>9.2</b>
Cloprop	NT	1	1	1	NV	3	4	<b>3.5</b>
Clopyralid	NT	1	2	1	NV	2	4	<b>2.9</b>
Compound 125670	NT	2	1	2	NV	2	4	<b>4.0</b>
CP 101394	NT	4	1	3	3	4	4	<b>13.8</b>
CP 108064	NT	4	1	3	3	4	4	<b>13.8</b>
CP 108065	NT	4	1	3	3	4	4	<b>13.8</b>
CP 108267	NT	4	1	3	3	4	4	<b>13.8</b>
CP 51214	NT	4	1	3	3	4	4	<b>13.8</b>

**Table 27 continued**  
**Scoring Table for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Compound / Compound Class	Hist. Viol. (FSIS)	Reg. Con. (R) (EPA)	PSI (P) (EPA)	Bioconc. (B) (EPA)	Endo. Disrup. (EPA)	Tox. (T) (EPA)	Lack Info. (L) (FSIS)	$\frac{((2 * R + P + B) / 4) * T}{*[(L - 1) * 0.05] + 1}$
Cyclanilide	NT	3	1	4	NV	4	4	<b>12.7</b>
Cyclohexylstannoic acid	NT	2	1	2	NV	4	4	<b>8.1</b>
Cyfluthrin	NT	4	4	2	NV	3	4	<b>12.1</b>
Cyhalothrin, lambda-	NT	4	4	2	NV	4	4	<b>16.1</b>
Cyhexatin	NT	2	1	2	NV	4	4	<b>8.1</b>
Cyromazine	NT	3	4	2	NV	4	4	<b>13.8</b>
Dalapon	NT	2	2	2	NV	3	4	<b>6.9</b>
Dialifor	NT	3	1	4	NV	4	4	<b>12.7</b>
Dialifor oxon	NT	3	1	4	NV	4	4	<b>12.7</b>
Dicamba	NT	3	2	3	NV	4	4	<b>12.7</b>
Dicyclohexyltin oxide	NT	2	1	2	NV	4	4	<b>8.1</b>
Difenoconazole	NT	4	1	4	NV	3	4	<b>11.2</b>
Difenzoquat	NT	1	1	1	NV	4	4	<b>4.6</b>
Diflubenzuron	NT	3	4	4	NV	2	4	<b>8.1</b>
Diflufenzopyr	NT	1	1	2	NV	4	4	<b>5.8</b>
Dimethenamid	NT	2	1	1	NT	2	4	<b>3.5</b>
Dimethipin	NT	1	1	1	NV	3	4	<b>3.5</b>
Dioxathion	NT	3	1	3	NV	4	4	<b>11.5</b>
Diphenamid	NT	3	1	1	NV	3	4	<b>6.9</b>
Diphenamid, desmethyl	NT	3	1	1	NV	3	4	<b>6.9</b>
Diphenylamine	NT	3	3	1	NV	3	4	<b>8.6</b>
Dipropyl isocinchomerate	NT	3	4	4	NV	2	4	<b>8.1</b>
Diquat dibromide	NT	1	1	3	NV	4	4	<b>6.9</b>
Diuron	NT	3	2	3	NV	4	4	<b>12.7</b>
Dodine	NT	2	1	1	NV	3	4	<b>5.2</b>
Emamectin	NT	2	1	4	NT	3	4	<b>7.8</b>
Esfenvalerate	NT	3	4	3	NV	3	4	<b>11.2</b>
Ethalfuralin	NT	3	1	2	NV	4	4	<b>10.4</b>
Ethephon	NT	3	1	1	NV	2	4	<b>4.6</b>
Ethofumesate	NT	2	1	2	NV	2	4	<b>4.0</b>
Ethoxyquin	NT	4	2	4	NV	2	4	<b>8.1</b>
Etridiazole .	NT	4	1	4	NV	3	4	<b>11.2</b>
ETU	NT	3	1	2	3	4	4	<b>10.4</b>
Fenarimol	NT	1	1	4	NV	3	4	<b>6.0</b>
Fenarimol metabolite B	NT	1	1	4	NV	3	4	<b>6.0</b>
Fenarimol metabolite C	NT	1	1	4	NV	3	4	<b>6.0</b>
Fenbuconazole	NT	4	1	4	NT	3	4	<b>11.2</b>
Fenbutatin Oxide	NT	2	1	4	NV	3	4	<b>7.8</b>

**Table 27 continued**  
**Scoring Table for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Compound / Compound Class	Hist. Viol. (FSIS)	Reg. Con. (R) (EPA)	PSI (P) (EPA)	Bioconc. (B) (EPA)	Endo. Disrup. (EPA)	Tox. (T) (EPA)	Lack Info. (L) (FSIS)	$\frac{((2 * R + P + B) / 4) * T}{*((L - 1) * 0.05) + 1}$
Fenoxaprop ethyl	NT	3	1	4	NV	4	4	<b>12.7</b>
Fenpropathrin	NT	4	1	1	NV	3	4	<b>8.6</b>
Fenridazon	NT	2	1	2	NV	3	4	<b>6.0</b>
Fipronil	NT	3	4	4	NV	4	4	<b>16.1</b>
Fluazifop-butyl	NT	3	1	2	NV	3	4	<b>7.8</b>
Fludioxanil	NT	1	1	4	NT	1	4	<b>2.0</b>
Flufenacet (thiafluamide)	NT	3	1	4	NT	3	4	<b>9.5</b>
Fluridone	NT	2	1	2	NV	3	4	<b>6.0</b>
Fluroxypyr	NT	2	1	1	NT	2	4	<b>3.5</b>
Fluthiacet-Methyl (CGA-248757)	NT	1	1	1	NT	1	4	<b>1.2</b>
Flutolanil	NT	2	1	4	NV	2	4	<b>5.2</b>
Fluvalinate	NT	4	1	4	NV	3	4	<b>11.2</b>
Glufosinate-Ammonium	NT	1	2	1	NV	3	4	<b>4.3</b>
Glyphosate	NT	1	2	1	NV	1	4	<b>1.4</b>
Glyphosate-Trimesium	NT	1	1	1	NV	2	4	<b>2.3</b>
Halosulfuron	NT	1	1	2	NV	2	4	<b>2.9</b>
Hexazinone	NT	3	1	2	NV	3	4	<b>7.8</b>
HOE-061517	NT	1	2	1	NV	3	4	<b>4.3</b>
HOE-099730	NT	1	2	1	NV	3	4	<b>4.3</b>
Imazalil	NT	4	4	4	NV	4	4	<b>18.4</b>
Imidacloprid	NT	3	1	1	NV	3	4	<b>6.9</b>
IN-A3928	NT	3	1	2	NV	3	4	<b>7.8</b>
IN-B2838	NT	3	1	2	NV	3	4	<b>7.8</b>
Indoxacarb (DPX-MP062)	NT		1		NT		4	<b>0.0</b>
IN-T3935	NT	3	1	2	NV	3	4	<b>7.8</b>
IN-T3936	NT	3	1	2	NV	3	4	<b>7.8</b>
IN-T3937	NT	3	1	2	NV	3	4	<b>7.8</b>
Iprodione	NT	3	1	3	NV	4	4	<b>11.5</b>
Iprodione isomer	NT	3	1	3	NV	4	4	<b>11.5</b>
Iprodione metabolite	NT	3	1	3	NV	4	4	<b>11.5</b>
Iprodione metabolite 2	NT	3	1	3	NV	4	4	<b>11.5</b>
Isoxaflutole	NT	4	1	3	NT	3	4	<b>10.4</b>
Kresoxim-methyl	NT	4	1	4	NT	3	4	<b>11.2</b>
Maleic hydrazide	NT	3	1	4	NV	1	4	<b>3.2</b>
Mancozeb	NT	3	1	2	3	4	4	<b>10.4</b>
Maneb	NT	3	1	2	3	4	4	<b>10.4</b>
MB 45950	NT	3	4	4	NV	4	4	<b>16.1</b>
MB 46136	NT	3	4	4	NV	3	4	<b>12.1</b>

**Table 27 continued**  
**Scoring Table for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Compound / Compound Class	Hist. Viol. (FSIS)	Reg. Con. (R) (EPA)	PSI (P) (EPA)	Bioconc. (B) (EPA)	Endo. Disrup. (EPA)	Tox. (T) (EPA)	Lack Info. (L) (FSIS)	$\frac{((2 * R + P + B) / 4) * T}{*(((L - 1) * 0.05) + 1)}$
MB 46513	NT	3	4	4	NV	4	4	<b>16.1</b>
MCPA	NT	1	1	1	NV	4	4	<b>4.6</b>
Mepiquat chloride	NT	3	1	1	NV	4	4	<b>9.2</b>
Methoprene	NT	2	1	3	NV	2	4	<b>4.6</b>
Methoxychlor olefin	NT	3	4	4	4	4	4	<b>16.1</b>
Methyl 3,5-dichlorobenzoate	NT	3	1	4	NV	3	4	<b>9.5</b>
Metiram	NT	3	1	2	3	4	4	<b>10.4</b>
Metolachlor	NT	3	1	3	3	4	4	<b>11.5</b>
Metsulfuron Methyl	NT	1	1	1	NV	2	4	<b>2.3</b>
Myclobutanil, myclobutanil alcohol metabolite, myclobutanil dihydroxy metabolite	NT	3	1	2	NV	2	4	<b>5.2</b>
N-(3,4-dichlorophenyl)-N'-methylurea	NT	3	2	3	NV	4	4	<b>12.7</b>
N-(4-chloro-2-trifluoromethylphenyl)-propoxyacetamide	NT	3	1	4	NV	3	4	<b>9.5</b>
Nicotine	NT	1	1	3	NV	4	4	<b>6.9</b>
Nitrapyrin	NT	1	1	4	NV	3	4	<b>6.0</b>
Norfluraxon, desmethyl-	NT	3	1	1	NV	4	4	<b>9.2</b>
Norflurazon	NT	3	1	1	NV	4	4	<b>9.2</b>
N-phenylurea	NT	2	1	2	NV	4	4	<b>8.1</b>
NTN33823	NT	3	1	1	NV	3	4	<b>6.9</b>
NTN35884	NT	3	1	1	NV	3	4	<b>6.9</b>
Octyl bicycloheptene dicarboximide (MGK-264)	NT	3	4	4	NV	3	4	<b>12.1</b>
Oxadiazon	NT	3	1	4	NV	4	4	<b>12.7</b>
Oxyfluorfen	NT	3	1	4	NV	4	4	<b>12.7</b>
Oxythioquinox	NT	3	1	1	NV	4	4	<b>9.2</b>
Paraquat dichloride	NT	3	1	1	NV	4	4	<b>9.2</b>
PB-7	NT	2	1	1	NV	4	4	<b>6.9</b>
PB-9	NT	2	1	2	NV	4	4	<b>8.1</b>
Phosalone oxon	NT	4	1	3	NV	4	4	<b>13.8</b>
Picloram	NT	1	2	1	NV	2	4	<b>2.9</b>
Piperonyl butoxide	NT	3	4	2	NV	3	4	<b>10.4</b>
PP 890	NT	3	4	2	NV	4	4	<b>13.8</b>
Primisulfuron-methyl	NT	2	1	1	NV	4	4	<b>6.9</b>
Propanil	NT	1	1	3	NV	4	4	<b>6.9</b>
Propargite	NT	3	1	2	NV	3	4	<b>7.8</b>
Propargite	NT	3	1	2	NV	3	4	<b>7.8</b>
Propiconazole	NT	4	1	3	NV	4	4	<b>13.8</b>
Propiconazole metabolite 1,2,4-triazole	NT	4	1	3	NV	4	4	<b>13.8</b>
Propiconazole metabolite CGA 118244	NT	4	1	3	NV	4	4	<b>13.8</b>
Propiconazole metabolite CGA 91305	NT	4	1	3	NV	4	4	<b>13.8</b>

**Table 27 continued**  
**Scoring Table for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Compound / Compound Class	Hist. Viol. (FSIS)	Reg. Con. (R) (EPA)	PSI (P) (EPA)	Bioconc. (B) (EPA)	Endo. Disrup. (EPA)	Tox. (T) (EPA)	Lack Info. (L) (FSIS)	$\frac{((2 * R + P + B) / 4) * T}{*(((L - 1) * 0.05) + 1)}$
Propyzamide	NT	3	1	4	NV	3	4	<b>9.5</b>
Prosulfuron	NT	1	1	3	NV	3	4	<b>5.2</b>
Pymetrozine	NT	1	1	1	NT	1	4	<b>1.2</b>
Pyradostrobin	NT	1	1	3	NV	2	4	<b>3.5</b>
Pyrazon	NT	3	1	1	NV	4	4	<b>9.2</b>
Pyrazon metabolite A	NT	3	1	2	NV	4	4	<b>10.4</b>
Pyrazon metabolite B	NT	3	1	2	NV	4	4	<b>10.4</b>
Pyrethrin I	NT	2	4	4	NV	3	4	<b>10.4</b>
Pyridaben	NT	2	1	2	NV	4	4	<b>8.1</b>
Pyriproxifen	NT	1	1	4	NT	1	4	<b>2.0</b>
Quinclorac	NT	2	1	2	NV	2	4	<b>4.0</b>
Quizalofop-ethyl	NT	3	1	2	NV	4	4	<b>10.4</b>
SD 31723	NT	2	1	4	NV	3	4	<b>7.8</b>
SD 33608	NT	2	1	4	NV	3	4	<b>7.8</b>
SD 54597	NT	3	4	3	NV	3	4	<b>11.2</b>
Sethoxydim	NT	2	1	2	NV	2	4	<b>4.0</b>
Sethoxydim hydroxylate sulfone	NT	2	1	2	NV	2	4	<b>4.0</b>
Sethoxydim sulfoxide	NT	2	1	2	NV	2	4	<b>4.0</b>
Sodium acifluorfen	NT	3	1	2	NV	3	4	<b>7.8</b>
Spinosad	NT	1	1	4	NT	1	4	<b>2.0</b>
Sulfosulfuron	NT	2	1	1	NT	2	4	<b>3.5</b>
TCP=3,5,6-trichloro-2-pyridinol	NT	3	2	1	NV	4	4	<b>10.4</b>
Tebuconazole	NT	4	1	2	NV	3	4	<b>9.5</b>
Tebufenozide	NT	3	1	4	NV	3	4	<b>9.5</b>
Tebuthiuron	NT	2	1	2	NV	3	4	<b>6.0</b>
Teflubenzuron	NT		1		NT		4	<b>0.0</b>
Terbacil	NT	1	1	1	NV	3	4	<b>3.5</b>
Tetradifon	NT	1	1	2	NV	4	4	<b>5.8</b>
Thiamethoxam	NT	4	2	1	NV	4	4	<b>12.7</b>
Thidiazuron	NT	2	1	2	NV	4	4	<b>8.1</b>
Thiophanate methyl	NT	3	1	2	NV	4	4	<b>10.4</b>
THPI	NT	3	1	4	NV	4	4	<b>12.7</b>
Tralkoxydim	NT	2	1	2	NT	2	4	<b>4.0</b>
Triadimefon	NT	3	1	4	NV	4	4	<b>12.7</b>
Triadimefon metabolite KWG 1323	NT	3	1	4	NV	4	4	<b>12.7</b>
Triadimefon metabolite KWG 1342	NT	3	1	4	NV	4	4	<b>12.7</b>
Triadimefon metabolite KWG 1732	NT	3	1	4	NV	4	4	<b>12.7</b>
Triadimenol (for metabolites see triadimefon)	NT	3	1	4	NV	4	4	<b>12.7</b>

**Table 27 continued**  
**Scoring Table for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Compound / Compound Class	Hist. Viol. (FSIS)	Reg. Con. (R) (EPA)	PSI (P) (EPA)	Bioconc. (B) (EPA)	Endo. Disrup. (EPA)	Tox. (T) (EPA)	Lack Info. (L) (FSIS)	$\frac{((2 * R + P + B) / 4) * T}{*((L - 1) * 0.05) + 1}$
Triasulfuron	NT	1	1	1	NV	3	4	<b>3.5</b>
Triazole analine	NT	4	1	3	NV	4	4	<b>13.8</b>
Triazole lactic acid	NT	4	1	3	NV	4	4	<b>13.8</b>
Triclopyr	NT	3	2	1	NV	4	4	<b>10.4</b>
Trifloxystrobin	NT	1	1	3	NV	2	4	<b>3.5</b>
Triflumazole	NT	4	1	4	NV	3	4	<b>11.2</b>
Triphenyltin hydroxide	NT	1	1	4	NV	4	4	<b>8.1</b>
WAK4103	NT	3	1	1	NV	3	4	<b>6.9</b>

**Key:**

MRM = Multiresidue method

CHC = Chlorinated hydrocarbon

COP = Chlorinated organophosphate

OP = Organophosphate

NT = Not Tested by FSIS (01/01/94 - 12/31/2003)

NA = Compound has been tested by FSIS (01/01/94 - 12/31/2003), but the information is Not Applicable (e.g., compound has not been tested in the appropriate matrix)

NV = Value not available

FSIS = Scores in this column supplied by FSIS

EPA = Scores in this column supplied by EPA

Hist. Viol. = FSIS Historical Testing Information on Violations

Reg. Con. (R) = Regulatory Concern

Lack Info. (L) = Lack of FSIS Testing Information on Violations

PSI (P) = Pre-slaughter Interval

Biocon. (B) = Bioconcentration Factor

Endo. Disrup. = Endocrine Disruption

Tox. (T) = Toxicity

**In the first column, where compounds have been grouped together for analysis or potential analysis by an MRM, the title of that group has been bolded (e.g., “Carbamates in FSIS Carbamate MRM”).**

**Table 28**  
**Rank and Status for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Rank	Compound / Compound Class	Score	Status in the 2005 NRP
1	<b>COPs and OPs NOT in FSIS CHC/COP MRM</b> (azinphos-methyl, azinphos-methyl oxon, chlorpyrifos, diazinon, diazinon oxon, diazinon met G-27550, dichlorvos, dimethoate, dimethoate oxon, dioxathion, ethion, ethion monooxon, fenthion, fenthion oxon, fenthion oxon sulfone, fenthion oxon sulfoxide, fenthion sulfone, fenthion sulfoxide, malathion, malathion oxon, naled, phosmet, phosmet oxon, pirimiphos-methyl, trichlorfon, tetrachlorvinphos, tetrachlorvinphos-4 metabolites, acephate, methamidophos, chlorpyrifos-methyl, fenamiphos, fenamiphos sulfoxide, fenamiphos sulfone, fenamiphos sulfoxide desisopropyl, fenamiphos sulfone desisopropyl, isofenphos, isofenphos oxon, isofenphos desisopropyl, isofenphos oxon desisopropyl, methidathion, ODM, parathion (ethyl), parathion oxon, parathion methyl, parathion methyl oxon, phorate, phorate oxon, phorate oxon sulfone, phorate oxon sulfoxide, phorate sulfone, phorate sulfoxide, profenofos, sulprofos, sulprofos oxon, sulprofos oxon sulfone, sulprofos oxon sulfoxide, sulprofos sulfone, sulprofos sulfoxide, tribufos (DEF))	18.4	NIP
2	Imazalil	18.4	NIP
3	<b>Triazines NOT in FSIS Triazine MRM</b> (atrazine chloro metabolites, metribuzin, metribuzin DADK, metribuzin DA, metribuzin DK, amitraz, amitraz 2,4-DMA metabs., desdiethyl simazine, desethyl simazine, simazine chloro metabs.)	17.3	NIP
4	<b>Carbamates in FSIS Carbamate MRM</b> (aldicarb, aldicarb sulfoxide, aldicarb sulfone, carbaryl, carbofuran, carbofuran 3-hydroxy)	16.1	NIP
5	1-(2,4-dichlorophenyl)-2-(1H-imidazole-1-yl)-1-ethanol	16.1	NIP
6	1,1-(2,2-dichloroethylidene)bis(4-methoxybenzene)	16.1	NIP
7	1-methoxy-4-(1,2,2,2-tetrachloroethyl)benzene)	16.1	NIP
8	3-(1-(2,4-dichlorophenyl)-2-(1H-imidazole-1-yl)ethoxy)-1,2-propane diol	16.1	NIP
9	Fipronil	16.1	NIP
10	MB 45950	16.1	NIP
11	MB 46513	16.1	NIP
12	Methoxychlor olefin	16.1	NIP
13	Cyhalothrin, lambda-	16.1	NIP
14	<b>Synthetic Pyrethrins in FSIS Synthetic Pyrethrin MRM</b> (cypermethrin, cis-permethrin, trans-permethrin, fenvalerate, zeta-cypermethrin)	16.1	NIP
15	<b>CHCs and COPs in FSIS CHC/COP MRM</b> (HCB, alpha-BHC, coumaphos, coumaphos oxon, lindane, heptachlor, dieldrin, aldrin, endrin, ronnel, linuron, oxychlordane, chlorpyrifos, nonachlor, heptachlor epoxide A, heptachlor epoxide B, endosulfan I, endosulfan I sulfate, endosulfan II, trans-chlordane, cis-chlordane, chlorfenvinphos, p,p'-DDE, p, p'-TDE, o,p'-DDT, p,p'-DDT, carbophenothion, captan, tetrachlorvinphos [stirofos], kepone, mirex, methoxychlor, phosalone, coumaphos-O, coumaphos-S, toxaphene, famphur, PCB 1242, PCB 1248, PCB 1254, PCB 1260, dicofol*, PBBs*, polybrominated diphenyl ethers*, deltamethrin*) (*identification only)	16.0	Scheduled Sampling Plan, MRM, all domestic production classes except: minor species (rabbits, ratites, squab, geese, ducks, and bison); horses; and bob-veal. Import residue plan, all import production classes.

**Table 28 continued**  
**Rank and Status for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

<b>Rank</b>	<b>Compound / Compound Class</b>	<b>Score</b>	<b>Status in the 2005 NRP</b>
Based on consultation with EPA and other agencies, compounds below this point were not considered to represent a broad potential public health risk. However, some of these compounds may be samples on a specific, as-needed basis.			
16	<b>Triazines in FSIS Triazine MRM</b> (atrazine, simazine, propazine, terbuthylazine)	15.0	NIP; low priority
17	Arsanilic acid	15.0	NIP; low priority
18	Alachlor	13.8	NIP; low priority
19	Cyromazine	13.8	NIP; low priority
20	<b>Carbamates NOT in FSIS Carbamate MRM</b> (carbaryl 5,6-dihydroxy, chlorpropham, propham, thiobencarb, 4-chlorobenzylmethylsulfone,4-chlorobenzylmethylsulfone sulfoxide)	13.8	NIP; low priority
21	1-methyl cyromazine	13.8	NIP; low priority
22	2-(1-hydroxyethyl)-6-ethylaniline	13.8	NIP; low priority
23	2,6-diethylaniline	13.8	NIP; low priority
24	Cacodylic acid	13.8	NIP; low priority
25	CP 101394	13.8	NIP; low priority
26	CP 108064	13.8	NIP; low priority
27	CP 108065	13.8	NIP; low priority
28	CP 108267	13.8	NIP; low priority
29	CP 51214	13.8	NIP; low priority
30	Phosalone oxon	13.8	NIP; low priority
31	PP 890	13.8	NIP; low priority
32	Propiconazole	13.8	NIP; low priority
33	Propiconazole metabolite 1,2,4-triazole	13.8	NIP; low priority
34	Propiconazole metabolite CGA 118244	13.8	NIP; low priority
35	Propiconazole metabolite CGA 91305	13.8	NIP; low priority
36	1,2,4-Triazole	13.8	NIP; low priority
37	Triazole analine	13.8	NIP; low priority
38	Triazole lactic acid	13.8	NIP; low priority
39	Thiamethoxam	12.7	NIP; low priority
40	<b>Benzimidazole Pesticides in FSIS Benzimidazole MRM</b> (5-hydroxythiabendazole, benomyl (as carbendazim), thiabendazole)	12.7	NIP; low priority
41	2-(4-((6-chloro-2-benzoxazolyl)oxy)phenoxy)propanoic acid	12.7	NIP; low priority
42	2-carboxyisopropyl-4-(2,4-dichloro)-5-isopropoxyphenyl)-1,3,4-oxadiazolin-5-one	12.7	NIP; low priority
43	2-t-butyl-4-(2,4-dichloro-5-hydroxyphenyl)-delta 2-1,3,4-oxadiazolin-1,3,4,5-one	12.7	NIP; low priority
44	3-(3,4-dichlorophenyl)-1-methoxyurea	12.7	NIP; low priority
45	3,4-dichloroaniline	12.7	NIP; low priority
46	3,4-dichlorophenylurea	12.7	NIP; low priority
47	6-chloro-2,3-dihydro-benzoxazol-2-one	12.7	NIP; low priority
48	Bifenthrin	12.7	NIP; low priority
49	Bifenthrin, 4'-hydroxy	12.7	NIP; low priority
50	Bis(trichloromethyl)disulfide	12.7	NIP; low priority

**Table 28 continued**  
**Rank and Status for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

<b>Rank</b>	<b>Compound / Compound Class</b>	<b>Score</b>	<b>Status in the 2005 NRP</b>
51	Captan epoxide	12.7	NIP; low priority
52	Cyclanilide	12.7	NIP; low priority
53	Dialifor	12.7	NIP; low priority
54	Dialifor oxon	12.7	NIP; low priority
55	Dicamba	12.7	NIP; low priority
56	Diuron	12.7	NIP; low priority
57	Fenoxaprop ethyl	12.7	NIP; low priority
58	N-(3,4-dichlorophenyl)-N'-methylurea	12.7	NIP; low priority
59	Oxadiazon	12.7	NIP; low priority
60	Oxyfluorfen	12.7	NIP; low priority
61	THPI	12.7	NIP; low priority
62	Triadimefon	12.7	NIP; low priority
63	Triadimefon metabolite KWG 1323	12.7	NIP; low priority
64	Triadimefon metabolite KWG 1342	12.7	NIP; low priority
65	Triadimefon metabolite KWG 1732	12.7	NIP; low priority
66	Triadimenol (for metabolites see triadimefon)	12.7	NIP; low priority
67	Cyfluthrin	12.1	NIP; low priority
68	MB 46136	12.1	NIP; low priority
69	Octyl bicycloheptene dicarboximide (MGK-264)	12.1	NIP; low priority
70	2-((2-ethyl-6-methylphenyl)-amino)-1-propanol	11.5	NIP; low priority
71	4-(2-ethyl-6-methylphenyl)-2-hydroxy-5-methyl-3-morpholinone	11.5	NIP; low priority
72	Dioxathion	11.5	NIP; low priority
73	Iprodione	11.5	NIP; low priority
74	Iprodione isomer	11.5	NIP; low priority
75	Iprodione metabolite	11.5	NIP; low priority
76	Iprodione metabolite 2	11.5	NIP; low priority
77	Metolachlor	11.5	NIP; low priority
78	Difenoconazole	11.2	NIP; low priority
79	Esfenvalerate	11.2	NIP; low priority
80	Etridiazole .	11.2	NIP; low priority
81	Fenbuconazole	11.2	NIP; low priority
82	Fluvalinate	11.2	NIP; low priority
83	Kresoxim-methyl	11.2	NIP; low priority
84	SD 54597	11.2	NIP; low priority
85	Triflumazole	11.2	NIP; low priority
86	2-aminobenzimidazole	10.4	NIP; low priority
87	6-methyl-2,3-quinoxalinedithiol	10.4	NIP; low priority
88	Abamectin	10.4	NIP; low priority
89	Abamectin delta 8,9 geometric isomer	10.4	NIP; low priority
90	Allophanate	10.4	NIP; low priority
91	Carboxin	10.4	NIP; low priority
92	Carboxin sulfoxide	10.4	NIP; low priority
93	Ethalfuralin	10.4	NIP; low priority

**Table 28 continued**  
**Rank and Status for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

<b>Rank</b>	<b>Compound / Compound Class</b>	<b>Score</b>	<b>Status in the 2005 NRP</b>
94	ETU	10.4	NIP; low priority
95	Isoxaflutole	10.4	NIP; low priority
96	Mancozeb	10.4	NIP; low priority
97	Maneb	10.4	NIP; low priority
98	Metiram	10.4	NIP; low priority
99	Piperonyl butoxide	10.4	NIP; low priority
100	Pyrazon metabolite A	10.4	NIP; low priority
101	Pyrazon metabolite B	10.4	NIP; low priority
102	Pyrethrin I	10.4	NIP; low priority
103	Quizalofop-ethyl	10.4	NIP; low priority
104	TCP=3,5,6-trichloro-2-pyridinol	10.4	NIP; low priority
105	Thiophanate methyl	10.4	NIP; low priority
106	Triclopyr	10.4	NIP; low priority
107	3-carboxy-5-ethoxy-1,2,4-thiadiazole	9.5	NIP; low priority
108	4-chloro-2-trifluoromethylaniline	9.5	NIP; low priority
109	Chlorobenzilate	9.5	NIP; low priority
110	Flufenacet (thiafluamide)	9.5	NIP; low priority
111	Methyl 3,5-dichlorobenzoate	9.5	NIP; low priority
112	N-(4-chloro-2-trifluoromethylphenyl)-propoxyacetamide	9.5	NIP; low priority
113	Propyzamide	9.5	NIP; low priority
114	Tebuconazole	9.5	NIP; low priority
115	Tebufenozide	9.5	NIP; low priority
116	3-(2-chloro-4-hydroxyphenyl)-6-(2-chlorophenyl)-1,2,4,5-tetrazine	9.2	NIP; low priority
117	Bromoxynil	9.2	NIP; low priority
118	Clofentezine	9.2	NIP; low priority
119	Mepiquat chloride	9.2	NIP; low priority
120	Norfluraxon, desmethyl-	9.2	NIP; low priority
121	Norflurazon	9.2	NIP; low priority
122	Oxythioquinox	9.2	NIP; low priority
123	Paraquat dichloride	9.2	NIP; low priority
124	Pyrazon	9.2	NIP; low priority
125	Diphenylamine	8.6	NIP; low priority
126	Fenpropathrin	8.6	NIP; low priority
127	Ethoxyquin	8.1	NIP; low priority
128	4-hydrocythidiazuron	8.1	NIP; low priority
129	Buprofezin	8.1	NIP; low priority
130	Cyclohexylstannoic acid	8.1	NIP; low priority
131	Cyhexatin	8.1	NIP; low priority
132	Dicyclohexyltin oxide	8.1	NIP; low priority
133	Diflubenzuron	8.1	NIP; low priority
134	Dipropyl isocinchomerate	8.1	NIP; low priority
135	N-phenylurea	8.1	NIP; low priority
136	PB-9	8.1	NIP; low priority

**Table 28 continued**  
**Rank and Status for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

<b>Rank</b>	<b>Compound / Compound Class</b>	<b>Score</b>	<b>Status in the 2005 NRP</b>
137	Pyridaben	8.1	NIP; low priority
138	Thidiazuron	8.1	NIP; low priority
139	Triphenyltin hydroxide	8.1	NIP; low priority
140	1,1,3,3,-tetrakis(2-methyl-2-phenylpropyl)-1,3-dihydroxydistannoxane	7.8	NIP; low priority
141	2-amino-n-isopropylbenzamide	7.8	NIP; low priority
142	Acifluorfen, amino analog	7.8	NIP; low priority
143	Bentazon, 6-hydroxy bentazon, 8-hydroxy bentazon	7.8	NIP; low priority
144	Chlorsulfuron	7.8	NIP; low priority
145	Chlorsulfuron, 5-hydroxy-	7.8	NIP; low priority
146	Emamectin	7.8	NIP; low priority
147	Fenbutatin Oxide	7.8	NIP; low priority
148	Fluazifop-butyl	7.8	NIP; low priority
149	Hexazinone	7.8	NIP; low priority
150	IN-A3928	7.8	NIP; low priority
152	IN-B2838	7.8	NIP; low priority
153	IN-T3935	7.8	NIP; low priority
154	IN-T3936	7.8	NIP; low priority
155	IN-T3937	7.8	NIP; low priority
156	Propargite	7.8	NIP; low priority
157	SD 31723	7.8	NIP; low priority
158	SD 33608	7.8	NIP; low priority
159	Sodium acifluorfen	7.8	NIP; low priority
160	6-chloronicotinic acid	6.9	NIP; low priority
161	Benoxacor	6.9	NIP; low priority
162	CGA 150829	6.9	NIP; low priority
163	CGA 171683	6.9	NIP; low priority
164	Dalapon	6.9	NIP; low priority
165	Diphenamid	6.9	NIP; low priority
166	Diphenamid, desmethyl	6.9	NIP; low priority
167	Diquat dibromide	6.9	NIP; low priority
168	Imidacloprid	6.9	NIP; low priority
169	Nicotine	6.9	NIP; low priority
170	NTN33823	6.9	NIP; low priority
171	NTN35884	6.9	NIP; low priority
172	PB-7	6.9	NIP; low priority
173	Primisulfuron-methyl	6.9	NIP; low priority
174	Propanil	6.9	NIP; low priority
175	WAK4103	6.9	NIP; low priority
176	6-chloropicolinic acid	6.0	NIP; low priority
177	Fenarimol	6.0	NIP; low priority
178	Fenarimol metabolite B	6.0	NIP; low priority
179	Fenarimol metabolite C	6.0	NIP; low priority
180	Fenridazon	6.0	NIP; low priority

**Table 28 continued**  
**Rank and Status for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

<b>Rank</b>	<b>Compound / Compound Class</b>	<b>Score</b>	<b>Status in the 2005 NRP</b>
181	Fluridone	6.0	NIP; low priority
182	Nitrapyrin	6.0	NIP; low priority
183	Tebuthiuron	6.0	NIP; low priority
184	Chlorfenapyr	5.8	NIP; low priority
185	Tetradifon	5.8	NIP; low priority
186	Diflufenzopyr	5.8	NIP; low priority
187	2,4-D	5.2	NIP; low priority
188	Dodine	5.2	NIP; low priority
189	Flutolanil	5.2	NIP; low priority
190	Myclobutanil, myclobutanil alcohol metabolite, myclobutanol dihydroxy metabolite	5.2	NIP; low priority
191	Prosulfuron	5.2	NIP; low priority
192	Difenzoquat	4.6	NIP; low priority
193	Ethephon	4.6	NIP; low priority
194	MCPA	4.6	NIP; low priority
195	Methoprene	4.6	NIP; low priority
196	2,5-dichloro-4-methoxyphenol	4.3	NIP; low priority
197	Chloroneb	4.3	NIP; low priority
198	Chloroneb, hydroxy-	4.3	NIP; low priority
199	Clofencet	4.3	NIP; low priority
200	Glufosinate-Ammonium	4.3	NIP; low priority
201	HOE-061517	4.3	NIP; low priority
202	HOE-099730	4.3	NIP; low priority
203	2,3-dihydro-3,3-dimethyl-2-oxo-5-benzofuranyl methyl sulfonate	4.0	NIP; low priority
204	2-hydroxy-2,3-dihydro-3,3-dimethyl-5-benzofuranyl methyl sulfonate	4.0	NIP; low priority
205	Butylamine, sec-	4.0	NIP; low priority
206	Compound 125670	4.0	NIP; low priority
207	Ethofumesate	4.0	NIP; low priority
208	Quinclorac	4.0	NIP; low priority
209	Sethoxydim	4.0	NIP; low priority
210	Sethoxydim hydroxylate sulfone	4.0	NIP; low priority
211	Sethoxydim sulfoxide	4.0	NIP; low priority
212	Tralkoxydim	4.0	NIP; low priority
213	3-t-butyl-5-chloro-6-hydroxymethyluracil	3.5	NIP; low priority
214	6-chloro-2,3-dihydro-3,3,7-trimethyl-5H-oxazolo(3,2a)pyrimidin-5-one	3.5	NIP; low priority
215	6-chloro-2,3-dihydro-7-hydroxymethyl-3,3-dimethyl-5H-oxazolo(3,2-a)pyrimidin-5-one	3.5	NIP; low priority
216	Azoxystrobin	3.5	NIP; low priority
217	Azoxystrobin Z isomer	3.5	NIP; low priority
218	CGA 161149	3.5	NIP; low priority
219	CGA 195654	3.5	NIP; low priority
220	Cloprop	3.5	NIP; low priority
221	Dimethenamid	3.5	NIP; low priority

**Table 28 continued**  
**Rank and Status for Pesticides**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

<b>Rank</b>	<b>Compound / Compound Class</b>	<b>Score</b>	<b>Status in the 2005 NRP</b>
222	Dimethipin	3.5	NIP; low priority
223	Fluroxypyr	3.5	NIP; low priority
224	Sulfosulfuron	3.5	NIP; low priority
225	Terbacil	3.5	NIP; low priority
226	Triasulfuron	3.5	NIP; low priority
227	Pyradostrobin	3.5	NIP; low priority
228	Trifloxystrobin	3.5	NIP; low priority
229	Maleic hydrazide	3.2	NIP; low priority
230	Clopyralid	2.9	NIP; low priority
231	Halosulfuron	2.9	NIP; low priority
232	Picloram	2.9	NIP; low priority
233	Clethodim	2.6	NIP; low priority
234	Glyphosate-Trimesium	2.3	NIP; low priority
235	Metsulfuron Methyl	2.3	NIP; low priority
236	Carfentrazone Ethyl	2.0	NIP; low priority
237	Fludioxanil	2.0	NIP; low priority
238	Pyriproxifen	2.0	NIP; low priority
239	Spinosad	2.0	NIP; low priority
240	Aminomethylphosphonic acid	1.4	NIP; low priority
241	Glyphosate	1.4	NIP; low priority
242	Bensulfuron methyl ester	1.2	NIP; low priority
243	Fluthiacet-Methyl (CGA-248757)	1.2	NIP; low priority
244	Pymetrozine	1.2	NIP; low priority
245	Indoxacarb (DPX-MP062)		NIP; low priority
246	Teflubenzuron		NIP; low priority

**Key:**

MRM = Multiresidue Method

NIP = Not Included in 2005 FSIS National Residue Program

CHC = Chlorinated hydrocarbon

COP = Chlorinated organophosphate

OP = Organophosphate

**In the second column, where multiple compounds have been grouped together for analysis or potential analysis by a single MRM, the title of that group has been bolded (e.g., “Carbamates in FSIS Carbamate MRM”).**

**Table 29**  
**Pesticide Compound/Production Class Pairs, Sorted by Sampling Priority Score, with Adjusted Number of Analyses**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

Compound Class	Production Class	Priority Score	TNS. <sup>a</sup>	Violation Rate (%) (10 Year) <sup>b</sup>	UNS. <sup>c</sup>	Adjust <sup>d</sup>	Initial Adjust. <sup>e</sup>	Adjust: LC <sup>f</sup>	Adjust: PV <sup>g</sup>	Final Adjust <sup>h</sup>
CHCs/COPs	Young chickens	700.64	3734	0.03	460		460			460
CHCs/COPs	Market hogs	296.70	4192	0.00	460		460			460
CHCs/COPs	Steers	218.06	3916	0.03	460		460			460
CHCs/COPs	Heifers	128.21	3913	0.08	460		460			460
CHCs/COPs	Young turkeys	112.14	3736	0.05	460		300		230	230
CHCs/COPs	Egg products	37.63	1397	0.00	300	-1	230			230
CHCs/COPs	Beef cows	29.50	3929	0.08	300		300			300
CHCs/COPs	Dairy cows	26.67	3755	0.03	300		300			230
CHCs/COPs	Sows	16.02	3527	0.11	300		300			300
CHCs/COPs	Mature chickens	13.04	2773	0.00	300	-1	230		90	230
CHCs/COPs	Bulls	8.99	3180	0.13	300		300			300
CHCs/COPs	Lambs	2.86	3812	0.03	230		300			300
CHCs/COPs	Ducks	2.54	2680	0.00	230	-1	90		90	0
CHCs/COPs	Formula-fed veal	2.18	3141	0.00	230	-1	90			90
CHCs/COPs	Mature turkeys	1.30	1625	0.06	230		230		90	90
CHCs/COPs	Boars/Stags	0.91	3213	0.34	230	+1	300			300
CHCs/COPs	Goats	0.51	3689	0.24	230	+1	300			300
CHCs/COPs	Bob veal	0.45	2270	0.09	230		230			0
CHCs/COPs	Horses	0.40	3316	0.33	230	+1	300		90	0
CHCs/COPs	Bison	0.34	70	0.00	230	+1	300			0
CHCs/COPs	Heavy calves	0.27	2898	0.17	230		230			230
CHCs/COPs	Roaster pigs	0.18	20	0.00	90	+1	230			230
CHCs/COPs	Non-formula-fed veal	0.14	2167	0.14	90		90			90
CHCs/COPs	Sheep	0.14	2292	0.03	90		90			90
CHCs/COPs	Ratites	0.10	162	0.00	90	+1	230			0
CHCs/COPs	Geese	0.05	156	0.00	90		90			0
CHCs/COPs	Rabbits	0.03	899	0.11	90		90			0
CHCs/COPs	Squab		81	0.00	90		90			0
<b>TOTAL #</b>					<b>7,030</b>		<b>7,080</b>			<b>5,380</b>

a. TNS = the total number of samples analyzed in the FSIS Scheduled Sampling Plan (01/01/1994 to 12/31/2003)

b. Violation rate for the period 1994-2003 (10 Years). The percent of samples with residue concentrations exceeding the tolerance or action level (or, for a drug whose use was not permitted in the production class in which it was detected, the percent of samples with any detectable residue)

c. UNS. = Unadjusted number of samples

**Table 29**  
**Pesticide Compound/Production Class Pairs, Sorted by Sampling Priority Score, with Adjusted Number of Analyses**  
**2005 FSIS NRP, Domestic Scheduled Sampling Plan**

- d. Adjustment based on FSIS Historical Testing Information (refer to text discussion in Section 4); +1 level, +2 levels, -1 level. There are four different sampling levels: 90, 230, 300 and 460. Sampling levels were increased or decreased (e.g., changed from 300 samples to 230 samples) based on the rules described in the section, *Design of the Domestic Scheduled Sampling Plan for Pesticides*
- e. Number of samples proposed following adjustment for lack of testing information
- f. Adjustment for Laboratory Capacity as discussed in the section, *Design of the Domestic Scheduled Sampling Plan for Pesticides*
- g. Adjustment for Production Volume as discussed in the section, *Design of the Domestic Scheduled Sampling Plan for Pesticides*
- h. Final adjustment numbers were obtained following an assessment of laboratory capacity and production volume. In addition, FSIS has suspended scheduled sampling for CHCs/COPs in bob veal, horses and minor species (ducks, ratites, geese, rabbits, and squab) for the 2005 NRP.

# **Design of the Import Scheduled Sampling Plan for Pesticides**

## I. Selecting and Ranking Candidate Pesticides

The list of compounds of concern for the import scheduled sampling plan is identical to that for the Domestic Scheduled Sampling Plan (Table 27). Furthermore, in ranking pesticides for inclusion in the import scheduled sampling plan, FSIS chose to employ the ranking scores generated for the domestic scheduled sampling plan 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 scheduled sampling plan.

## II. Prioritizing Candidate Pesticides

The list of high priority compounds chosen for the import scheduled sampling 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) compound class can be included in the 2005 NRP. The compounds that can be identified by this multiresidue method (MRM) are listed in the section, *Design of the Domestic Scheduled Sampling Plan for Pesticides*.

## III. Identifying the Compound/Production Class (C/PC) Pairs

As with the domestic scheduled sampling plan, the import sampling for CHCs and COPs is used as a means of monitoring incidents of accidental and environmental contamination.

## IV. Allocation of Sampling Resources

### *Egg Products*

The samples for residue analysis for imported egg products are selected in a different manner than the other product classes. 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.

### *Animal Product Classes*

Table 8, *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 equation:

$$\% \text{ Product Class Imported (P}_C) = \frac{\text{Amount Product Class Imported}}{\text{Total Product Imported}} \times 100 \quad \text{Equation 15}$$

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

$$\text{Relative Sampling Priority} = (P_C) \times \text{Pesticide Score} \qquad \text{Equation 16}$$

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 30 , *Number of Pesticide Samples/Product Class*, in the column “Number of Samples.”

In the import scheduled sampling plan, FSIS 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 pork from Australia, Denmark and Ireland, processed mutton/lamb products from Australia, Canada and New Zealand, Varied combination products from Canada, processed beef from Australia, Canada, Costa Rica, Mexico, New Zealand and Uruguay, and processed chicken from Canada will not be sampled since the raw materials used are from countries that are eligible to ship raw products to the U.S.

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 30, *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 30 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 where the Total Volume Imported is Less Than 1%*

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 pork processed, veal processed, lamb/mutton processed, goat fresh, turkey fresh and processed, ratite fresh, chicken fresh, other fowl fresh and processed, varied combination fresh and processed and eggs 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 31-45.

*Allocation if Samples in Product Classes where the 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 9, *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 10, *Relative Annual Amount of Product Imported/Country*.

Percent Product Class Imported per Country ( $P_{C/C}$ ) Equation 17

$$= \frac{\text{Amount of Product Class from Country}}{\text{Total Amount of Product Class}} \times 100$$

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:

Unadjusted Number of Samples per Country ( $U_{C/S}$ ) Equation 18

$$= \text{Total Number of Samples} \times \frac{P_{C/C}}{100}$$

This is indicated in the column labeled “Unadjusted Number of Samples ( $U_{C/S}$ ),” in Tables 31-45.

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 31-45. 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:

$$\text{Number of Samples after Adjustment \# 2} = (U_{C/S}) - \frac{[N \times (P_{C/C})]}{(P_{T/C})} \quad \text{Equation 19}$$

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

If a country is exporting both fresh and processed products or sources all of their raw materials from eligible sources, then no residue samples will be processed from that country.

**Table 30**  
**Number of Pesticide Samples/Product Class**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>No. of Countries</b>	<b>Product</b>	<b>Pesticide</b>	<b>Pesticide Score</b>	<b>Percent Product</b>	<b>Relative Sampling Priority</b>	<b>Number of Samples</b>	<b>Adjusted Number of Samples</b>	<b>Final Number of Samples</b>
8	Beef, fresh	CHCs/COPs	16	52.991	847.85	300	302	302
20	Pork, fresh	CHCs/COPs	16	31.007	496.11	300	298	303
9	Beef, processed	CHCs/COPs	16	5.751	92.02	230	179	121
5	Lamb/Mutton, fresh	CHCs/COPs	16	3.888	62.21	230	113	90
4	Chicken, processed	CHCs/COPs	16	1.973	31.56	90	24	24
4	Veal, fresh	CHCs/COPs	16	1.244	19.91	90	90	91
3	Pork, processed	CHCs/COPs	16	0.890	14.23	90	24	0
1	Chicken, fresh	CHCs/COPs	16	0.762	12.19	90	8	8
3	Goat, fresh	CHCs/COPs	16	0.500	7.99	90	24	24
4	Turkey, processed	CHCs/COPs	16	0.248	3.97	90	32	24
5	Varied combination, processed	CHCs/COPs	16	0.247	3.95	90	40	32
1	Turkey , fresh	CHCs/COPs	16	0.056	0.90	90	8	8
4	Lamb/Mutton, processed	CHCs/COPs	16	0.007	0.11	90	32	8
1	Varied combination, fresh	CHCs/COPs	16	0.006	0.09	90	8	8
2	Veal, processed	CHCs/COPs	16	0.001	0.01	90	16	8
	<b>Total</b>					<b>2,050</b>	<b>1,198</b>	<b>1,051</b>

**Table 31**  
**Number of Samples/Product Class – Pork Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PORK PROCESSED/ CHC/COP</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Australia	0.02	8	0 <sup>1</sup>
Denmark	99.90	8	0 <sup>1</sup>
Ireland	0.08	8	0 <sup>1</sup>
<b>Total</b>	<b>100</b>	<b>24</b>	<b>0</b>

**Table 32**  
**Number of Samples/Product Class - Veal, Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>VEAL PROCESSED/ CHC/COP</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Canada	11	8	0 <sup>1</sup>
France	89	8	8
<b>Total</b>	<b>100</b>	<b>16</b>	<b>8</b>

**Table 33**  
**Number of Samples/Product Class – Mutton/Lamb Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>MUTTON/LAMB, PROCESSED/CHC/COP</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Australia	27	8	0 <sup>1</sup>
Canada	20	8	0 <sup>1</sup>
France	1	8	8
New Zealand	52	8	0 <sup>1</sup>
<b>Total</b>	<b>100</b>	<b>32</b>	<b>8</b>

**Table 34**  
**Number of Samples /Product Class - Goat, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>GOAT, FRESH/CHC/COP</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Australia	92	8	8
Mexico	0.01	8	8
New Zealand	7.6	8	8
<b>Total</b>	<b>100</b>	<b>24</b>	<b>24</b>

**Table 35**  
**Number of Samples /Product Class – Turkey, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>TURKEY, FRESH/CHC/COP</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Canada	100	8	8
<b>Total</b>		<b>8</b>	<b>8</b>

**Table 36**  
**Number of Samples /Product Class – Turkey, Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>TURKEY, FRESH/CHC/COP</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Canada	71	8	0 <sup>1</sup>
France	1	8	8
Israel	8	8	8
Mexico	20	8	8
<b>Total</b>	<b>100</b>	<b>32</b>	<b>24</b>

**Table 37**  
**Number of Samples /Product Class – Chicken, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

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

**Table 38**  
**Number of Samples /Product Class – Varied Combination, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>VARIED COMBINATIONS, FRESH/CHC/COP</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Canada	100	8	8
<b>Total</b>		<b>8</b>	<b>8</b>

**Table 39**  
**Number of Samples /Product Class - Varied Combination, Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>VARIED COMBINATION, PROCESSED/CHC/COP</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Australia	0.15	8	8
Canada	88.21	8	0 <sup>1</sup>
France	0.27	8	8
Mexico	11.35	8	8
Netherlands	0.01	8	8
<b>Total</b>	<b>100</b>	<b>40</b>	<b>32</b>

**Table 40**  
**Number of Samples/Product Class - Beef, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>BEEF, FRESH/CHC/COP</b>	<b>PERCENT PRODUCT (P<sub>C/C</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U) = 300*[(P<sub>C/C</sub>)/100]</b>	<b>ADJUSTMENT #1 (8 MINIMUM/COUNTRY)</b>	<b>INITIAL ADJ.#</b>	<b>ADJUST. # 2</b>	<b>FINAL ADJ.#</b>
Australia	40	120		120	111	111
Canada	29	87		87	81	81
Costa Rica	1	3	8	8	8	8
Honduras	0.004	0.012	8	8	8	8
Mexico	0.5	1.5	8	8	8	8
New Zealand	23	69		69	64	64
Nicaragua	2	6	8	8	8	8
Uruguay	5	15		15	14	14
<b>Total</b>	<b>100.504</b>	<b>301.512</b>	<b>32</b>	<b>323</b>	<b>302</b>	<b>302</b>

**Table 41**  
**Number of Samples/Product Class - Beef, Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>BEEF, PROCESSED/CHC/COP</b>	<b>PERCENT PRODUCT (P<sub>C/C</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U) = 300*[(P<sub>C/C</sub>)/100]</b>	<b>ADJUSTMENT #1 (8 MINIMUM/COUNTRY)</b>	<b>INITIAL ADJ.#</b>	<b>ADJUST. # 2</b>	<b>FINAL ADJ.#</b>
Argentina	22	50.6		51	34	34
Australia	1	2.3		8	2	0 <sup>1</sup>
Brazil	52	119.6		120	79	79
Canada	13	29.9		30	20	0 <sup>1</sup>
Costa Rica	0.004	0.0092	8	8	0	0 <sup>1</sup>
France	0.05	0.115	8	8	8	8
Mexico	3.74	8.602		9	6	0 <sup>1</sup>
New Zealand	2	4.6	8	8	3	0 <sup>1</sup>
Uruguay	6	13.8		14	9	0 <sup>1</sup>
<b>Total</b>	<b>99.794</b>	<b>178.9262</b>	<b>24</b>	<b>256</b>	<b>160</b>	<b>121</b>

**Table 42**  
**Number of Samples/Product Class - Pork, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PORK, FRESH/ CHC/COP</b>	<b>PERCENT PRODUCT (P<sub>C/C</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) =230*[(P<sub>C/C</sub>)/100]</b>	<b>ADJUSTMENT #1 (8 MINIMUM/ COUNTRY)</b>	<b>INITIAL ADJ.#</b>	<b>ADJUST. # 2</b>	<b>FINAL ADJ.#</b>
Australia	0.03	0.09	8	8		8
Belgium	0.27	0.81	8	8		8
Canada	86	258	258	258	144	144
Croatia	0.01	0.03	8	8		8
Czechoslovakia	0.002	0.006	8	8		8
Denmark	9	27	27	27	15	15
Finland	0.2	0.6	8	8		8
France	0.04	0.12	8	8		8
Germany	0.07	0.21	8	8		8
Hungary	0.32	0.96	8	8		8
Ireland	0.5	1.5	8	8		8
Italy	0.6	1.8	8	8		8
Mexico	0.21	0.63	8	8		8
Netherlands	0.8	2.4	8	8		8
New Zealand	0.06	0.18	8	8		8
N. Ireland	0.23	0.69	8	8		8
Poland	1	3	8	8		8
Spain	0.01	0.03	8	8		8
Sweden	0.01	0.03	8	8		8
Switzerland	0.11	0.33	8	8		8
<b>Total</b>	<b>99.472</b>	<b>298.416</b>	<b>298.416</b>	<b>429</b>		<b>303</b>

**Table 43**  
**Number of Samples /Product Class – Veal Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>VEAL FRESH, CHC/COP</b>	<b>PERCENT PRODUCT (P<sub>C/C</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) =90*[(P<sub>C/C</sub>)/100]</b>	<b>ADJUSTMENT #1 (8 MINIMUM/ COUNTRY)</b>	<b>INITIAL ADJ.#</b>	<b>ADJUST. # 2</b>	<b>FINAL ADJ.#</b>
Australia	23	20.7		21	18.86	19
Canada	30	27		27	24.6	25
Mexico	0.01	0.009	8	8	8	8
New Zealand	47	42.3		42	38.54	39
<b>Total</b>	<b>100.01</b>	<b>90.009</b>		<b>98</b>	<b>90</b>	<b>91</b>

**Table 44**  
**Number of Samples /Product Class - Lamb/Mutton, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>LAMB/ MUTTON, FRESH/ CHC/COP</b>	<b>PERCENT PRODUCT (P<sub>CC</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>CS</sub>) =90*[(P<sub>CC</sub>)/100]</b>	<b>ADJUSTMENT #1 (8 MINIMUM/ COUNTRY)</b>	<b>INITIAL ADJ.#</b>	<b>ADJUST. # 2</b>	<b>FINAL ADJ.#</b>
Australia	63	56.7		57	42	42
Canada	0.3	0.27	8	8	8	8
Denmark	0.01	0.009	8	8	8	8
Iceland	0.13	0.117	8	8	8	8
New Zealand	36	32.4		32	24	24
<b>Total</b>	<b>100</b>	<b>89.496</b>	<b>24</b>	<b>113</b>	<b>90</b>	<b>90</b>

**Table 45**  
**Number of Samples/Product Class - Chicken, Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>CHICKEN, PROCESSED/ CHC/COP</b>	<b>PERCENT PRODUCT (P<sub>CC</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U)= 90*[(P<sub>CC</sub>)/100]</b>	<b>ADJUSTMENT #1 (8 MINIMUM/ COUNTRY)</b>	<b>INITIAL ADJ.#</b>	<b>ADJUST.# 2</b>	<b>FINAL ADJ.#</b>
Canada	97	87.3	0	0	0	0 <sup>1</sup>
France	0.1	0.09	8	8	8	8
Israel	1	0.9	8	8	8	8
Mexico	2	1.8	8	8	8	8
<b>Total</b>	<b>100</b>	<b>90.09</b>		<b>24</b>	<b>24</b>	<b>24</b>

# **Design of the Import Scheduled Sampling Plan for Veterinary Drugs**

## I. Selecting and Ranking Candidate Compounds

The candidate veterinary drugs of concern selected by members of the Surveillance Advisory Team (SAT) for the import scheduled sampling plan are the same as those listed in the section, *Design of the Import Scheduled Sampling Plan for Veterinary Drugs*. Furthermore, in ranking drugs for inclusion in the import scheduled sampling plan, FSIS also employs the ranking scores generated for the domestic scheduled sampling plan. This is because FSIS does not have sufficient historical data on drugs 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 scheduled sampling plan.

## II. Prioritizing Candidate Drugs

FSIS selects compounds and compound classes from the list of ranked veterinary drugs. The selection is based purely on their relative public health concern. FSIS and FDA decided that those compounds and compound classes that are a potential public health concern justify their inclusion in the 2005 NRP.

Once the high-priority compounds and compound classes had been identified, FSIS applied other practical considerations to determine the compounds FSIS should sample. The principal consideration is the availability of laboratory resources, especially the availability of appropriate analytical methods within the FSIS laboratories. Where the laboratory resources are limited, FSIS decided that more resources should be allocated to test domestic products since imported products have been inspected previously by the importing country. Based on these considerations, the following compounds are included in the 2005 FSIS scheduled sampling plan.

### *Antibiotics:*

At present, the following antibiotics are quantitated using the 7-plate bioassay<sup>1</sup> after a specific identification is made using mass spectroscopy (MS) or using high performance liquid chromatography (HPLC): tetracycline, oxytetracycline, chlortetracycline, gentamicin, streptomycin, dihydrostreptomycin, erythromycin, tylosin, neomycin, beta-lactams (quantitated as penicillin-G; penicillins and cephalosporins are not differentiated within this category), and tilmicosin (quantitated by HPLC). The following antimicrobials can be identified by MS; however, no quantitative methods are available: spectinomycin, hygromycin, amikacin, kanamycin, apramycin, tobramycin, lincomycin, pirlimycin, clindamycin, and oleandomycin

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<sup>1</sup> FSIS quantitates most antibiotics using a 7-plate bioassay that measures microbial inhibition. The pattern of inhibition (i.e., the combination of plates showing inhibition) is used to identify the antibiotic. There are some antibiotics, however, that share the same pattern of inhibition. For these antibiotics, it is necessary to undertake follow-up testing (High Performance Liquid Chromatography, HPLC, or mass spectrometry) to establish their identities, where such follow-up methodologies are available. Tetracycline, oxytetracycline, and chlortetracycline share patterns of inhibition and are individually identified by follow-up with the HPLC method for tetracyclines; tilmicosin, tylosin, lincomycin, clindamycin, erythromycin, and pirlimycin, which are individually identified by ion-trap LC/MS/MS. Tissues found to be positive for tilmicosin are quantitated by a NADA method using HPLC. Amikacin, apramycin, dihydrostreptomycin, gentamycin, hygromycin, kanamycin, neomycin, spectinomycin, streptomycin, and tobramycin are individually identified by ion-trap LC/MS/MS. Confirmation for sulfa drugs and flunixin are also provided by the residue chemistry section at the FSIS, Midwestern Laboratory.

#### *Other Veterinary Drugs:*

- Avermectins in FSIS MRM (doramectin, ivermectin and moxidectin)
- Phenylbutazone in FSIS MRM (detected in the CHC3 method)
- Sulfonamides (sulfapyridine, sulfadiazine, sulfathiazole, sulfamerazine, sulfamethazine, sulfachloropyridazine, sulfadoxine, sulfamethoxypyridazine, sulfaquinoxaline, sulfadimethoxine, sulfisoxazole, sulfacetamide, sulfamethoxazole, sulfamethizole, sulfanilamide, sulfaguanidine, sulfabromomethazine, sulfasalazine, sulfaethoxypyridazine, sulfaphenazole, and sulfatroxazole)

#### *Banned Drugs*

- Chloramphenicol (Single compound method)

### **III. Identifying Compound/Production Class (C/PC) Pairs**

SAT participants from the FDA identified, for each of the drugs and drug classes to be included in the 2005 NRP, product classes in which they had a concern. The results are presented in Table 7, *Product Classes Considered for Each Drug/Drug Class*. Compound/product class pairs included in the 2005 NRP are designated by a "●". Those compound/product class pairs that are of potential public health concern, but that are not included in the 2005 NRP because of laboratory resource constraints, are marked with a "○". Since all product classes will be sampled by the chlorinated hydrocarbon/chlorinated organophosphate (CHC/COP) method (see the section, *Design of the Import Scheduled Sampling Plan*) and this method also detects phenylbutazone, the latter, by default, will be sampled in all product classes. However, phenylbutazone is not of regulatory concern in all product classes. Those product classes in which phenylbutazone will be sampled, but where it is not of regulatory concern, are designated by a "◐".

### **IV. Allocation of Sampling Resources**

#### *Egg Products*

The samples for residue analysis for imported egg products are selected in a different manner than the other product classes. In order to establish a history of compliance with the U.S. requirements for each category of egg product, 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.

#### *Animal Product Classes*

Table 8, *Estimated Annual Amount (in lbs.) of Product Imported*, lists the estimated amount of all the product classes imported into U.S. and includes the percentage of each of the product classes. The data for the product classes is obtained from Automated Import Information System. The percent of each product class imported annually is calculated as shown in equation 7:

$$\% \text{ Product Class Imported (P}_C) = \frac{\text{Amount Product Class Imported}}{\text{Total Product Imported}} \times 100 \quad \text{Equation 7}$$

The relative sampling priority is obtained by multiplying the percent product class ( $P_C$ ) by the drug scores obtained in Phase I, using equation 8.

$$\text{Relative Sampling Priority} = (P_C) \times \text{Drug Score} \quad \text{Equation 8}$$

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 data presented in Table 11, *Number of Drug Samples/Product Class*, in the column labeled “Number of Samples.”

FSIS, in its import scheduled sampling 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 product and are actively exporting to the United States. Processed pork from Australia, Denmark and Ireland, processed mutton/lamb products from Australia, Canada and New Zealand, Varied combination products from Canada, processed beef from Australia, Canada, Costa Rica, Mexico, New Zealand and Uruguay, and processed chicken from Canada will not be sampled since the raw materials used are from countries that are eligible to ship raw products to the U.S.

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 fresh goat is imported from only three countries and the amount imported is 0.50 % relative to the total U.S. import, twenty four samples (3 countries X 8 samples) of goat fresh would be taken for each analysis, eight from each country.

The adjusted number of samples is listed in Table 11, in the column labeled “Adj 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 11 in the column labeled “Final Number of Samples.” The numbers in the column 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 pork processed, veal processed, lamb/mutton processed, goat fresh, turkey fresh and processed, ratite fresh, chicken fresh, other fowl fresh and processed, varied combination fresh and processed and eggs processed are less than 1%. In addition, as stated above if a country is exporting either fresh and processed products or sources all their raw materials from eligible sources then no residue samples are scheduled for processed products from that country. The unadjusted numbers of samples are listed in the columns labeled, “Unadjusted Number of Samples” in Tables 12-20. The adjusted numbers of samples per country/per product class is listed in the column labeled, “Final Number of Samples” in Tables 12-20.

### Allocation of Samples in Product Classes Where the Total Volume Imported is Greater Than 1%

For major product classes, the number of samples is allocated to each country depending upon the relative amount of product imported from that country. Table 8, *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 is calculated as follows and is in Table 9, *Relative Annual Amount of Product Imported/Country*.

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

$$\frac{\text{Amount of Product Class from Country}}{\text{Total Amount of Product Class}} \times 100 \quad \text{Equation 9}$$

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:

Unadjusted Number of Samples per Country ( $U_{C/S}$ ) =

$$\text{Total Number of Samples} \times \frac{P_{C/C}}{100} \quad \text{Equation 10}$$

This is indicated in the column labeled “Unadjusted Number of Samples ( $U_{C/S}$ ),” in Tables 21-26.

After determining the number of samples required from each country, each country with less than eight samples is assigned a minimum of eight samples. This is indicated in the column labeled “Adjustment #1” in Tables 21-26. 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 is made only to those countries from which greater than eight samples are to be taken. This adjustment is accomplished using the following equations:

$$\text{Number of Samples after Adjustment \#2} = (U_{C/S}) - \frac{(N \times P_{C/C})}{(P_{T/C})} \quad \text{Equation 11}$$

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 21-26 in the column labeled “Final Adj.#.”

#### Notes:

The candidate veterinary drugs of concern selected by members of the Surveillance Advisory Team (SAT) for the import scheduled sampling Plan are the same as those listed in the section, *Design of the Domestic Scheduled Sampling Plan for Veterinary Drugs*.

Phenylbutazone is detected by the FSIS CHC/COP method. Therefore, all product classes that are sampled for CHC/COP are sampled for phenylbutazone. The number of samples/product class/country is discussed in the section, *Design of the Import Scheduled Sampling Plan for Pesticides*.

**Table 7**  
**Product Classes Considered for Each Drug/Drug Class**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>DRUG→</b>	<b>Antibiotics</b>	<b>Avermectins</b>	<b>Chloramphenicol</b>	<b>CHC/OP/PHB</b>	<b>Sulfonamides</b>
Beef, fresh	●	●	●	●	●
Beef, processed		○		●	●
Beef/Pork, processed		○		●	●
Chicken, fresh	●			○	●
Chicken, processed				○	●
Goat, fresh	●			●	●
Lamb/Mutton, fresh	●	●		●	●
Lamb/Mutton, processed	●	●			●
Pork, fresh	●	●		●	●
Turkey, fresh	●			○	●
Turkey, processed				○	●
Varied combination fresh	●			●	●
Varied combination processed	●			●	●
Veal, fresh	●	●	●	●	●
Veal, processed		○		●	●

**Key**

- = Compound/product class sampled in the 2005 FSIS Import Scheduled Sampling Plan
- = Compound/product class pair of regulatory concern but not included in the plan because of lab resources
- ◉ = Since all product classes will be sampled by the CHC/COP method (see Section 7), and since this method also detects phenylbutazone, the latter, by default, will be sampled in all product classes. However, phenylbutazone is not of regulatory concern in all product classes.

**Table 8**  
**Estimated Annual Amount (in lbs.) of Product Imported**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PRODUCT CLASS</b>	<b>PRODUCT IMPORTED IN POUNDS</b>	<b>% PRODUCT IMPORTED</b>
Beef, fresh	2,044,827,872	52.99051614
Beef, processed	221,936,262	5.751348198
Pork, fresh	1,196,507,076	31.00677978
Pork, processed	34,329,352	0.889625037
Veal, fresh	48,012,189	1.244207735
Veal, processed	30,840	0.000799201
Lamb/Mutton, fresh	150,033,730	3.888036198
Lamb/Mutton, processed	255,043	0.00660929
Goat, fresh	19280049.3	0.499631181
Turkey , fresh	2,177,207	0.056421044
Ratite, fresh	440,838	0.011424058
Chicken, fresh	29,399,217	0.761863488
Chicken, processed	76,126,261	1.972767443
Turkey, processed	9,578,363	0.248217656
Other Fowl, fresh	4,844,201	0.12553463
Other Fowl, processed	204,590	0.00530182
Varied combination, fresh	221,692	0.005745018
Varied combination, processed	9522722.5	0.246775774
Eggs, processed	11,128,799	0.288396305
<b>Total</b>	<b>3,858,856,302</b>	<b>100</b>

**Table 9**  
**Estimated Annual Amount (in lbs.) of Product Imported/Country**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PRODUCTION CLASS</b>	<b>Argentina</b>	<b>Australia</b>	<b>Belgium</b>	<b>Brazil</b>	<b>Canada</b>
Beef, fresh		829,167,087			589,581,113
Beef, processed	50,329,188	2,401,298		114,642,447	28,653,429
Pork, fresh		369,506	3,243,226		1033073648
Pork, processed		5,674			
Beef/Pork, processed					
Veal, fresh		10,974,970			14,238,720
Veal, processed					3,261
Lamb/Mutton, fresh		94,671,873			405,179
Lamb/Mutton, processed		69,541			51994
Goat, fresh		17814672.3			
Turkey , fresh					2,177,207
Ratite, fresh		410,686			
Chicken, fresh					29,399,217
Chicken, processed					73,746,365
Turkey, processed					6,858,699
Other Fowl, fresh					4,643,638
Other Fowl, processed					123,701
Varied combination, fresh					221,692
Varied combination, processed		14,533			8,400,298
Eggs, processed					11128799
<b>Total/country</b>	<b>45,303,505</b>	<b>955,899,840</b>	<b>3,243,226</b>	<b>1,146,424,47</b>	<b>1,802,706,959</b>

**Table 9 - Continued**  
**Estimated Annual Amount (in lbs.) of Product Imported/Country**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PRODUCTION CLASS</b>	<b>Costa Rica</b>	<b>Croatia</b>	<b>Czech</b>	<b>Denmark</b>	<b>Finland</b>	<b>France</b>
Beef, fresh	22,707,166					
Beef, processed	8,471					112,146
Pork, fresh		111,906	24,258	105,843,037	2,106,242	515,592
Pork, processed				34,294,421		
Beef/Pork, processed						
Veal, fresh						
Veal, processed						27,579
Lamb/Mutton, fresh				20,760		
Lamb/Mutton, processed						837
Goat, fresh						
Turkey , fresh						
Ratite, fresh						
Chicken, fresh						
Chicken, processed						75,457
Turkey, processed						3,593
Other Fowl, fresh						183,512
Other Fowl, processed						80,889
Varied combination, fresh						
Varied combination, processed						25,666
Eggs, processed						
<b>Total/country</b>	<b>227,156,36.9</b>	<b>111,906</b>	<b>242,58</b>	<b>140,158,218</b>	<b>2,106,241.6</b>	<b>10,252,71</b>

**Table 9 - Continued**  
**Estimated Annual Amount (in lbs.) of Product Imported/Country**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PRODUCTION CLASS</b>	<b>Germany</b>	<b>Honduras</b>	<b>Hungary</b>	<b>Iceland</b>	<b>Ireland</b>	<b>Israel</b>
Beef, fresh		84,000				
Beef, processed						
Pork, fresh	950,331		3,865,934		6,009,236	
Pork, processed					29,257	
Beef/Pork, processed						
Veal, fresh						
Veal, processed						
Lamb/Mutton, fresh				192,012		
Lamb/Mutton, processed						
Goat, fresh						
Turkey , fresh						
Ratite, fresh						
Chicken, fresh						
Chicken, processed						745,212
Turkey, processed						790,453
Other Fowl, fresh						
Other Fowl, processed						
Varied combination, fresh						
Varied combination, processed						
Eggs, processed						
<b>Total/country</b>	<b>950,331</b>	<b>84,000</b>	<b>3,865,934</b>	<b>192,012</b>	<b>6,038,493</b>	<b>1,535,664.7</b>

**Table 9 - Continued**  
**Estimated Annual Amount (in lbs.) of Product Imported/Country**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PRODUCTION CLASS</b>	<b>Italy</b>	<b>Mexico</b>	<b>Netherlands</b>	<b>New Zealand</b>	<b>Nicaragua</b>	<b>N. Ireland</b>
Beef, fresh		10,372,910		464,131,666	37,259,120	
Beef, processed		8,312,252		4,922,945		
Pork, fresh	6,595,043	2514437.03	9,168,824	728,307		2,693,159
Pork, processed						
Beef/Pork, processed						
Veal, fresh		313		22,798,186		
Veal, processed						
Lamb/Mutton, fresh				54,743,906		
Lamb/Mutton, processed				132,671		
Goat, fresh		1,821		1,463,556		
Turkey , fresh						
Ratite, fresh				30,152		
Chicken, fresh						
Chicken, processed		1,559,227				
Turkey, processed		1,925,618				
Other Fowl, fresh				17,051		
Other Fowl, processed						
Varied combination, fresh						
Varied combination, processed		1,080,845		1,381		
Eggs, processed						
<b>Total/country</b>	<b>6,595,043</b>	<b>25,767,423</b>	<b>9,168,824</b>	<b>548,969,821</b>	<b>37,259,120</b>	<b>2,693,159</b>

**Table 9 - Continued**  
**Estimated Annual Amount (in lbs.) of Product Imported/Country**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PRODUCTION CLASS</b>	<b>Poland</b>	<b>Spain</b>	<b>Sweden</b>	<b>UK</b>	<b>Uruguay</b>
Beef, fresh					91,524,810
Beef, processed					12,554,086
Pork, fresh	16,020,813	1,193,314	64,107	1,416,156	
Pork, processed					
Beef/Pork, processed					
Veal, fresh					
Veal, processed					
Lamb/Mutton, fresh					
Lamb/Mutton, processed					
Goat, fresh					
Turkey , fresh					
Ratite, fresh					
Chicken, fresh					
Chicken, processed					
Turkey, processed					
Other Fowl, fresh					
Other Fowl, processed					
Varied combination, fresh					
Varied combination, processed					
Eggs, processed					
<b>Total/country</b>	<b>16,020,813</b>	<b>1,193,314</b>	<b>64,107</b>	<b>1,416,156</b>	<b>104,078,896</b>

**Table 10**  
**Relative Annual Amount of Product Imported/Country**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PRODUCTION CLASS</b>	<b>Argentina</b>	<b>Australia</b>	<b>Belgium</b>	<b>Brazil</b>	<b>Canada</b>
Beef, fresh (Pc/c)		40.5494809			28.83279916
Beef, processed	22.67731637	1.081976318		51.6555724	12.91065673
Pork, fresh		0.030882057	0.27105782		86.34078884
Pork, processed		0.01652813			
Veal, fresh		22.85871606			29.65646879
Veal, processed					10.57392996
Lamb/Mutton, fresh		63.10039288			0.270058606
Lamb/Mutton, processed		27.26638253			20.38636622
Goat, fresh		92.39951632			
Ratite, fresh		93.16029925			
Chicken, fresh					100
Chicken, processed					96.8737521
Turkey, fresh					100
Turkey, processed					71.60617351
Other Fowl, fresh					95.85972648
Other Fowl, processed					60.46279967
Varied combination, fresh					100
Varied combination, processed		0.152613919			88.21319218
Eggs, processed					100

**Table 10 - Continued**  
**Relative Annual Amount of Product Imported/Country**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>Production Class</b>	<b>Costa Rica</b>	<b>Croatia</b>	<b>Czech</b>	<b>Denmark</b>	<b>Finland</b>	<b>France</b>
Beef, Fresh	1.11046833					
Beef, Processed	0.00381686					0.050531
Pork, Fresh		0.009353	0.002027	8.8460018	0.17603252	0.043091
Pork, Processed				99.898247		
Beef/Pork, Processed						
Veal, Fresh						89.42607
Veal, Processed				0.0138369		
Lamb/Mutton, Fresh						0.32818
Lamb/Mutton, Processed						
Goat, Fresh						
Chicken, Fresh						
Chicken, Processed						0.099121
Turkey, Fresh						
Turkey, Processed						0.037512
Other Fowl, Fresh						3.788286
Other Fowl, Processed						39.5372
Varied combination, Processed						0.26952
Eggs, Processed						

**Table 10 - Continued**  
**Relative Annual Amount of Product Imported/Country**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>Production Class</b>	<b>Germany</b>	<b>Honduras</b>	<b>Hungary</b>	<b>Iceland</b>	<b>Ireland</b>	<b>Israel</b>	<b>Italy</b>
Beef, fresh (Pc/c)							
Beef, processed		0.004107925					
Pork, fresh							
Pork, processed	0.079425		0.3231016		0.5022315		0.5511913
Veal, fresh					0.0852244		
Veal, processed							
Lamb/Mutton, fresh							
Lamb/Mutton, processed				0.127979			
Goat, fresh							
Ratite, fresh							
Chicken, fresh							
Chicken, processed							
Turkey, fresh						0.9789158	
Turkey, processed							
Other Fowl, fresh						8.2524822	
Other Fowl, processed							
Varied combination, fresh							
Varied combination, processed							
Eggs, processed							

**Table 10 - Continued**  
**Relative Annual Amount of Product Imported/Country**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>Production Class</b>	<b>Mexico</b>	<b>Netherlands</b>	<b>New Zealand</b>	<b>Nicaragua</b>	<b>N Ireland</b>
Beef, fresh (Pc/c)	0.50727546		22.69783546	1.82211522	
Beef, processed	3.7453331		2.218179646		
Pork, fresh	0.21014811	0.7662992	0.060869427		0.2250851
Pork, processed					
Veal, fresh	0.00065192		47.48416324		
Veal, processed					
Lamb/Mutton, fresh			36.48773241		
Lamb/Mutton, processed			52.01907129		
Goat, fresh	0.009445		7.591038681		
Ratite, fresh			6.839700752		
Chicken, fresh					
Chicken, processed	2.0482115				
Turkey, fresh					
Turkey, processed	20.1038326				
Other Fowl, fresh			0.351987874		
Other Fowl, processed					
Varied combination, fresh					
Varied combination, processed	11.350168		0.014502155		
Eggs, processed					

**Table 10 - Continued**  
**Relative Annual Amount of Product Imported/Country**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>Production Class</b>	<b>Poland</b>	<b>Spain</b>	<b>Sweden</b>	<b>Switzerland</b>	<b>Uruguay</b>
Beef, fresh (Pc/c)					4.4759175
Beef, processed					5.6566177
Pork, fresh	1.3389652	0.099733	0.005358	0.118358	
Pork, processed					
Veal, fresh					
Veal, processed					
Lamb/Mutton, fresh					
Lamb/Mutton, processed					
Goat, fresh					
Ratite, fresh					
Chicken, fresh					
Chicken, processed					
Turkey, fresh					
Turkey, processed					
Other Fowl, fresh					
Other Fowl, processed					
Varied combination, fresh					
Varied combination, processed					
Eggs, processed					

**Table 11**  
**Number of Drug Samples/Product Class**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>No of Countries</b>	<b>Production Class</b>	<b>Drug</b>	<b>% Product Imported</b>	<b>Score</b>	<b>RSP</b>	<b>No. of Samples</b>	<b>Unadjusted No. of Samples</b>	<b>Final No of Samples</b>
8	Beef, Fresh	Antibiotics	52.99	15	794.85	300	302	302
8	Beef, Fresh	Avermectins	52.99	14	741.86	300	302	302
8	Beef, Fresh	Sulfonamides	52.99	12	635.88	300	302	302
20	Pork Fresh	Antibiotics	31.01	15	465.15	300	298	303
20	Pork Fresh	Avermectins	31.01	14	434.14	300	298	303
20	Pork Fresh	Sulfonamides	31.01	12	372.12	300	298	303
3	Pork Processed	Sulfonamides	5.75	12	69.00	90	24	0
9	Beef, Processed	Sulfonamides	5.75	12	69.00	230	179	121
5	Mutton/Lamb Fresh	Antibiotics	3.89	15	58.35	90	113	90
5	Mutton/Lamb Fresh	Avermectins	3.89	14	54.46	90	113	90
5	Mutton/Lamb Fresh	Sulfonamides	3.89	12	46.68	90	113	90
4	Chicken Processed	Sulfonamides	1.97	12	23.64	90	24	24
4	Veal Fresh	Antibiotics	1.24	15	18.60	90	90	91
4	Veal Fresh	Avermectins	1.24	14	17.36	90	90	91
4	Veal Fresh	Sulfonamides	1.24	12	14.88	90	90	91
1	Chicken Fresh	Antibiotics	0.76	15	11.40	90	8	8
1	Chicken Fresh	Sulfonamides	0.76	12	9.12	90	8	8
3	Goat Fresh	Antibiotics	0.49	15	7.35	90	24	24
3	Goat Fresh	Sulfonamides	0.49	12	5.88	90	24	24
5	Varied combination, Processed	Antibiotics	0.25	15	3.75	90	40	32
5	Varied combination, Processed	Sulfonamides	0.25	12	3.00	90	40	32

**Table 11 - Continued**  
**Number of Drug Samples/Product Class**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>No of Countries</b>	<b>Production Class</b>	<b>Drug</b>	<b>% Product Imported</b>	<b>Score</b>	<b>RSP</b>	<b>No. of Samples</b>	<b>Unadjusted No. of Samples</b>	<b>Final No of Samples</b>
4	Turkey Processed	Sulfonamides	0.24	12	2.88	90	32	24
1	Turkey Fresh	Sulfonamides	0.06	12	0.72	90	8	8
1	Varied combination, Fresh	Antibiotics	0.01	15	0.15	90	8	8
4	Mutton/Lamb Processed	Antibiotics	0.01	15	0.15	90	32	8
4	Mutton/Lamb Processed	Avermectins	0.01	14	0.14	90	32	8
1	Varied combination, Fresh	Sulfonamides	0.01	12	0.12	90	8	8
4	Mutton/Lamb Processed	Sulfonamides	0.01	12	0.12	90	32	8
2	Veal Processed	Sulfonamides	0.001	12	0.01	90	16	8
4	Veal Fresh	Chloramphenicol	1.24	0	0	90	90	91
8	Beef, Fresh	Chloramphenicol	52.99	0	0	90	90	93
						4490	3321	2903

**Table 12**  
**Number of Samples/Product Class – Pork, Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PORK, PROCESSED/ SULFONAMIDES</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Australia	0.02	8	0 <sup>1</sup>
Denmark	99.90	8	0 <sup>1</sup>
Ireland	0.08	8	0 <sup>1</sup>
<b>Total</b>	<b>100</b>	<b>24</b>	<b>0</b>

**Table 13**  
**Number of Samples/Product Class - Veal, Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>VEAL, PROCESSED/ SULFONAMIDES</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Canada	11	8	0 <sup>1</sup>
France	89	8	8
<b>Total</b>		<b>16</b>	<b>8</b>

**Table 14**  
**Number of Samples/Product Class – Mutton/Lamb Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>MUTTON/LAMB PROCESSED/ ANTIBIOTICS</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Australia	27	8	0 <sup>1</sup>
Canada	20	8	0 <sup>1</sup>
France	1	8	8
New Zealand	52	8	0 <sup>1</sup>
<b>Total</b>	<b>100</b>	<b>32</b>	<b>8</b>
<b>MUTTON/LAMB PROCESSED/ AVERMECTINS</b>			
Australia	27	8	0 <sup>1</sup>
Canada	20	8	0 <sup>1</sup>
France	1	8	8
New Zealand	52	8	0 <sup>1</sup>
<b>Total</b>	<b>100</b>	<b>32</b>	<b>8</b>
<b>MUTTON/LAMB PROCESSED/ SULFONAMIDES</b>			
Australia	27	8	0 <sup>1</sup>
Canada	20	8	0 <sup>1</sup>
France	1	8	8
New Zealand	52	8	0 <sup>1</sup>
<b>Total</b>	<b>100</b>	<b>32</b>	<b>8</b>

**Table 15**  
**Number of Samples/Product Class - Goat, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>GOAT, FRESH/ ANTIBIOTICS</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Australia	92	8	8
Mexico	0.01	8	8
New Zealand	7.6	8	8
<b>Total</b>		<b>24</b>	<b>24</b>
<b>GOAT, FRESH/ SULFONAMIDES</b>			
Australia	92	8	8
Mexico	0.01	8	8
New Zealand	7.6	8	8
<b>Total</b>		<b>24</b>	<b>24</b>

**Table 16**  
**Number of Samples/Product Class – Turkey, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>TURKEY FRESH/ SULFONAMIDES</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Canada	100	8	8
<b>Total</b>		<b>8</b>	<b>8</b>

**Table 17**  
**Number of Samples/Product Class - Turkey, Processed**  
**2005 FSIS Import Scheduled Sampling Plan**

<b>TURKEY, PROCESSED/SULFONAMIDES</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Canada	71	8	8
France	1	8	8
Israel	8	8	8
Mexico	20	8	8
<b>Total</b>	<b>100</b>	<b>32</b>	<b>32</b>

**Table 18**  
**Number of Samples/Product Class - Chicken, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>CHICKEN, FRESH/ANTIBIOTICS</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Canada	100	8	8
<b>Total</b>		<b>8</b>	<b>8</b>
<b>CHICKEN, FRESH/ SULFONAMIDES</b>			
Canada	100	8	8
<b>Total</b>		<b>8</b>	<b>8</b>

**Table 19**  
**Number of Samples/Product Class – Varied Combination, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>VARIED COMBINATION /ANTIBIOTICS</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Canada	100	8	8
<b>Total</b>		<b>8</b>	<b>8</b>
<b>VARIED COMBINATION / SULFONAMIDES</b>			
Canada	100	8	8
<b>Total</b>		<b>8</b>	<b>8</b>

**Table 20**  
**Number of Samples/Product Class – Varied Combination, Processed**  
**2005 FSIS Import Scheduled Sampling Plan**

<b>VARIED COMBINATION, PROCESSED, SULFONAMIDES</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Australia	0.15	8	8
Canada	88.21	8	0 <sup>1</sup>
France	0.27	8	8
Mexico	11.35	8	8
Netherlands	0.01	8	8
<b>Total</b>	<b>100</b>	<b>40</b>	<b>32</b>
<b>VARIED COMBINATION, PROCESSED, ANTIBIOTICS</b>	<b>PERCENT PRODUCT</b>	<b>UNADJUSTED NUMBER OF SAMPLES</b>	<b>FINAL NUMBER OF SAMPLES</b>
Australia	0.15	8	8
Canada	88.21	8	0 <sup>1</sup>
France	0.27	8	8
Mexico	11.35	8	8
Netherlands	0.01	8	8
<b>Total</b>	<b>100</b>	<b>40</b>	<b>32</b>

**Table 21**  
**Number of Samples/Product Class - Beef, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>BEEF, FRESH/ ANTIBIOTICS</b>	<b>PERCENT PRODUCT (P<sub>C/C</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) = 300*(P<sub>C/C</sub>/100)</b>	<b>ADJUST. #1 (MIN. 8 SAMPLES/ COUNTRY)</b>	<b>INITIAL ADJ NUMBER</b>	<b>ADJUST. # 2</b>	<b>FINAL ADJ #</b>
Australia	40	120		120	111	111
Canada	29	87		87	81	81
Costa Rica	1	3	8	8	8	8
Honduras	0.004	0.012	8	8	8	8
Mexico	0.5	1.5	8	8	8	8
New Zealand	23	69		69	64	64
Nicaragua	2	6	8	8	8	8
Uruguay	5	15		15	14	14
<b>Total</b>	<b>100.504</b>	<b>301.512</b>	<b>32</b>	<b>323</b>	<b>302</b>	<b>302</b>
<b>BEEF, FRESH/ AVERMECTINS</b>						
Australia	40	120		120	111	111
Canada	29	87		87	81	81
Costa Rica	1	3	8	8	8	8
Honduras	0.004	0.012	8	8	8	8
Mexico	0.5	1.5	8	8	8	8
New Zealand	23	69		69	64	64
Nicaragua	2	6	8	8	8	8
Uruguay	5	15		15	14	14
<b>Total</b>	<b>100.504</b>	<b>301.512</b>	<b>32</b>	<b>323</b>	<b>302</b>	<b>302</b>
<b>BEEF, FRESH/ SULFONAMIDES</b>						
Australia	40	120		120	111	111
Canada	29	87		87	81	81
Costa Rica	1	3	8	8	8	8
Honduras	0.004	0.012	8	8	8	8
Mexico	0.5	1.5	8	8	8	8
New Zealand	23	69		69	64	64
Nicaragua	2	6	8	8	8	8
Uruguay	5	15		15	14	14
<b>Total</b>	<b>100.504</b>	<b>301.512</b>	<b>32</b>	<b>323</b>	<b>302</b>	<b>302</b>
<b>BEEF, FRESH/ CHLORAM-PHENICOL</b>						
Australia	40	36		36	23	23
Canada	29	26.1		26	17	17
Costa Rica	1	0.9	8	8	8	8
Honduras	0.004	0.0036	8	8	8	8
Mexico	0.5	0.45	8	8	8	8
New Zealand	23	20.7		21	13	13
Nicaragua	2	1.8		8	6	8
Uruguay	5	4.5		8	3	8
<b>Total</b>	<b>100.504</b>	<b>90.4536</b>	<b>24</b>	<b>123</b>	<b>85</b>	<b>93</b>

**Table 22**  
**Number of Samples/Product Class - Beef, Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>BEEF, PROCESSED/ SULFONAMIDES</b>	<b>PERCENT PRODUCT (P<sub>C/C</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) = 230*P<sub>C/C</sub>/100)</b>	<b>ADJUST. #1 (MIN. 8 SAMPLES/ COUNTRY)</b>	<b>INITIAL ADJ. NUMBER</b>	<b>ADJUST. # 2</b>	<b>FINAL NUMBER OF SAMPLES</b>
Argentina	22	50.6		51	34	34
Australia	1	2.3	8	8	2	0 <sup>1</sup>
Brazil	52	119.6		120	79	79
Canada	13	29.9	0	30	20	0 <sup>1</sup>
Costa Rica	0.004	0.0092	8	8	0	0 <sup>1</sup>
France	0.05	0.115	8	8	8	8
Mexico	3.74	8.602	0	9	6	0 <sup>1</sup>
New Zealand	2	4.6	8	8	3	0 <sup>1</sup>
Uruguay	6	13.8	0	14	9	0 <sup>1</sup>
<b>Total</b>	<b>99.794</b>	<b>178.9262</b>	<b>32</b>	<b>256</b>	<b>160</b>	<b>121</b>

**Table 23**  
**Number of Samples/Product Class - Pork, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PORK, FRESH/ ANTIBIOTICS/</b>	<b>PERCENT PRODUCT (P<sub>C/C</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) =300 * (P<sub>C/C</sub>)/100</b>	<b>ADJUST. #1 (MIN. 8 SAMPLES/ COUNTRY)</b>	<b>INITIAL ADJ.#</b>	<b>ADJUST. # 2</b>	<b>FINAL ADJ.#</b>
Australia	0.03	0.09	8	8		8
Belgium	0.27	0.81	8	8		8
Canada	86	258	258	258	144	144
Croatia	0.01	0.03	8	8		8
Czechoslovakia	0.002	0.006	8	8		8
Denmark	9	27	27	27	15	15
Finland	0.2	0.6	8	8		8
France	0.04	0.12	8	8		8
Germany	0.07	0.21	8	8		8
Hungary	0.32	0.96	8	8		8
Ireland	0.5	1.5	8	8		8
Italy	0.6	1.8	8	8		8
Mexico	0.21	0.63	8	8		8
Netherlands	0.8	2.4	8	8		8
New Zealand	0.06	0.18	8	8		8
N. Ireland	0.23	0.69	8	8		8
Poland	1	3	8	8		8
Spain	0.01	0.03	8	8		8
Sweden	0.01	0.03	8	8		8
Switzerland	0.11	0.33	8	8		8
<b>Total</b>	<b>99.472</b>	<b>298.416</b>	<b>298.416</b>	<b>429</b>		<b>303</b>
<b>PORK, FRESH/ AVERMECTINS</b>		<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) = 300*((P<sub>C/C</sub>)/100)</b>				
Australia	0.03	0.09	8	8		8
Belgium	0.27	0.81	8	8		8
Canada	86	258	258	258	144	144
Croatia	0.01	0.03	8	8		8
Czechoslovakia	0.002	0.006	8	8		8
Denmark	9	27	27	27	15	15
Finland	0.2	0.6	8	8		8
France	0.04	0.12	8	8		8
Germany	0.07	0.21	8	8		8
Hungary	0.32	0.96	8	8		8
Ireland	0.5	1.5	8	8		8
Italy	0.6	1.8	8	8		8
Mexico	0.21	0.63	8	8		8
Netherlands	0.8	2.4	8	8		8
New Zealand	0.06	0.18	8	8		8
N. Ireland	0.23	0.69	8	8		8
Poland	1	3	8	8		8
Spain	0.01	0.03	8	8		8
Sweden	0.01	0.03	8	8		8
Switzerland	0.11	0.33	8	8		8
<b>Total</b>	<b>99.472</b>	<b>298.416</b>	<b>298.416</b>	<b>429</b>		<b>303</b>

**Table 23 - continued**  
**Number of Samples/Product Class - Pork, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>PORK, FRESH/ SULFONAMIDES</b>		<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) =300 * (P<sub>C/C</sub>)/100</b>				
Australia	0.03	0.09	8	8		8
Belgium	0.27	0.81	8	8		8
Canada	86	258	258	258	144	144
Croatia	0.01	0.03	8	8		8
Czechoslovakia	0.002	0.006	8	8		8
Denmark	9	27	27	27	15	15
Finland	0.2	0.6	8	8		8
France	0.04	0.12	8	8		8
Germany	0.07	0.21	8	8		8
Hungary	0.32	0.96	8	8		8
Ireland	0.5	1.5	8	8		8
Italy	0.6	1.8	8	8		8
Mexico	0.21	0.63	8	8		8
Netherlands	0.8	2.4	8	8		8
New Zealand	0.06	0.18	8	8		8
N. Ireland	0.23	0.69	8	8		8
Poland	1	3	8	8		8
Spain	0.01	0.03	8	8		8
Sweden	0.01	0.03	8	8		8
Switzerland	0.11	0.33	8	8		8
	99.472	298.416	298.416	429		303

**Table 24**  
**Number of Samples/Product Class - Chicken, Processed**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>CHICKEN, PROCESSED/ SULFONAMIDES</b>	<b>PERCENT PRODUCT (P<sub>C/C</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) = 90*((P<sub>C/C</sub>)/100)</b>	<b>ADJUST. #1 (MIN. 8 SAMPLES/ COUNTRY)</b>	<b>INITIAL ADJ.#</b>	<b>ADJUST. # 2</b>	<b>FINAL ADJ.#</b>
Canada	97	87.3	0	0	0	0 <sup>1</sup>
France	0.1	0.09	8	8	8	8
Israel	1	0.9	8	8	8	8
Mexico	2	1.8	8	8	8	8
<b>Total</b>		<b>90.09</b>	<b>24</b>	<b>24</b>	<b>24</b>	<b>24</b>

**Table 25**  
**Number of Samples/Product Class - Veal, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>VEAL, FRESH/ ANTIBIOTICS</b>	<b>PERCENT PRODUCT (P<sub>C/C</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) =90*(P<sub>C/C</sub>)/100]</b>	<b>ADJUSTMENT #1 (8 MINIMUM/ COUNTRY)</b>	<b>INITIAL ADJ.#</b>	<b>ADJUST.# 2</b>	<b>FINAL ADJ.#</b>
Australia	23	20.7		21	18.86	19
Canada	30	27		27	24.6	25
Mexico	0.01	0.009	8	8	8	8
New Zealand	47	42.3		42	38.54	39
<b>Total</b>	<b>100.01</b>	<b>90.009</b>		<b>98</b>	<b>90</b>	<b>91</b>
<b>VEAL, FRESH/ AVERMECTINS</b>		<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) =90*(P<sub>C/C</sub>)/100]</b>				
Australia	23	20.7		21	18.86	19
Canada	30	27		27	24.6	25
Mexico	0.01	0.009	8	8	8	8
New Zealand	47	42.3		42	38.54	39
<b>Total</b>	<b>100.01</b>	<b>90.009</b>		<b>98</b>	<b>90</b>	<b>91</b>
<b>VEAL, FRESH/ SULFONAMIDES</b>		<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) =90*(P<sub>C/C</sub>)/100]</b>				
Australia	23	20.7		21	18.86	19
Canada	30	27		27	24.6	25
Mexico	0.01	0.009	8	8	8	8
New Zealand	47	42.3		42	38.54	39
<b>Total</b>	<b>100.01</b>	<b>90.009</b>		<b>98</b>	<b>90</b>	<b>91</b>
<b>VEAL, FRESH/ CHLORAMPHEN- ICOL</b>		<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) =90*(P<sub>C/C</sub>)/100]</b>				
Australia	23	20.7		21	18.86	19
Canada	30	27		27	24.6	25
Mexico	0.01	0.009	8	8	8	8
New Zealand	47	42.3		42	38.54	39
<b>Total</b>	<b>100.01</b>	<b>90.009</b>		<b>98</b>	<b>90</b>	<b>91</b>

**Table 26**  
**Number of Samples/Product Class - Mutton/Lamb, Fresh**  
**2005 FSIS NRP, Import Scheduled Sampling Plan**

<b>MUTTON/LAMB, FRESH/ ANTIBIOTICS</b>	<b>PERCENT PRODUCT (P<sub>C/C</sub>)</b>	<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) = 90*(P<sub>C/C</sub>)/100</b>	<b>ADJUST. #1 (MIN. 8 SAMPLES/ COUNTRY)</b>	<b>INITIAL ADJ.#</b>	<b>ADJUST. # 2</b>	<b>FINAL ADJ.#</b>
Australia	63	56.7		57	42	42
Canada	0.3	0.27	8	8	8	8
Denmark	0.01	0.009	8	8	8	8
Iceland	0.13	0.117	8	8	8	8
New Zealand	36	32.4		32	24	24
<b>Total</b>	<b>99.44</b>	<b>89.496</b>	<b>16</b>	<b>113</b>	<b>90</b>	<b>90</b>
<b>MUTTON/LAMB, FRESH/ SULFONAMIDES</b>		<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) = 90*(P<sub>C/C</sub>)/100</b>				
Australia	63	56.7		57	42	42
Canada	0.3	0.27	8	8	8	8
Denmark	0.01	0.009	8	8	8	8
Iceland	0.13	0.117	8	8	8	8
New Zealand	36	32.4		32	24	24
<b>Total</b>	<b>99.44</b>	<b>89.496</b>	<b>16</b>	<b>113</b>	<b>90</b>	<b>90</b>
<b>MUTTON/LAMB, FRESH/ AVERMECTINS</b>		<b>UNADJUSTED NUMBER OF SAMPLES (U<sub>C/S</sub>) = 90*(P<sub>C/C</sub>)/100</b>				
Australia	63	56.7		57	42	42
Canada	0.3	0.27	8	8	8	8
Denmark	0.01	0.009	8	8	8	8
Iceland	0.13	0.117	8	8	8	8
New Zealand	36	32.4		32	24	24
<b>Total</b>	<b>99.44</b>	<b>89.496</b>	<b>16</b>	<b>113</b>	<b>90</b>	<b>90</b>

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

# **Scheduled Sampling Plans for Environmental and Processing Contaminants**

## 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 a specifically designed survey of the heavy metals, lead and cadmium in the production classes, "Steers." Sampling for the survey began in 2003 (October through December; heifers and dairy cows) and continued through 2004 (boars and stags, dairy cows, heifers, and mature chickens). Production classes and sample numbers for 2005 are summarized in Table 46.

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 46**  
**2005 FSIS NRP Domestic Specifically Designed Survey**  
**Number of Samples/Product Class for Lead and Cadmium**

<b>Production Class</b>	<b>Number of Samples</b>
Steers	300
<b>Total</b>	<b>300</b>

# **Sampling Plan for Specifically Designed Surveys**

## Carbadox

Carbadox is an antimicrobial and a growth-promoting agent that was approved for use in swine in the 1970s. Generally, carbadox is administered to swine using Type C medicated feeds. In swine, carbadox is metabolically converted to desoxycarbadox and hydrazine before ultimately being transformed to quinoxaline-2-carboxylic acid. Quinoxaline-2-carboxylic acid has been shown to be non-toxic; however, carbadox, desoxycarbadox and hydrazine have been shown to be carcinogenic. In the past, regulatory agencies assigned a withdrawal period to carbadox since the end product is non-toxic. However, carbadox has recently been reevaluated because of concerns over the drugs use in market hogs, non-adherence to withdrawal schedules, and accidental cross-contamination with non-carbadox containing feeds. Currently, carbadox is approved for use in the U.S. with the following limitations: carbadox is not to be administered to swine over 75 pounds and within 10 weeks of slaughter (21 CFR 558.115). FDA has set a tolerance of 30 ppb in liver for the non-carcinogenic marker residue, quinoxaline-2-carboxylic acid (21 CFR 556). Because of the concerns cited above and because market hogs represent a large percentage of the total quantity of meat consumed in the U.S., FSIS has developed and initiated a specifically designed survey for carbadox in market hogs.

**Table 47**  
**2005 FSIS NRP Domestic Specifically Designed Survey for Carbadox**  
**Production Class and Number of Samples**

<b>Production Class</b>	<b>Number of Samples</b>
Market hogs	300
<b>Total Samples</b>	<b>300</b>

# **Summary of Domestic and Import Sampling Plans**

## **Domestic Sampling Plan**

The number of scheduled samples for veterinary drugs and pesticides in all production classes is listed in Table 49, *Domestic Sampling Plan: Summary I, 2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys*. The table also specifies, for each combination of compound and production class, which FSIS laboratory will be conducting the analyses and the sampling plan type. The categories are: *Scheduled Sampling and Specifically Designed Surveys*. For the convenience of the reader, this information is also presented in summary form (including all sampling numbers, but not including the laboratory and sampling plan designation), in Table 50, *Detailed Sampling Plan: Summary II, 2005 FSIS NRP, Domestic Sampling and Specifically Designed Surveys*.

## **Import Sampling Plan**

The final detailed import plan sample numbers for all compounds (veterinary drugs and pesticides), in all production classes and all countries, are listed in Table 51, *Summary, 2005 FSIS NRP, Import Sampling Plan*. A summary of the total number of samples per compound per production class is presented in Table 52, *Number of Compounds/Product Class, 2005 FSIS NRP, Import Sampling Plan*. In Table 53, *Number of Samples/Country/Product Class, 2005 FSIS NRP, Import Sampling Plan*, the number of samples per country per production class is listed.

A summary of all sampling plans (domestic and import) is provided in Table 54, *Combined Summary, 2005 FSIS NRP, Domestic and Import Sampling Plans and Specifically Designed Surveys*.

**Table 49**  
**Domestic Sampling Plan: Summary I**  
**2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys**

<b>Analysis</b>	<b>Lab</b>	<b>Production Class</b>	<b>Number of Samples</b>	<b>Plan Type</b>
Antibiotics by Bioassay	MWL	Market hogs	300	Scheduled Sampling
Antibiotics by Bioassay	MWL	Dairy cows	300	Scheduled Sampling
Antibiotics by Bioassay	MWL	Formula-fed veal	90	Scheduled Sampling
Antibiotics by Bioassay	MWL	Young chickens		Scheduled Sampling
Antibiotics by Bioassay	MWL	Steers		Scheduled Sampling
Antibiotics by Bioassay	MWL	Heifers	460	Scheduled Sampling
Antibiotics by Bioassay	MWL	Young turkeys		Scheduled Sampling
Antibiotics by Bioassay	MWL	Bob veal	300	Scheduled Sampling
Antibiotics by Bioassay	MWL	Horses		Scheduled Sampling
Antibiotics by Bioassay	MWL	Beef cows	300	Scheduled Sampling
Antibiotics by Bioassay	MWL	Sows	300	Scheduled Sampling
Antibiotics by Bioassay	MWL	Lambs		Scheduled Sampling
Antibiotics by Bioassay	MWL	Roaster pigs		Scheduled Sampling
Antibiotics by Bioassay	MWL	Bison		Scheduled Sampling
Antibiotics by Bioassay	MWL	Ratites		Scheduled Sampling
Antibiotics by Bioassay	MWL	Rabbits		Scheduled Sampling
Antibiotics by Bioassay	MWL	Bulls		Scheduled Sampling
Antibiotics by Bioassay	MWL	Mature chickens		Scheduled Sampling
Antibiotics by Bioassay	MWL	Ducks		Scheduled Sampling
Antibiotics by Bioassay	MWL	Boars/stags		Scheduled Sampling
Antibiotics by Bioassay	MWL	Mature turkeys		Scheduled Sampling
Antibiotics by Bioassay	MWL	Goats		Scheduled Sampling
Antibiotics by Bioassay	MWL	Heavy calves	230	Scheduled Sampling
Antibiotics by Bioassay	MWL	Sheep		Scheduled Sampling
Antibiotics by Bioassay	MWL	Non-formula-fed veal	300	Scheduled Sampling
Antibiotics by Bioassay	MWL	Geese		Scheduled Sampling
Antibiotics by Bioassay	MWL	Squab		Scheduled Sampling
<b>Total Antibiotics by Bioassay</b>			<b>2,580</b>	

**Table 49 - Continued**  
**Domestic Sampling Plan: Summary I**  
**2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys**

<b>Analysis</b>	<b>Lab</b>	<b>Production Class</b>	<b>Number of Samples</b>	<b>Plan Type</b>
Avermectins	EL	Steers	1,000	Scheduled Sampling
Avermectins	EL	Horses		Scheduled Sampling
Avermectins	EL	Market hogs		Scheduled Sampling
Avermectins	EL	Heifers		Scheduled Sampling
Avermectins	EL	Dairy cows		Scheduled Sampling
Avermectins	EL	Beef cows		Scheduled Sampling
Avermectins	EL	Bulls	300	Scheduled Sampling
Avermectins	EL	Lambs	230	Scheduled Sampling
Avermectins	EL	Goats	300	Scheduled Sampling
Avermectins	EL	Sows		Scheduled Sampling
Avermectins	EL	Formula-fed veal		Scheduled Sampling
Avermectins	EL	Bob veal		Scheduled Sampling
Avermectins	EL	Heavy calves	230	Scheduled Sampling
Avermectins	EL	Roaster pigs		Scheduled Sampling
Avermectins	EL	Bison		Scheduled Sampling
Avermectins	EL	Ratites		Scheduled Sampling
Avermectins	EL	Non-formula-fed veal	90	Scheduled Sampling
Avermectins	EL	Boars/stags		Scheduled Sampling
Avermectins	EL	Sheep	90	Scheduled Sampling
<b>Total Avermectins</b>			<b>2,240</b>	
Arsenicals	EL	Young chickens		Not Scheduled
Arsenicals	EL	Young turkeys		Not Scheduled
Arsenicals	EL	Egg products		Not Scheduled
Arsenicals	EL	Market hogs		Not Scheduled
Arsenicals	EL	Beef cows		Not Scheduled
Arsenicals	EL	Goats		Not Scheduled
Arsenicals	EL	Sows		Not Scheduled
Arsenicals	EL	Mature chickens		Not Scheduled
Arsenicals	EL	Ducks		Not Scheduled
Arsenicals	EL	Roaster pigs		Not Scheduled
Arsenicals	EL	Boars/stags		Not Scheduled
Arsenicals	EL	Mature turkeys		Not Scheduled
Arsenicals	EL	Geese		Not Scheduled
<b>Total Arsenicals</b>	<b>EL</b>		<b>0</b>	

**Table 49 Continued**  
**Domestic Sampling Plan: Summary I**  
**2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys**

Analysis	Lab	Production Class	Number of Samples	Plan Type
Sulfonamides	EL	Market hogs	460	Scheduled Sampling
Sulfonamides	EL	Steers	460	Scheduled Sampling
Sulfonamides	EL	Egg products		Scheduled Sampling
Sulfonamides	EL	Dairy cows	300	Scheduled Sampling
Sulfonamides	EL	Beef cows	300	Scheduled Sampling
Sulfonamides	EL	Sows		Scheduled Sampling
Sulfonamides	EL	Bulls	300	Scheduled Sampling
Sulfonamides	EL	Mature chickens		Scheduled Sampling
Sulfonamides	EL	Lambs	230	Scheduled Sampling
Sulfonamides	EL	Formula-fed veal	90	Scheduled Sampling
Sulfonamides	EL	Boars/stags	230	Scheduled Sampling
Sulfonamides	EL	Mature turkeys	90	Scheduled Sampling
Sulfonamides	EL	Bob veal	460	Scheduled Sampling
Sulfonamides	EL	Roaster pigs	300	Scheduled Sampling
Sulfonamides	EL	Bison		Scheduled Sampling
Sulfonamides	EL	Ducks		Scheduled Sampling
Sulfonamides	EL	Goats		Scheduled Sampling
Sulfonamides	EL	Horses		Scheduled Sampling
Sulfonamides	EL	Heavy calves	230	Scheduled Sampling
Sulfonamides	EL	Ratites		Scheduled Sampling
Sulfonamides	EL	Non-formula-fed veal	230	Scheduled Sampling
Sulfonamides	EL	Geese		Scheduled Sampling
Sulfonamides	EL	Squab		Scheduled Sampling
<b>Total Sulfonamides</b>			<b>3,680</b>	

**Table 49 Continued**  
**Domestic Sampling Plan: Summary I**  
**2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys**

Analysis	Lab	Production Class	Number of Samples	Plan Type
CHC's/COP's/Phenylbutazone	WL	Horses		Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Young chickens	460	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Market hogs	460	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Steers	460	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Heifers	460	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Young turkeys	230	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Egg products	230	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Dairy cows	230	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Beef cows	300	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Sows	300	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Bulls	300	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Mature chickens	230	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Roaster pigs	230	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Lambs	300	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Formula-fed veal	90	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Ducks		Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Boars/stags	300	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Mature turkeys	90	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Goats	300	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Bob veal		Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Heavy calves	230	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Bison		Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Sheep	90	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Ratites		Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Non-formula-fed veal	90	Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Geese		Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Rabbits		Scheduled Sampling
CHC's/COP's/Phenylbutazone	WL	Squab		Scheduled Sampling
<b>Total CHC's/COP's/Phenylbutazone</b>			<b>5,380</b>	

**Table 49 Continued**  
**Domestic Sampling Plan: Summary I**  
**2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys**

Analysis	Lab	Production Class	Number of Samples	Plan Type
Market hogs	WL	Market hogs	300	Specifically Designed Survey
<b>Total Carbadox</b>			<b>300</b>	
Chloramphenicol	EL	Dairy cows	230	Scheduled Sampling
Chloramphenicol	EL	Formula-fed veal	90	Scheduled Sampling
Chloramphenicol	EL	Non-formula-fed veal	90	Scheduled Sampling
Chloramphenicol	EL	Young Chickens	230	Scheduled Sampling
Chloramphenicol	EL	Mature Chickens	90	Scheduled Sampling
Chloramphenicol	EL	Young Turkeys	90	Scheduled Sampling
Chloramphenicol	EL	Mature Turkeys	90	Scheduled Sampling
<b>Total Chloramphenicol</b>			<b>910</b>	
<i>beta</i> -Agonists*	WL	Steers	1,000	Scheduled Sampling
<b>Total <i>beta</i>-Agonists*</b>			<b>1,000</b>	
Florfenicol	EL	Dairy cows	230	Scheduled Sampling
Florfenicol	EL	Formula-fed veal	90	Scheduled Sampling
Florfenicol	EL	non-Formula-fed veal	90	Scheduled Sampling
<b>Total Florfenicol</b>			<b>410</b>	
Lead and Cadmium	EL	Steers	300	Scheduled Sampling
<b>Total Lead and Cadmium</b>			<b>300</b>	
Melengesterol acetate (MGA)	WL	Heifers	300	Scheduled Sampling
<b>Total MGA</b>			<b>300</b>	
Phenylbutazone (ELISA)	WL	Steers	1,000	Scheduled Sampling
<b>Total Phenylbutazone (ELISA)</b>			<b>1,000</b>	
Ractopamine	WL	Steers	230	Scheduled Sampling
Ractopamine	WL	Formula-fed veal	90	Scheduled Sampling
Ractopamine	WL	Market hogs	90	Scheduled Sampling
<b>Total Ractopamine</b>			<b>410</b>	
Thyreostats	EL	Steers	300	Scheduled Sampling
Thyreostats	EL	Heifers	300	Scheduled Sampling
<b>Total Thyreostats</b>			<b>600</b>	
Trenbolone	MWL	Formula-fed veal	1,000	Scheduled Sampling
<b>Total Trenbolone</b>			<b>1,000</b>	
Zeranol	MWL	Formula-fed veal	1,000	Scheduled Sampling
<b>Total Zeranol</b>			<b>1,000</b>	

**Table 49 Continued**  
**Domestic Sampling Plan: Summary I**  
**2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys**

\*Samples from a total of 830 animals (from each animal, both eyeballs and a pound of liver will be collected) will be sent to WL. WL will perform a screen for clenbuterol in the eyeball, which is the most sensitive tissue in which to test for the presence of beta agonists. This screen has been officially validated for clenbuterol clenbuterol (bovine and porcine) and has been extended to salbutamol and cimaterol (bovine). The method has also demonstrated the ability to detect other beta agonists, including ractopamine.

**Key:**

CHC = Chlorinated hydrocarbon; COP = Chlorinated organophosphate; EL = FSIS Eastern Laboratory, Athens, GA;  
MWL = FSIS Midwestern Laboratory, St. Louis, MO; WL = FSIS Western Laboratory, Alameda, CA; FDA = Food and  
Drug Administration, National Center for Toxicological Research, Jefferson, AR  
ELISA = Enzyme Linked Immunoassay  
MGA = Melengesterol acetate

**Table 50**  
**Domestic Sampling Plan: Summary II**  
**2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys**

<b>Production Class</b>	<b>Antibiotics</b>	<b>Arsenicals</b>	<b>Avermectins</b>	<b>CHCs/COPs/ Phenylbutazone</b>	<b>Carbadox</b>	<b>Chloramphenicol</b>
Bulls			300	300		
Beef cows	300			300		
Dairy cows	300			230		230
Heifers	460			460		
Steers			1,000	460		
Bob veal	300					
Formula-fed veal	90			90		90
Non-formula-fed veal	300		90	90		90
Heavy calves	230		230	230		
<b>Subtotal, Cattle</b>	<b>1,980</b>	<b>0</b>	<b>1,620</b>	<b>2,510</b>	<b>0</b>	<b>410</b>
Market hogs	300			460	300	
Roaster pigs				230		
Boars/Stags				300		
Sows	300			300		
<b>Subtotal, Swine</b>	<b>600</b>	<b>0</b>	<b>0</b>	<b>1,360</b>	<b>300</b>	<b>0</b>
Sheep			90	90		
Lambs			230	300		
<b>Subtotal, Ovine</b>	<b>0</b>	<b>0</b>	<b>320</b>	<b>390</b>	<b>0</b>	<b>0</b>
Goats			300	300		
Horses						
Bison						
<b>Subtotal, Other Livestock</b>	<b>0</b>	<b>0</b>	<b>300</b>	<b>300</b>	<b>0</b>	<b>0</b>
<b>Total, All Livestock</b>	<b>2,580</b>	<b>0</b>	<b>2,240</b>	<b>4,560</b>	<b>300</b>	<b>410</b>
Young chickens				460		230
Mature chickens				230		90
Young turkeys				230		90
Mature turkeys				90		90
Ducks						
Geese						
Ratites						
Squab						
<b>Subtotal, Poultry</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>940</b>	<b>0</b>	<b>500</b>
Rabbits						
Egg products				230		
<b>Total, All Production Classes</b>	<b>2,580</b>	<b>0</b>	<b>2,240</b>	<b>5,380</b>	<b>300</b>	<b>910</b>

**Table 50 - continued**  
**Domestic Sampling Plan: Summary II**  
**2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys**

<b>Production Class</b>	<b>Clenbuterol (and other beta agonists)</b>	<b>Florfenicol</b>	<b>Lead and Cadmium</b>	<b>Melengesterol acetate (MGA)</b>
Bulls				
Beef cows				
Dairy cows		230		
Heifers				300
Steers	1,000		300	
Bob veal				
Formula-fed veal		90		
Non-formula-fed veal		90		
Heavy calves				
<b>Subtotal, Cattle</b>	<b>1,000</b>	<b>410</b>	<b>300</b>	<b>300</b>
Market hogs				
Roaster pigs				
Boars/Stags				
Sows				
<b>Subtotal, Swine</b>		<b>0</b>	<b>0</b>	<b>0</b>
Sheep				
Lambs				
<b>Subtotal, Ovine</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Goats				
Horses				
Bison				
<b>Subtotal, Other Livestock</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total, All Livestock</b>	<b>1,000</b>	<b>410</b>	<b>300</b>	<b>300</b>
Young chickens				
Mature chickens				
Young turkeys				
Mature turkeys				
Ducks				
Geese				
Ratites				
Squab				
<b>Subtotal, Poultry</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Rabbits				
Egg products				
<b>Total, All Production Classes</b>	<b>1,000</b>	<b>410</b>	<b>300</b>	<b>300</b>

**Table 50 - continued**  
**Domestic Sampling Plan: Summary II**  
**2005 FSIS NRP, Domestic Scheduled Sampling and Specifically Designed Surveys**

<b>Production Class</b>	<b>Phenylbutazone (ELISA)</b>	<b>Ractopamine</b>	<b>Sulfonamides</b>	<b>Thyreostats</b>	<b>Trenbolone</b>	<b>Zeranol</b>
Bulls			300			
Beef cows			300			
Dairy cows			300			
Heifers				300		
Steers	1,000	230	460	300		
Bob veal			460			
Formula-fed veal		90	90		1,000	1,000
Non-formula-fed veal			230			
Heavy calves			230			
<b>Subtotal, Cattle</b>	<b>1,000</b>	<b>320</b>	<b>2,370</b>	<b>600</b>	<b>1,000</b>	<b>1,000</b>
Market hogs		90	460			
Roaster pigs			300			
Boars/Stags			230			
Sows						
<b>Subtotal, Swine</b>	<b>0</b>	<b>90</b>	<b>990</b>	<b>0</b>	<b>0</b>	<b>0</b>
Sheep						
Lambs			230			
<b>Subtotal, Ovine</b>	<b>0</b>	<b>0</b>	<b>230</b>	<b>0</b>	<b>0</b>	<b>0</b>
Goats						
Horses						
Bison						
<b>Subtotal, Other Livestock</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total, All Livestock</b>	<b>1,000</b>	<b>410</b>	<b>3,590</b>	<b>600</b>	<b>1,000</b>	<b>1,000</b>
Young chickens						
Mature chickens						
Young turkeys						
Mature turkeys			90			
Ducks						
Geese						
Ratites						
Squab						
<b>Subtotal, Poultry</b>	<b>0</b>	<b>0</b>	<b>90</b>	<b>0</b>	<b>0</b>	<b>0</b>
Rabbits						
Egg products						
<b>Total, All Production Classes</b>	<b>1,000</b>	<b>410</b>	<b>3,680</b>	<b>600</b>	<b>1,000</b>	<b>1,000</b>

**Table 51**  
**Summary**  
**2005 FSIS NRP, Import Scheduled Sampling**

<b>COUNTRY</b>	<b>PRODUCT</b>	<b>COMPOUND</b>	<b>NUMBER OF SAMPLES</b>
Argentina	Beef, Processed	Sulfonamides	34
Argentina	Beef Processed	CHC/COP/Phenylbutazone	34
Australia	Pork Processed	Sulfonamides	0
Australia	Mutton/Lamb, Processed	Antibiotics	0
Australia	Mutton/Lamb, Processed	Avermectins	0
Australia	Mutton/Lamb, Processed	Sulfonamides	0
Australia	Goat, Fresh	Antibiotics	8
Australia	Goat, Fresh	Sulfonamides	8
Australia	Varied Combination, Processed	Sulfonamides	8
Australia	Varied Combination, Processed	Antibiotics	8
Australia	Beef, Fresh	Antibiotics	111
Australia	Beef, Fresh	Avermectins	111
Australia	Beef, Fresh	Sulfonamides	111
Australia	Beef, Fresh	Chloramphenicol	23
Australia	Beef, Processed	Sulfonamides	0
Australia	Pork, Fresh	Antibiotics	8
Australia	Pork, Fresh	Avermectins	8
Australia	Pork, Fresh	Sulfonamides	8
Australia	Veal Fresh	Antibiotics	19
Australia	Veal Fresh	Avermectins	19
Australia	Veal Fresh	Sulfonamides	19
Australia	Veal Fresh	Chloramphenicol	19
Australia	Mutton/Lamb, Fresh	Antibiotics	42
Australia	Mutton/Lamb, Fresh	Avermectins	42
Australia	Mutton/Lamb, Fresh	Sulfonamides	42
Australia	Pork Processed	CHC/COP/Phenylbutazone	0
Australia	Mutton/Lamb Processed	CHC/COP/Phenylbutazone	0
Australia	Goat Fresh	CHC/COP/Phenylbutazone	8
Australia	Varied combination Processed	CHC/COP/Phenylbutazone	8
Australia	Beef Fresh	CHC/COP/Phenylbutazone	111
Australia	Beef Processed	CHC/COP/Phenylbutazone	0
Australia	Pork Fresh	CHC/COP/Phenylbutazone	8

**Table 51 - Continued**  
**Summary**  
**2005 FSIS NRP, Import Scheduled Sampling**

<b>COUNTRY</b>	<b>PRODUCT</b>	<b>COMPOUND</b>	<b>NUMBER OF SAMPLES</b>
Australia	Veal Fresh	CHC/COP/Phenylbutazone	19
Australia	Mutton/Lamb Fresh	CHC/COP/Phenylbutazone	42
Belgium	Pork, Fresh	Antibiotics	8
Belgium	Pork, Fresh	Avermectins	8
Belgium	Pork, Fresh	Sulfonamides	8
Belgium	Pork Fresh	CHC/COP/Phenylbutazone	8
Brazil	Beef, Processed	Sulfonamides	79
Brazil	Beef Processed	CHC/COP/Phenylbutazone	79
Canada	Veal, Processed	Sulfonamides	0
Canada	Mutton/Lamb, Processed	Antibiotics	0
Canada	Mutton/Lamb, Processed	Avermectins	0
Canada	Mutton/Lamb, Processed	Sulfonamides	0
Canada	Turkey, Fresh	Sulfonamides	8
Canada	Turkey, Processed	Sulfonamides	0
Canada	Chicken, Fresh	Antibiotics	8
Canada	Chicken, Fresh	Sulfonamides	8
Canada	Varied Combination, Fresh	Antibiotics	8
Canada	Varied Combination, Fresh	Sulfonamides	8
Canada	Varied Combination, Processed	Sulfonamides	0
Canada	Varied Combination, Processed	Antibiotics	0
Canada	Beef, Fresh	Antibiotics	81
Canada	Beef, Fresh	Avermectins	81
Canada	Beef, Fresh	Sulfonamides	81
Canada	Beef, Fresh	Chloramphenicol	17
Canada	Beef, Processed	Sulfonamides	0
Canada	Pork, Fresh	Antibiotics	144
Canada	Pork, Fresh	Avermectins	144
Canada	Pork, Fresh	Sulfonamides	144
Canada	Veal Fresh	Antibiotics	25
Canada	Veal Fresh	Avermectins	25
Canada	Veal Fresh	Sulfonamides	25
Canada	Veal Fresh	Chloramphenicol	25
Canada	Turkey Fresh	Antibiotics	8
Canada	Mutton/Lamb, Fresh	Antibiotics	8
Canada	Mutton/Lamb, Fresh	Avermectins	8
Canada	Mutton/Lamb, Fresh	Sulfonamides	8
Canada	Chicken Processed	Sulfonamides	0
Canada	Veal Processed	CHC/COP/Phenylbutazone	0

**Table 51 - Continued**  
**Summary**  
**2005 FSIS NRP, Import Scheduled Sampling**

COUNTRY	PRODUCT	COMPOUND	NUMBER OF SAMPLES
Canada	Mutton/Lamb Processed	CHC/COP/Phenylbutazone	0
Canada	Turkey Fresh	CHC/COP/Phenylbutazone	8
Canada	Turkey processed	CHC/COP/Phenylbutazone	0
Canada	Chicken Fresh	CHC/COP/Phenylbutazone	8
Canada	Varied combination fresh	CHC/COP/Phenylbutazone	8
Canada	Varied combination Processed	CHC/COP/Phenylbutazone	0
Canada	Beef Fresh	CHC/COP/Phenylbutazone	81
Canada	Beef Processed	CHC/COP/Phenylbutazone	0
Canada	Pork Fresh	CHC/COP/Phenylbutazone	144
Canada	Veal Fresh	CHC/COP/Phenylbutazone	25
Canada	Mutton/Lamb Fresh	CHC/COP/Phenylbutazone	8
Canada	Chicken Processed	CHC/COP/Phenylbutazone	0
Costa Rica	Beef, Fresh	Antibiotics	8
Costa Rica	Beef, Fresh	Avermectins	8
Costa Rica	Beef, Fresh	Sulfonamides	8
Costa Rica	Beef, Fresh	Chloramphenicol	8
Costa Rica	Beef, Processed	Sulfonamides	0
Costa Rica	Beef Fresh	CHC/COP/Phenylbutazone	8
Costa Rica	Beef Processed	CHC/COP/Phenylbutazone	0
Croatia	Pork, Fresh	Antibiotics	8
Croatia	Pork, Fresh	Avermectins	8
Croatia	Pork, Fresh	Sulfonamides	8
Croatia	Pork Fresh	CHC/COP/Phenylbutazone	8
Czechoslovakia	Pork, Fresh	Antibiotics	8
Czechoslovakia	Pork, Fresh	Avermectins	8
Czechoslovakia	Pork, Fresh	Sulfonamides	8
Czechoslovakia	Pork Fresh	CHC/COP/Phenylbutazone	8
Denmark	Pork Processed	Sulfonamides	0
Denmark	Pork, Fresh	Antibiotics	15
Denmark	Pork, Fresh	Avermectins	15
Denmark	Pork, Fresh	Sulfonamides	15
Denmark	Mutton/Lamb, Fresh	Antibiotics	8
Denmark	Mutton/Lamb, Fresh	Avermectins	8
Denmark	Mutton/Lamb, Fresh	Sulfonamides	8
Denmark	Pork Fresh	CHC/COP/Phenylbutazone	15
Denmark	Mutton/Lamb Fresh	CHC/COP/Phenylbutazone	8
Finland	Pork, Fresh	Antibiotics	8
Finland	Pork, Fresh	Avermectins	8

**Table 51 - Continued**  
**Summary**  
**2005 FSIS NRP, Import Scheduled Sampling**

<b>COUNTRY</b>	<b>PRODUCT</b>	<b>COMPOUND</b>	<b>NUMBER OF SAMPLES</b>
Finland	Pork, Fresh	Sulfonamides	8
Finland	Pork Fresh	CHC/COP/Phenylbutazone	8
France	Veal, Processed	Sulfonamides	8
France	Mutton/Lamb, Processed	Antibiotics	8
France	Mutton/Lamb, Processed	Avermectins	8
France	Mutton/Lamb, Processed	Sulfonamides	8
France	Turkey, Processed	Sulfonamides	8
France	Varied Combination, Processed	Sulfonamides	8
France	Varied Combination, Processed	Antibiotics	8
France	Beef, Processed	Sulfonamides	8
France	Pork, Fresh	Antibiotics	8
France	Pork, Fresh	Avermectins	8
France	Pork, Fresh	Sulfonamides	8
France	Chicken Processed	Sulfonamides	8
France	Veal Processed	CHC/COP/Phenylbutazone	8
France	Mutton/Lamb Processed	CHC/COP/Phenylbutazone	8
France	Turkey processed	CHC/COP/Phenylbutazone	8
France	Varied combination Processed	CHC/COP/Phenylbutazone	8
France	Beef Processed	CHC/COP/Phenylbutazone	8
France	Pork Fresh	CHC/COP/Phenylbutazone	8
France	Chicken Processed	CHC/COP/Phenylbutazone	8
Germany	Pork, Fresh	Antibiotics	8
Germany	Pork, Fresh	Avermectins	8
Germany	Pork, Fresh	Sulfonamides	8
Germany	Pork Fresh	CHC/COP/Phenylbutazone	8
Honduras	Beef, Fresh	Antibiotics	8
Honduras	Beef, Fresh	Avermectins	8
Honduras	Beef, Fresh	Sulfonamides	8
Honduras	Beef, Fresh	Chloramphenicol	8
Honduras	Beef Fresh	CHC/COP/Phenylbutazone	8
Hungary	Pork, Fresh	Antibiotics	8
Hungary	Pork, Fresh	Avermectins	8
Hungary	Pork, Fresh	Sulfonamides	8
Hungary	Pork Fresh	CHC/COP/Phenylbutazone	8
Iceland	Mutton/Lamb, Fresh	Antibiotics	8
Iceland	Mutton/Lamb, Fresh	Avermectins	8
Iceland	Mutton/Lamb, Fresh	Sulfonamides	8
Iceland	Mutton/Lamb Fresh	CHC/COP/Phenylbutazone	8

**Table 51 - Continued**  
**Summary**  
**2005 FSIS NRP, Import Scheduled Sampling**

<b>COUNTRY</b>	<b>PRODUCT</b>	<b>COMPOUND</b>	<b>NUMBER OF SAMPLES</b>
Ireland	Pork Processed	Sulfonamides	0
Ireland	Pork, Fresh	Antibiotics	8
Ireland	Pork, Fresh	Avermectins	8
Ireland	Pork, Fresh	Sulfonamides	8
Ireland	Pork Fresh	CHC/COP/Phenylbutazone	8
Israel	Turkey, Processed	Sulfonamides	8
Israel	Chicken Processed	Sulfonamides	8
Israel	Turkey processed	CHC/COP/Phenylbutazone	8
Israel	Chicken Processed	CHC/COP/Phenylbutazone	8
Italy	Pork, Fresh	Antibiotics	8
Italy	Pork, Fresh	Avermectins	8
Italy	Pork, Fresh	Sulfonamides	8
Italy	Pork Fresh	CHC/COP/Phenylbutazone	8
Mexico	Goat, Fresh	Antibiotics	8
Mexico	Goat, Fresh	Sulfonamides	8
Mexico	Turkey, Processed	Sulfonamides	8
Mexico	Varied Combination, Processed	Sulfonamides	8
Mexico	Varied Combination, Processed	Antibiotics	8
Mexico	Beef, Fresh	Antibiotics	8
Mexico	Beef, Fresh	Avermectins	8
Mexico	Beef, Fresh	Sulfonamides	8
Mexico	Beef, Fresh	Chloramphenicol	8
Mexico	Beef, Processed	Sulfonamides	0
Mexico	Pork, Fresh	Antibiotics	8
Mexico	Pork, Fresh	Avermectins	8
Mexico	Pork, Fresh	Sulfonamides	8
Mexico	Veal Fresh	Antibiotics	8
Mexico	Veal Fresh	Avermectins	8
Mexico	Veal Fresh	Sulfonamides	8
Mexico	Veal Fresh	Chloramphenicol	8
Mexico	Chicken Processed	Sulfonamides	8
Mexico	Goat Fresh	CHC/COP/Phenylbutazone	8
Mexico	Turkey processed	CHC/COP/Phenylbutazone	8
Mexico	Varied combination Processed	CHC/COP/Phenylbutazone	8
Mexico	Beef Fresh	CHC/COP/Phenylbutazone	8
Mexico	Beef Processed	CHC/COP/Phenylbutazone	0
Mexico	Pork Fresh	CHC/COP/Phenylbutazone	8
Mexico	Veal Fresh	CHC/COP/Phenylbutazone	8

**Table 51 - Continued**  
**Summary**  
**2005 FSIS NRP, Import Scheduled Sampling**

<b>COUNTRY</b>	<b>PRODUCT</b>	<b>COMPOUND</b>	<b>NUMBER OF SAMPLES</b>
Mexico	Chicken Processed	CHC/COP/Phenylbutazone	8
N. Ireland	Pork, Fresh	Antibiotics	8
N. Ireland	Pork, Fresh	Avermectins	8
N. Ireland	Pork, Fresh	Sulfonamides	8
N. Ireland	Pork Fresh	CHC/COP/Phenylbutazone	8
Netherlands	Varied Combination, Processed	Sulfonamides	8
Netherlands	Varied Combination, Processed	Antibiotics	8
Netherlands	Pork, Fresh	Antibiotics	8
Netherlands	Pork, Fresh	Avermectins	8
Netherlands	Pork, Fresh	Sulfonamides	8
Netherlands	Varied combination Processed	CHC/COP/Phenylbutazone	8
Netherlands	Pork Fresh	CHC/COP/Phenylbutazone	8
New Zealand	Mutton/Lamb, Processed	Antibiotics	0
New Zealand	Mutton/Lamb, Processed	Avermectins	0
New Zealand	Mutton/Lamb, Processed	Sulfonamides	0
New Zealand	Goat, Fresh	Antibiotics	8
New Zealand	Goat, Fresh	Sulfonamides	8
New Zealand	Beef, Fresh	Antibiotics	64
New Zealand	Beef, Fresh	Avermectins	64
New Zealand	Beef, Fresh	Sulfonamides	64
New Zealand	Beef, Fresh	Chloramphenicol	13
New Zealand	Beef, Processed	Sulfonamides	0
New Zealand	Pork, Fresh	Antibiotics	8
New Zealand	Pork, Fresh	Avermectins	8
New Zealand	Pork, Fresh	Sulfonamides	8
New Zealand	Veal Fresh	Antibiotics	39
New Zealand	Veal Fresh	Avermectins	39
New Zealand	Veal Fresh	Sulfonamides	39
New Zealand	Veal Fresh	Chloramphenicol	39
New Zealand	Mutton/Lamb, Fresh	Avermectins	24
New Zealand	Mutton/Lamb, Fresh	Avermectins	24
New Zealand	Mutton/Lamb, Fresh	Sulfonamides	24
New Zealand	Mutton/Lamb Processed	CHC/COP/Phenylbutazone	0
New Zealand	Goat Fresh	CHC/COP/Phenylbutazone	8
New Zealand	Beef Fresh	CHC/COP/Phenylbutazone	64
New Zealand	Beef Processed	CHC/COP/Phenylbutazone	0
New Zealand	Pork Fresh	CHC/COP/Phenylbutazone	8
New Zealand	Veal Fresh	CHC/COP/Phenylbutazone	39

**Table 51 - Continued**  
**Summary**  
**2005 FSIS NRP, Import Scheduled Sampling**

<b>COUNTRY</b>	<b>PRODUCT</b>	<b>COMPOUND</b>	<b>NUMBER OF SAMPLES</b>
New Zealand	Mutton/Lamb Fresh	CHC/COP/Phenylbutazone	24
Nicaragua	Beef, Fresh	Antibiotics	8
Nicaragua	Beef, Fresh	Avermectins	8
Nicaragua	Beef, Fresh	Sulfonamides	8
Nicaragua	Beef, Fresh	Chloramphenicol	8
Nicaragua	Beef Fresh	CHC/COP/Phenylbutazone	8
Poland	Pork, Fresh	Antibiotics	8
Poland	Pork, Fresh	Avermectins	8
Poland	Pork, Fresh	Sulfonamides	8
Poland	Pork Fresh	CHC/COP/Phenylbutazone	8
Spain	Pork, Fresh	Antibiotics	8
Spain	Pork, Fresh	Avermectins	8
Spain	Pork, Fresh	Sulfonamides	8
Spain	Pork Fresh	CHC/COP/Phenylbutazone	8
Sweden	Pork, Fresh	Antibiotics	8
Sweden	Pork, Fresh	Avermectins	8
Sweden	Pork, Fresh	Sulfonamides	8
Sweden	Pork Fresh	CHC/COP/Phenylbutazone	8
Switzerland	Pork, Fresh	Antibiotics	8
Switzerland	Pork, Fresh	Avermectins	8
Switzerland	Pork, Fresh	Sulfonamides	8
Switzerland	Pork Fresh	CHC/COP/Phenylbutazone	8
Uruguay	Beef, Fresh	Antibiotics	14
Uruguay	Beef, Fresh	Avermectins	14
Uruguay	Beef, Fresh	Sulfonamides	14
Uruguay	Beef, Fresh	Chloramphenicol	8
Uruguay	Beef, Processed	Sulfonamides	0
Uruguay	Beef Fresh	CHC/COP/Phenylbutazone	14
Uruguay	Beef Processed	CHC/COP/Phenylbutazone	0
			3954

**Table 52**  
**Number of Compounds per Production Class**  
**2005 FSIS NRP, Import Scheduled Sampling**

<b>COMPOUND/ PRODUCTION CLASS</b>	<b>AB</b>	<b>AVM</b>	<b>CAP</b>	<b>SULFAs</b>	<b>CHC/COP/PHB</b>	<b>Total</b>
Beef, fresh	302	302	93	302	302	1301
Beef, processed				121	121	242
Pork, fresh	303	303		303	303	1212
Veal, processed				8	8	16
Veal, fresh	91	91	91	91	91	455
Lamb/Mutton, fresh	90	90		90	90	360
Lamb/Mutton, processed	8	8		8	8	32
Goat, fresh	24			24	24	72
Chicken, fresh	8			8	8	24
Chicken, processed				24	24	48
Turkey, fresh	8			8	8	24
Turkey, processed				24	24	48
Varied combination, fresh	8			8	8	24
Varied combination, processed	32			32	32	96
<b>Total/Country</b>	874	794	184	1051	1051	3954

AB=Antibiotics; AVM=Avermectins; CAP=Chloramphenicol; SULFAs=Sulfonamides; CHC/COP/PHB=Chlorinated hydrocarbons/Organophosphates/Phenylbutazone

**Table 52**  
**Number of Compounds per Production Class**  
**2005 FSIS NRP, Import Scheduled Sampling**

	Beef, Fresh	Beef, Processed	Pork, Fresh	Veal, Fresh	Veal, Processed	Lamb/Mutton, Fresh	Lamb/Mutton, Processed	Goat, Fresh	Turkey, Fresh	Chicken, Fresh	Chicken, Processed	Turkey, Processed	Varied combination, Fresh	Varied combination, Processed	Total
Argentina		68													68
Australia	467		32	95		168		24						24	810
Belgium			32												32
Brazil		158													158
Canada	341	0	576	125		32			24	24			24		1146
Costa Rica	40														40
Croatia			32												32
Czechoslovakia			32												32
Denmark			60			32									92
Finland			32												32
France		16	32		16		32			16		16		24	152
Germany			32												32
Honduras	40														40
Hungary			32												32
Iceland						32									32
Ireland			32												32
Israel											16	16			32
Italy			32												32
Mexico	40		32	40				24			16	16		24	192
Netherlands			32											24	56
New Zealand	269		32	195		96		24							616
Nicaragua	40														40
N. Ireland			32												32
Poland			32												32
Spain			32												32
Sweden			32												32
Switzerland			32												32
Uruguay	64														64
<b>Total</b>	<b>1301</b>	<b>242</b>	<b>1212</b>	<b>455</b>	<b>16</b>	<b>360</b>	<b>32</b>	<b>72</b>	<b>24</b>	<b>40</b>	<b>32</b>	<b>48</b>	<b>24</b>	<b>96</b>	<b>3954</b>

**Table 53**  
**Number of Samples/Country/Product Class**  
**2005 FSIS NRP, Import Scheduled Sampling**

	Beef, Fresh	Beef, Processed	Pork, Fresh	Veal, Fresh	Veal, Processed	Lamb/Mutton, Fresh	Lamb/Mutton, Processed	Goat, Fresh	Turkey, Fresh	Chicken, Fresh	Chicken, Processed	Turkey, Processed	Varied combination, Fresh	Varied combination, Processed	Total
Argentina		68													68
Australia	467		32	95		168		24						24	810
Belgium			32												32
Brazil		158													158
Canada	341	0	576	125		32			24	24			24		1146
Costa Rica	40														40
Croatia			32												32
Czechoslovakia			32												32
Denmark			60			32									92
Finland			32												32
France		16	32		16		32			16		16		24	152
Germany			32												32
Honduras	40														40
Hungary			32												32
Iceland						32									32
Ireland			32												32
Israel											16	16			32
Italy			32												32
Mexico	40		32	40				24			16	16		24	192
Netherlands			32											24	56
New Zealand	269		32	195		96		24							616
Nicaragua	40														40
N. Ireland			32												32
Poland			32												32
Spain			32												32
Sweden			32												32
Switzerland			32												32
Uruguay	64														64
<b>Total</b>	<b>1301</b>	<b>242</b>	<b>1212</b>	<b>455</b>	<b>16</b>	<b>360</b>	<b>32</b>	<b>72</b>	<b>24</b>	<b>40</b>	<b>32</b>	<b>48</b>	<b>24</b>	<b>96</b>	<b>3954</b>

**Table 54 - Continued**  
**Combined Summary**  
**2005 FSIS NRP Domestic and Import Scheduled Sampling, and Specifically Designed Surveys**

<b>Lab</b>	<b>Analysis</b>	<b>Number of Scheduled Domestic Samples</b>	<b>Number of Scheduled Imported Samples</b>	<b>Number of Scheduled Samples for Specifically Designed Surveys</b>	<b>Total Number of Samples</b>	<b>NOTES</b>
MWL	Antibiotics	2,580	874	300	<b>3,754</b>	Domestic: 300, 300, 90, 460, 300, 300, 300, 230, and 300 samples are scheduled for market hogs, dairy cows, formula-fed veal, heifers, bob veal, beef cows, sows, heavy calves, and non-formula-fed veal, respectively; Imported: All fresh product classes
EL	Arsenicals					Domestic: No samples are scheduled for 2005 Imported: No samples are scheduled for 2005
EL	Avermectins	2,240	794		<b>3,034</b>	Domestic: 1,000, 300, 230, 300, 230, 90, and 90 samples are scheduled for steers, bulls, lambs, goats, heavy calves, non-formula fed veal, and sheep production classes, respectively Imported: Scheduled for beef, pork, veal, lamb/mutton fresh and lamb/mutton processed
WL	beta-Agonists (clenbuterol, cimaterol, and salbutamol)	1,000			<b>1,000</b>	Domestic: 1,000 samples are scheduled for steers. Confirmation done by FDA-NCTR Import: No samples are scheduled for 2005 due to unavailability of tissue (eye balls)
WL	Carbadox			300	<b>300</b>	Domestic: 300 samples are scheduled for market hogs Import: No samples are scheduled for 2005
EL	Chloramphenicol	910	184		<b>1,094</b>	Domestic: 230, 90, 90, 230, 90, 90, and 90 samples are scheduled for dairy cows, formula-fed veal, non-formula-fed veal, young chickens, mature chickens, young turkeys and mature turkeys, respectively. Import: 93 samples for fresh beef and 91 samples are scheduled for fresh veal
WL	CHCs/COPs/ Phenylbutazone	5,380	1,051		<b>6,431</b>	Domestic: All domestic production classes except: minor species (rabbits, ratites, squab, geese, ducks, and bison) and bob-veal; Import: All import production classes
EL	Florfenicol	410			<b>410</b>	Domestic: 230, 90, and 90 samples are scheduled for dairy cows, formula-fed veal, and non-formula-fed veal, respectively. Import: No samples are scheduled for 2005, due to

**Table 54 - Continued**  
**Combined Summary**  
**2005 FSIS NRP Domestic and Import Scheduled Sampling, and Specifically Designed Surveys**

<b>Lab</b>	<b>Analysis</b>	<b>Number of Scheduled Domestic Samples</b>	<b>Number of Scheduled Imported Samples</b>	<b>Number of Scheduled Samples for Specifically Designed Surveys</b>	<b>Total Number of Samples</b>	<b>NOTES</b>
						unavailability of liver tissue.
MWL	Flunixin					Domestic: No samples are scheduled for 2005 Import: No samples are scheduled for 2005
EL	Lead and Cadmium	300			<b>300</b>	Domestic: 300 samples are scheduled for steers Import: No samples are scheduled for 2005, due to unavailability of kidney tissue.
WL	Melengestrol Acetate (MGA)	300			<b>300</b>	Domestic: 300 samples are scheduled for heifers. Import: No samples are scheduled for 2005, due to unavailability of tissue (fat)
WL	Nitrofurans					Domestic: No samples are scheduled for 2005 Import: No samples are scheduled for 2005
WL	Phenylbutazone by Immunoassay	1,000			<b>1,000</b>	Domestic: 1,000 samples are scheduled for steers Import: No samples are scheduled for 2005, due to unavailability of tissue (kidney)
WL	Ractopamine	410			<b>410</b>	Domestic: 230, 90, and 90 samples are scheduled for steers, formula-fed veal, and market hogs Import: No samples are scheduled for 2005, due to unavailability of tissue (kidney)
EL	Sulfonamides	3,680	1,051	300	<b>5,031</b>	Domestic: All production classes are scheduled except egg products, sows, mature chickens, bison, ducks, goats, ratites, geese, and squab Import: All product classes are scheduled
EL	Thyreostats	600			<b>600</b>	Domestic: 600 samples are scheduled for steers and for heifers. Import: No samples are scheduled for 2005
MWL	Trenbolone	1,000			<b>1,000</b>	Domestic: 1,000 samples are scheduled for formula-fed veal Import: No samples are scheduled for 2005, due to unavailability of tissue (fat)
MWL	Zeranol	1,000			<b>1,000</b>	Domestic: 1,000 samples are scheduled for formula-fed veal Import: No samples are scheduled for 2005, due to unavailability of liver tissue

**Table 54 - Continued**  
**Combined Summary**  
**2005 FSIS NRP Domestic and Import Scheduled Sampling, and Specifically Designed Surveys**

Lab	Analysis	Number of Scheduled Domestic Samples	Number of Scheduled Imported Samples	Number of Scheduled Samples for Specifically Designed Surveys	Total Number of Samples	NOTES
<b>Total</b>		<b>21,098</b>	<b>3,954</b>	<b>900</b>	<b>26,024</b>	

**Key:**

CHC = Chlorinated hydrocarbon; COP = Chlorinated organophosphate

EL = FSIS Eastern Laboratory, Athens, GA

MWL = FSIS Midwestern Laboratory, St. Louis, MO

WL = FSIS Western Laboratory, Alameda, CA

ARS-RRVARC = Agricultural Research Service, Red River Valley Agricultural Research Center, Fargo, ND

# **Adjustments to the 2004 NRP Sampling Plan**

The following adjustments were made to the 2004 FSIS NRP:

1. Carbadox was added to the 2004 domestic scheduled sampling plan for the period April through December. A total of 300 samples were collected for the nine month period.
2. Florfenicol was added to the 2004 residue plan as a specifically designed survey for the period July through December. A total of 150 samples were collected for the six month period.
3. The non-steroidal anti-inflammatory drugs (NSAIDs), flunixin, dipyron, and phenylbutazone were scheduled for the period 25 October 2004 through December 2004. A total of 14 samples per week (3 analyses per sample) were collected.
4. Thyreostats were scheduled for November and December of 2004. A total of 70 samples were scheduled for the two month period.

# **Appendix I**

## **Tissues Required for Laboratory Analysis**

## Tissues Required for Laboratory Analysis

Table A-I, *Tissues Required for Laboratory Analysis*, lists the tissue, the amount required for analysis, and the laboratory to which the tissue is sent.

**Table AI**

Residue	Tissue Analyzed	Quantity (lb)	Lab
Antibiotics	Kidney, liver, muscle	1	MWL
Arsenicals	Liver, muscle	1	EL
Avermectins	Liver, muscle	1	EL
<i>beta</i> -Agonists <sup>a</sup>	Eyeball	1	WL
Carbadox	Liver	1	WL
Chloramphenicol	Muscle	1	EL
Chlorinated hydrocarbons/chlorinated organophosphates/Phenylbutazone	Fat	1	WL
Dipyrones <sup>b</sup>	Muscle	1	WL
Florfenicol	Liver	1	EL
Flunixin	Liver, muscle	1	MWL
Lead and Cadmium	Kidney, muscle	1	EL
Melengesterol acetate (MGA)	Fat	1	WL
Nitrofurans	Liver	1	WL
Nitroimidazoles	Muscle	1	EL
Phenylbutazone by Immunoassay	Kidney	1	WL
Ractopamine	Liver and Muscle	1	WL
Sulfonamides	Liver, muscle	1	EL
Thyreostats	Muscle (or thyroid)	1	EL
Trenbolone	Liver	1	MWL
Zeranol	Liver and Muscle	1	MWL

a clenbuterol, salbutamol, and cimaterol

b 4-methylaminoantipyrine, 4-formylaminoantipyrine, and 4-aminoantipyrine

**Key:**

EL = FSIS Eastern Laboratory, Athens, GA

MWL = FSIS Midwestern Laboratory, St. Louis, Mo

WL = FSIS Western Laboratory, Alameda, Ca.

## **Appendix II**

### **U.S. Residue Limits for Veterinary Drugs and Unavoidable Contaminates in Meat, Poultry, and Egg Products**

## **U.S. Residue Limits for Veterinary Drugs and Unavoidable Contaminates in Meat, Poultry, and Egg Products**

Appendix II provides information on the residue limits (tolerances and action levels) for animal drugs, food additives, and unavoidable contaminants in meat, poultry, and egg products. The Food Safety and Inspection Service in its regulatory programs apply chemical residue limits, which are set by the Food and Drug Administration (FDA). The official source of these tolerances is Title 21 of the Code of Federal Regulations (CFR). Those for animal drugs are found in CFR, Title 21, Part 556, those for food additives are found in Title 21, Part 172, Section 172.140, and those for unavoidable contaminants are found in, Title 21 Part 109, Section 109.30. In addition, FDA may establish action levels that are published in the Federal Register (FR). FSIS does not permit concentrations of chemical residues in meat, poultry, and egg products to exceed the tolerances or action levels published in the CFR or FR.

The tolerances and action levels for the various tissues in meat, poultry and egg products are listed alphabetically by compound in Table A-II, *Residue Limits for Veterinary Drugs, and Unavoidable Contaminants*. These tolerances may be for the parent compound (the original chemical form of the compound given to the animal), or for the compound's metabolites (the chemical forms into which the compound is metabolized by the animal), or for a combination of parent plus metabolites. All tolerances are provided in units of parts per million (ppm) unless otherwise noted. Please note that this appendix has been generated for the convenience of the reader, and if any discrepancies arise between this appendix and the CFR, the values from the latter source should be used.

**Table AII  
Residue Limits for Veterinary Drugs, and Unavoidable Contaminants  
National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
2-Acetylamino-5-nitrothiazole	Cattle							21 CFR 556.20
	Goats							
	Hogs							
	Horses							
	Poultry						0.1 <sup>2</sup>	
	Sheep							
	Eggs							
Aklomide	Cattle							21 CFR 556.30
	Goats							
	Hogs							
	Horses							
	Poultry	3	4.5		4.5			
	Sheep							
	Eggs							
Albendazole <sup>3</sup>	Cattle		0.05		0.2			21 CFR 556.34
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep		0.05		0.25			
	Eggs							

1 Unless otherwise indicated, meat by-product indicates liver and kidney

2 Turkey only

3 Marker residue: albendazole 2-aminosulfone

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Altrenogest	Cattle							21 CFR 556.36
	Goats							
	Hogs		0.001		0.004			
	Horses							
	Poultry							
	Sheep							
	Eggs							
Amoxicillin	Cattle						0.01	21 CFR 556.38
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Ampicillin	Cattle						0.01	21 CFR 556.40
	Goats							
	Hogs						0.01	
	Horses							
	Poultry							
	Sheep							
	Eggs							
Amprolium	Cattle	2	0.5		0.5	0.5		21 CFR 556.50
	Goats							
	Hogs							
	Horses							

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Poultry		0.5 <sup>4</sup>		1 <sup>5</sup>	1 <sup>6</sup>		
	Sheep							
	Eggs						4 <sup>7</sup> , 8 <sup>8</sup>	
Apramycin	Cattle							21 CFR 556.52
	Goats							
	Hogs					0.1		
	Horses							
	Poultry							
	Sheep							
Arsenic	Eggs							21 CFR 556.60
	Cattle							
	Goats							
	Hogs		0.5	0.5	2	2		
	Horses							
	Poultry <sup>9</sup>		0.5	2				
	Sheep							
Eggs	0.5							

4 Chicken, turkey and pheasant

5 Chicken, turkey and pheasants

6 Chicken and turkey

7 Whole egg

8 Egg yolk

9 Chicken and turkey

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Bacitracin	Cattle						0.5	21 CFR 556.70
	Goats							
	Hogs						0.5	
	Horses							
	Poultry						0.5 <sup>10</sup>	
	Sheep							
	Eggs						0.5 <sup>11</sup>	
Bambermycin	Cattle <sup>12</sup>							
	Goats							
	Hogs <sup>13</sup>							
	Horses							
	Poultry <sup>14</sup>							
	Sheep							
	Eggs							
Buquinolate	Cattle							21 CFR 556.90
	Goats							
	Hogs							
	Horses							
	Poultry	0.4	0.1		0.4	0.4		
	Sheep							

10 Chicken, turkey, pheasants and quails

11 Whole egg

12 No tolerance required

13 No tolerance required

14 No tolerance required

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Eggs						0.5 <sup>15</sup> , 0.2 <sup>16</sup>	
Carbadox	Cattle							21 CFR 556.100
	Goats							
	Hogs				0.03			
	Horses							
	Poultry							
	Sheep							
	Eggs							
Ceftiofur <sup>17</sup>	Cattle		1 <sup>18</sup>		2	8		21 CFR 556.113
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Cephapirin	Cattle						0.1	21 CFR 556.115
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							

15 Whole egg

16 Egg yolk

17 Marker residue is desfuoylceftiofur

18 Injection site muscle tolerance is 166 ppm

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Chlorhexidine	Cattle						0	21 CFR 556.120
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Chlortetracycline <sup>19</sup>	Cattle	12	2		6	12		21 CFR 556.150
	Goats							
	Hogs	12	2		6	12		
	Horses							
	Poultry <sup>20</sup>	12	2		6	12		
	Sheep	12	2		6	12		
	Eggs						0.4 <sup>21</sup>	
Clopidol <sup>22</sup>	Cattle		0.2		1.5	3		21 CFR 556.160
	Goats		0.2		1.5	3		
	Hogs						0.2	
	Horses							
	Poultry		5		15	15		
	Sheep		0.2		1.5	3		
	Eggs							

<sup>19</sup> Tolerances are for the sum of all approved tetracycline residues (i.e., tetracycline, chlortetracycline, and oxytetracycline)

<sup>20</sup> Chicken and turkey

<sup>21</sup> Whole egg

<sup>22</sup> Chicken and turkey

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Clorsulon	Cattle		0.1			1		21 CFR 556.163
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Cloxacillin	Cattle						0.01	21 CFR 556.165
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Colistimethate	Cattle							21 CFR 556.167
	Goats							
	Hogs							
	Horses							
	Poultry <sup>23</sup>							
	Sheep							
	Eggs							
Danofloxacin	Cattle		0.2		0.2			21 CFR 556.169
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							

<sup>23</sup> No tolerance required

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Decoquinatate	Cattle	2	1	2	2	2		21 CFR 556.170
	Goats	2	1	2	2	2		
	Hogs							
	Horses							
	Poultry <sup>24</sup>	2	1	2	2	2		
	Sheep							
	Eggs							
Dichlorvos	Cattle							21 CFR 556.180
	Goats							
	Hogs						0.1	
	Horses							
	Poultry							
	Sheep							
	Eggs							
Diclazuril	Cattle							21 CFR 556.175
	Goats							
	Hogs							
	Horses							
	Poultry <sup>25</sup>	1 <sup>26</sup>	0.5		3			
	Sheep							
	Eggs							

24 Chicken only

25 Chicken and turkey

26 Skin with adhering fat

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Dihydrostreptomycin	Cattle	0.5	0.5	0.5	0.5	2		21 CFR 556.200
	Goats							
	Hogs	0.5	0.5	0.5	0.5	2		
	Horses							
	Poultry							
	Sheep							
	Eggs							
3,5-Dinitro-benzamide	Cattle							21 CFR 556.220
	Goats							
	Hogs							
	Horses							
	Poultry <sup>27</sup>						0	
	Sheep							
	Eggs							
Doramectin <sup>28, 29, 30</sup>	Cattle		0.03		0.1			21 CFR 556.225
	Goats							
	Hogs				0.16			
	Horses							
	Poultry							
	Sheep							
	Eggs							

<sup>27</sup> Chicken only

<sup>28</sup> For bob veal, formula fed veal, and non-formula fed veal there is a zero tolerance

<sup>29</sup> Do not slaughter cattle within 45 days of latest treatment in the ophthalmic and topical form

<sup>30</sup> Not for use in female dairy cattle 20 months of age or older

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Enrofloxacin	Cattle				0.1 <sup>31</sup>			21 CFR 556.228
	Goats							
	Hogs							
	Horses							
	Poultry		0.3 <sup>32</sup>					
	Sheep							
	Eggs							
Eprinomectin	Cattle		0.1		4.8			21 CFR 556.227
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Erythromycin	Cattle						0.1	21 CFR 556.230
	Goats							
	Hogs						0.1	
	Horses							
	Poultry						0.125 <sup>33</sup>	
	Sheep							
	Eggs						0.025 <sup>34</sup>	

<sup>31</sup> Marker residue is desethylene ciprofloxacin

<sup>32</sup> Chicken and turkey

<sup>33</sup> Chicken and turkey

<sup>34</sup> Whole egg

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Estradiol benzoate and related esters	Cattle	0.000480 <sup>35</sup>	0.000120 <sup>36</sup>		0.000240 <sup>37</sup>	0.000360 <sup>38</sup>		21 CFR 556.240
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep	0.000600	0.000120		0.000600	0.000600		
	Eggs							
Ethopabate	Cattle							21 CFR 556.260
	Goats							
	Hogs							
	Horses							
	Poultry		0.5		1.5	1.5		
	Sheep							
	Eggs							
Ethoxyquin	Cattle	5	0.5					21 CFR 172.140
	Goats	5	0.5					
	Hogs	5	0.5					
	Horses	5	0.5					
	Poultry	3	0.5		3			
	Sheep	5	0.5					

35 For use in heifers, steers, and calves. Do not use in calves intended for reproduction or calves less than 30 days old. Do not use in calves to be processed for veal. For bob veal, formula fed veal, and non-formula fed veal there is a zero tolerance

36 See Footnote 35

37 See Footnote 35

38 See Footnote 35

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Eggs						0.5 <sup>39</sup>	
Famphur	Cattle	0.1	0.1	0.1				21 CFR 556.273
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Fenbendazole	Cattle		0.4		0.8			21 CFR 556.275
	Goats		0.4		0.8			
	Hogs		2		6			
	Horses							
	Poultry <sup>40</sup>		2		6			
	Sheep							
	Eggs							
Fenprostalene	Cattle <sup>41</sup>							21 CFR 556.277
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Florfenicol	Cattle		0.3		3.7			21 CFR 556.283
	Goats							
	Hogs		0.2		2.5			
	Horses							
	Poultry							

39 Whole egg

40 Turkey only

41 No tolerance required

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Sheep							
	Eggs							
Flunixin meglumine	Cattle <sup>42</sup>		0.025		0.125			21 CFR 556.286
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Furazolidone	Cattle							21 CFR 556.290
	Goats							
	Hogs						0	
	Horses							
	Poultry							
	Sheep							
	Eggs							
Gentamicin sulfate	Cattle							21 CFR 556.300
	Goats							
	Hogs	0.4	0.1		0.3	0.4		
	Horses							
	Poultry						0.1 <sup>43</sup>	
	Sheep							
	Eggs							
Halofuginone hydrobromide	Cattle							21 CFR 556.308
	Goats							
	Hogs							
	Horses							

<sup>42</sup> For bob veal, formula fed veal, and non-formula fed veal there is a zero tolerance

<sup>43</sup> Chicken and turkey

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Poultry				0.16 <sup>44</sup> , 0.1, 3 <sup>45</sup>			
	Sheep							
	Eggs							
Haloxon	Cattle						0.1	21 CFR 556.310
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
Hygromycin B	Cattle							21 CFR 556.330
	Goats						0	
	Hogs							
	Horses							
	Poultry						0	
	Sheep							
Ivermectin	Cattle		0.01		0.1, 0.015 <sup>47</sup>			21 CFR 556.344
	Goats							
	Hogs		0.02		0.02			
	Horses							
	Poultry				0.03			
	Sheep							
	Egg							

44 Chicken only

45 Turkey only

46 Whole egg

47 American bison and reindeer

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Lasalocid	Cattle				0.7			21 CFR 556.347
	Goats							
	Hogs							
	Horses							
	Poultry	0.2 <sup>48, 49</sup>			0.4 <sup>50</sup>			
		0.4 <sup>51, 52</sup>			0.4 <sup>53</sup>			
	Sheep				1			
	Eggs							
	Rabbit				0.7			
Levamisole hydrochloride	Cattle <sup>54</sup>						0.1	21 CFR 556.350
	Goats							
	Hogs						0.1	
	Horses							
	Poultry							
	Sheep						0.1	
	Eggs							

48 Chicken only

49 Skin with adhering fat

50 Chicken and turkey

51 Turkey only

52 Skin with adhering fat

53 Chicken and turkey

54 Not for use in dairy animals of breeding age

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Lincomycin	Cattle							21 CFR 556.360
	Goats							
	Hogs		0.1		0.6			
	Horses							
	Poultry <sup>55</sup>							
	Sheep							
	Eggs							
Maduramicin ammonium	Cattle							21 CFR 556.375
	Goats							
	Hogs							
	Horses							
	Poultry	0.38 <sup>56</sup>						
	Sheep							
	Eggs							
Melengestrol acetate	Cattle	0.025						21 CFR 556.380
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							

<sup>55</sup> Chicken only

<sup>56</sup> Chicken only

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Metoserpate hydrochloride	Cattle							21 CFR 556.410
	Goats							
	Hogs							
	Horses							
	Poultry						0.02 <sup>57</sup>	
	Sheep							
	Eggs							
Monensin	Cattle						0.05	21 CFR 556.420
	Goats						0.05	
	Hogs							
	Horses							
	Poultry <sup>58, 59</sup>							
	Sheep							
	Eggs							
Morantel tartrate <sup>60</sup>	Cattle				0.7			21 CFR 556.425
	Goats				0.7			
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							

<sup>57</sup> Chicken only

<sup>58</sup> No tolerance required

<sup>59</sup> Chicken, turkey, and quail

<sup>60</sup> N-methyl-1,3-propanediamine

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Moxidectin	Cattle		0.05		0.2			21 CFR 556.426
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Narasin	Cattle							21 CFR 556.428
	Goats							
	Hogs							
	Horses							
	Poultry	0.48 <sup>61</sup>						
	Sheep							
	Eggs							
Neomycin	Cattle <sup>62</sup>	7.2	1.2		3.6	7.2		21 CFR 556.430
	Goats	7.2	1.2		3.6	7.2		
	Hogs	7.2	1.2		3.6	7.2		
	Horses							
	Poultry <sup>63</sup>	7.2 <sup>64</sup>	1.2		3.6			
	Sheep	7.2	1.2		3.6	7.2		
	Eggs							

61 Chicken only

62 For bob veal, formula fed veal, and non-formula fed veal there is a zero tolerance

63 Turkey only

64 Skin with adhering fat

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Nequinatate	Cattle							21 CFR 556.440
	Goats							
	Hogs							
	Horses							
	Poultry						0.1 <sup>65</sup>	
	Sheep							
	Eggs							
Nicarbazin	Cattle							21 CFR 556.445
	Goats							
	Hogs							
	Horses							
	Poultry <sup>66</sup>	4 <sup>67</sup>	4		4	4		
	Sheep							
Novobiocin	Cattle						1	21 CFR 556.460
	Goats							
	Hogs							
	Horses							
	Poultry						1	
	Sheep							

<sup>65</sup> Chicken and turkey

<sup>66</sup> Chicken only

<sup>67</sup> Skin

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Eggs							
Nystatin	Cattle							21 CFR 556.470
	Goats							
	Hogs						0	
	Horses							
	Poultry						0	
	Sheep							
	Eggs	0						
Oleandomycin	Cattle							21 CFR 556.480
	Goats							
	Hogs						0.15	
	Horses							
	Poultry						0.15 <sup>68</sup>	
	Sheep							
	Eggs							
Ormetoprim	Cattle							21 CFR 556.490
	Goats							
	Hogs							
	Horses							
	Poultry						0.1	
	Sheep							
	Eggs							
Oxfendazole	Cattle <sup>69</sup>				0.8			21 CFR 556.495

68 Whole egg

69 Marker residue is fenbendazole

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Oxytetracycline	Cattle	12	2		6	12		21 CFR 556.500
	Goats							
	Hogs	12	2		6	12		
	Horses							
	Poultry <sup>70</sup>	12	2		6	12		
	Sheep	12	2		6	12		
PBB's	Cattle							FDA revoked, effective January 5, 1987, all action levels in meat and poultry
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
PCB's <sup>71</sup>	Cattle							21 CFR 109.30
	Goats							
	Hogs							
	Horses							
	Poultry	3						
	Sheep							

<sup>70</sup> Chicken and turkey

<sup>71</sup> Temporary

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Eggs	0.372						
Penicillin	Cattle						0.05	21 CFR 556.510
	Goats							
	Hogs						0	
	Horses							
	Poultry						0 <sup>73</sup> , 0.01 <sup>74</sup>	
	Sheep						0	
	Eggs						0 <sup>75</sup>	
Pirlimycin	Cattle	0.3			0.5			21 CFR 556.515
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							
Progesterone	Cattle	0.012	0.003		0.006	0.009		21 CFR 556.540
	Goats							
	Hogs							
	Horses							
	Poultry							

72 Whole egg

73 Chicken, pheasants, quail

74 Turkey only

75 Whole egg

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Sheep	0.015	0.003		0.0015	0.015		
	Eggs							
Pyrantel tartrate	Cattle							21 CFR 556.560
	Goats							
	Hogs		1		10	10		
	Horses							
	Poultry							
	Sheep							
Ractopamine hydrochloride	Cattle		0.03		0.09			21 CFR 556.570
	Goats							
	Hogs		0.05		0.15			
	Horses							
	Poultry							
	Sheep							
Robenidine hydrochloride	Cattle							21 CFR 556.580
	Goats							
	Hogs							
	Horses							
	Poultry <sup>76</sup>	0.2 <sup>77</sup>					0.1 <sup>78</sup>	
	Sheep							

<sup>76</sup> Chicken only

<sup>77</sup> Skin with adhering fat

<sup>78</sup> Chicken and turkey

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Eggs							
Spectinomycin	Cattle <sup>79</sup>		0.25			4		21 CFR 556.600
	Goats							
	Hogs							
	Horses							
	Poultry <sup>80</sup>						0.1	
	Sheep Eggs							
Streptomycin	Cattle <sup>81</sup>	0.5	0.5	0.5	0.5	2	0.5	21 CFR 556.610
	Goats							
	Hogs	0.5	0.5	0.5	0.5	2	0.5	
	Horses							
	Poultry <sup>82</sup>	0.5	0.5	0.5	0.5	2	0.5	
	Sheep Eggs							
Sulfabromomethazine sodium	Cattle						0.1	21 CFR 556.620
	Goats							
	Hogs							
	Horses							
	Poultry							

79 For bob veal, formula fed veal, and non-formula fed veal there is a zero tolerance

80 Chicken only

81 Calves

82 Chicken only

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Sheep							
	Eggs							
Sulfachloropyrazine	Cattle							21 CFR 556.625
	Goats							
	Hogs							
	Horses							
	Poultry <sup>83</sup>						0	
	Sheep							
Sulfachlorpyridazine	Eggs							21 CFR 556.630
	Cattle						0.1	
	Goats							
	Hogs						0.1	
	Horses							
	Poultry							
Sulfadimethoxine	Sheep							21 CFR 556.640
	Eggs							
	Cattle						0.1	
	Goats							
	Hogs							
	Horses							
Sulfaethoxy-pyridazine	Poultry						0.1	21 CFR 556.650
	Sheep							
	Eggs							
	Horses						0	

<sup>83</sup> Chicken only

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Poultry							
	Sheep							
	Eggs							
Sulfamethazine	Cattle						0.1	21 CFR 556.670
	Goats							
	Hogs						0.1	
	Horses							
	Poultry <sup>84</sup>						0.1	
	Sheep							
Sulfanitran	Eggs							21 CFR 556.680
	Cattle							
	Goats							
	Hogs							
	Horses							
	Poultry <sup>85</sup>						0	
Sulfaquinoxaline	Sheep							21 CFR 556.685
	Eggs							
	Cattle						0.1	
	Goats							
	Hogs							
	Horses							
Sulfaquinoxaline	Poultry <sup>86</sup>						0.1	21 CFR 556.685
	Sheep							
	Eggs							
	Cattle							
	Goats							
	Hogs							

84 Chicken and turkey

85 Chicken only

86 Chicken and turkey

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Sulfathiazole	Cattle							21 CFR 556.690
	Goats							
	Hogs						0.1	
	Horses							
	Poultry							
	Sheep							
	Eggs							
Sulfomyxin	Cattle							21 CFR 556.700
	Goats							
	Hogs							
	Horses							
	Poultry <sup>87</sup>						0	
	Sheep							
	Eggs							
Testosterone propionate	Cattle <sup>88</sup>	0.0026	0.00064		0.0013	0.0019		21 CFR 556.710
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
	Eggs							

<sup>87</sup> Chicken and turkey

<sup>88</sup> Heifers; no residues are permitted at concentrations above these, which represent the levels naturally present in untreated animals

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Tetracycline <sup>89</sup>	Cattle <sup>90</sup>	12	2		6	12		21 CFR 556.720
	Goats							
	Hogs	12	2		6	12		
	Horses							
	Poultry <sup>91</sup>	12	2		6	12		
	Sheep	12	2		6	12		
	Eggs							
Thiabendazole	Cattle						0.1	21 CFR 556.730
	Goats						0.1	
	Hogs						0.1	
	Horses							
	Poultry <sup>92</sup>						0.1	
	Sheep						0.1	
	Eggs							
Tiamulin	Cattle							21 CFR 556.738
	Goats							
	Hogs				0.6 <sup>93</sup>			
	Horses							
	Poultry							
	Sheep							
	Eggs							

<sup>89</sup> Tolerances are for the sum of all approved tetracycline residues (i.e., tetracycline, chlortetracycline, and oxytetracycline)

<sup>90</sup> Calves

<sup>91</sup> Chicken and turkey

<sup>92</sup> Pheasants only

<sup>93</sup> Marker residue is 8-alpha-hydroxymutilin

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Tilmicosin	Cattle		0.1		1.2			21 CFR 556.735
	Goats							
	Hogs		0.1		7.5			
	Horses							
	Poultry							
	Sheep		0.1			1.2		
Trenbolone	Cattle <sup>94</sup>							21 CFR 556.739
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
Tripeleonnamine	Cattle						0.2	21 CFR 556.741
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep							
Tylosin	Cattle	0.2	0.2		0.2	0.2		21 CFR 556.740
	Goats							
	Hogs	0.2	0.2		0.2	0.2		
	Horses							
	Poultry <sup>95</sup>	0.2	0.2		0.2	0.2		
	Sheep							

<sup>94</sup> No tolerance required

<sup>95</sup> Chickens and Turkeys

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
	Eggs	0.2 <sup>96</sup>						
Virginiamycin	Cattle <sup>97</sup>							21 CFR 556.750
	Goats							
	Hogs	0.4	0.1		0.3	0.4		
	Horses							
	Poultry <sup>98</sup>							
	Sheep							
	Eggs							
Zeranol	Cattle <sup>99, 100</sup>							21 CFR 556.760
	Goats							
	Hogs							
	Horses							
	Poultry							
	Sheep						0	
	Eggs							

<sup>96</sup> Whole Egg

<sup>97</sup> No tolerance required

<sup>98</sup> No tolerance required

<sup>99</sup> No tolerance required

<sup>100</sup> For bob veal, formula fed veal, and non-formula fed veal there is a zero tolerance

**Table AII - Continued**  
**Residue Limits for Veterinary Drugs, Food Additives, and Unavoidable Contaminants**  
**National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat<sup>1</sup> byproduct (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Edible Tissue (ppm)</i>	<i>Reference</i>
Zoalene <sup>101</sup>	Cattle							21 CFR 556.770
	Goats							
	Hogs							
	Horses							
	Poultry	2 <sup>102</sup>	3 <sup>103</sup>		6 <sup>104</sup> , 3 <sup>105</sup>	6 <sup>106</sup>		
	Sheep							
	Eggs							

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101 Tolerances are established for residues of zoalene (3,5-dinitro-o- toluamide) and its metabolite 3-amino-5-nitro-o-toluamide

102 Chicken only

103 Chicken and turkey

104 Chicken only

105 Turkey only

106 Chicken only

## **Appendix III**

### **U.S. Residue Limits for Pesticides in Meat, Poultry, and Egg Products**

## **U.S. Residue Limits for Pesticides in Meat, Poultry, and Egg Products**

This appendix has been generated for the convenience of the reader, and if any discrepancies arise between this appendix and the Code of Federal Regulations (CFR) or Federal Register (FR), the values from the latter two sources should be used. Appendix III provides the chemical residue limits (tolerances and action levels) in each tissue by production class and by compound for pesticides in meat, poultry, and egg products. The Food Safety and Inspection Service (FSIS) in its regulatory programs apply chemical residue limits set by the Environmental Protection Agency (EPA). The official source of these tolerances is Title 40, Part 180 of the CFR. In addition, EPA may establish action levels, which are published in the FR. All chemical residue limits are provided in units of parts per million (ppm) unless otherwise noted.

**Table A III**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Abamectin	Cattle Goats Hogs Horses Poultry Sheep Eggs	0.015	0.02	0.02			40 CFR 180.449
Acephate	Cattle Goats Hogs Horses Poultry Sheep Eggs	0.1 0.1 0.1 0.1 0.1 0.1	0.1 0.1 0.1 0.1 0.1 0.1	0.1 0.1 0.1 0.1 0.1 0.1			40 CFR 180.108
Acequinocyl	Cattle Goats Hogs Horses Poultry Sheep Eggs	0.02 0.02 0.02 0.02			0.02 0.02 0.02 0.02		40 CFR 180.599
Acifluorfen	Cattle Goats Hogs Horses Poultry Sheep Eggs						40 CFR 180.383
Alachlor	Cattle Goats Hogs Horses Poultry Sheep Eggs	0.02 0.02 0.02 0.02 0.02 0.02	0.02 0.02 0.02 0.02 0.02 0.02	0.02 0.02 0.02 0.02 0.02 0.02			40 CFR 180.249

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Aldicarb	Cattle Goats Hogs Horses Poultry Sheep Eggs						40 CFR 180.269
Aldrin	Cattle Goats Hogs Horses Poultry Sheep Eggs	0.3 <sup>1</sup> 0.3 <sup>1</sup> 0.3 <sup>1</sup> 0.3 <sup>1</sup> 0.3 <sup>1</sup> 0.3 <sup>1</sup>					51 FR 46662
Amitraz	Cattle Goats Hogs Horses Poultry Sheep Eggs	0.1 0.01 0.1 0 0.01 0	0.05 0 0.05 0 0.01 0	0.3 0 0.3 0 0.05 0	0.2	0.2	40 CFR 180.287
Atrazine	Cattle Goats Hogs Horses Poultry Sheep Eggs	0.02 0.02 0.02 0.02	0.02 0.02 0.02 0.02	0.02 0.02 0.02 0.02			40 CFR 180.220
Azinphos-Methyl {O,O-dimethyl S-[(4-oxo-1,2,3-benzotrizin-3(4H)-yl) methyl]phosphorodithioate }	Cattle Goats Hogs Horses Poultry Sheep Eggs	0.1 0.1 0.1 0.1	0.1 0.1 0.1 0.1	0.1 0.1 0.1 0.1			40 CFR 180.154

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Azoxystrobin	Cattle	0.01	0.01	0.01			40 CFR 180.507
	Goats	0.01	0.01	0.01			
	Hogs	0.01	0.01	0.01			
	Horses	0.01	0.01	0.01			
	Poultry	0.01	0.01	0.01			
	Sheep	0.01	0.01	0.01			
Boscalid	Cattle	0.30	0.10	0.35			40 CFR 180.589
	Goats	0.30	0.10	0.35			
	Hogs	0.10	0.05	0.10			
	Horses	0.30	0.10	0.35			
	Poultry	0.05	0.05	0.10			
	Sheep	0.30	0.10	0.35			
Benomyl	Cattle	0.1	0.1	0.1			40 CFR 180.294
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.1	0.1	0.1			
	Sheep	0.1	0.1	0.1	0.2		
Benoxacor	Cattle	0.01	0.01	0.01	0.01	0.01	40 CFR 180.460
	Goats	0.01	0.01	0.01	0.01	0.01	
	Hogs	0.01	0.01	0.01	0.01	0.01	
	Horses	0.01	0.01	0.01	0.01	0.01	
	Poultry	0.01	0.01	0.01	0.01	0.01	
	Sheep	0.01	0.01	0.01	0.01	0.01	
Bentazon	Cattle	0.05	0.05	0.05			40 CFR 180.355
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.05	0.05	0.05			
	Sheep	0.05	0.05	0.05			
	Eggs	0.05	0.05	0.05			

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Benzene hexachloride	Cattle	0.3 <sup>1</sup>					50 FR 25697
	Goats	0.3 <sup>1</sup>					
	Hogs	0.3 <sup>1</sup>					
	Horses	0.3 <sup>1</sup>					
	Poultry	0.3 <sup>1</sup>					
	Sheep	0.3 <sup>1</sup>					
	Eggs	0.3 <sup>1</sup>					
Bifenazate	Cattle		0.02	0.02			40 CFR 180.572
	Goats		0.02	0.02			
	Hogs		0.02	0.02			
	Horses		0.02	0.02			
	Poultry		0.02	0.02			
	Sheep		0.02	0.02			
	Eggs		0.02	0.02			
Bifenthrin	Cattle	1.0	0.5	0.1			40 CFR 180.442
	Goats	1.0	0.5	0.1			
	Hogs	1.0	0.5	0.1			
	Horses	1.0	0.5	0.1			
	Poultry	0.05	0.05	0.05			
	Sheep	1.0	0.5	0.1			
	Eggs	0.05 <sup>Whl</sup>	0.5	0.1			
Bromoxynil	Cattle	0.1	0.1	0.1			40 CFR 180.324
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.05	0.05	0.05			
	Sheep	0.1	0.1	0.1			
	Eggs	0.05 <sup>Whl</sup>	0.1	0.1			
Buprofezin	Cattle	0.05		0.05	0.05		40 CFR 180.511
	Goats	0.05		0.05	0.05		
	Hogs	0.05		0.05	0.05		
	Horses	0.05		0.05	0.05		
	Poultry	0.05		0.05	0.05		
	Sheep	0.05		0.05	0.05		
	Eggs	0.05		0.05	0.05		

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Cacodylic acid	Cattle						40 CFR 180.311
	Goats						
	Hogs						
	Horses						
	Poultry						
	Sheep						
	Eggs						
Captan	Cattle	0.05	0.05	0.05			40 CFR 180.103
	Goats						
	Hogs						
	Horses	0.05	0.05	0.05			
	Poultry						
	Sheep						
	Eggs						
Carbaryl	Cattle	0.1	0.1	0.1	1	1	40 CFR 180.169
	Goats	0.1	0.1	0.1	1	1	
	Hogs	0.1	0.1	0.1	1	1	
	Horses	0.1	0.1	0.1	1	1	
	Poultry	5.0	5.0			1	
	Sheep	0.1	0.1	0.1	1	1	
	Eggs	0.5 <sup>Whl</sup>					
Carbofuran	Cattle						40 CFR 180.254
	Goats						
	Hogs						
	Horses						
	Poultry						
	Sheep						
	Eggs						
Carboxin	Cattle	0.1	0.1	0.1			40 CFR 180.156
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.1	0.1	0.1			
	Sheep	0.1	0.1	0.1			
	Eggs	0.01 <sup>Whl</sup>					

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Chlordane	Cattle	0.3 <sup>1</sup>					51 FR 46665
	Goats	0.3 <sup>1</sup>					
	Hogs	0.3 <sup>1</sup>					
	Horses	0.3 <sup>1</sup>					
	Poultry	0.3 <sup>1</sup>					
	Sheep	0.3 <sup>1</sup>					
	Eggs	0.3 <sup>1</sup>					
Chlordimeform	Cattle	0.01	0.1	0.1			40 CFR 180.285
	Goats	0.01	0.1	0.1			
	Hogs	0.01	0.1	0.1			
	Horses	0.01	0.1	0.1			
	Poultry	0.01	0.1	0.1			
	Sheep	0.25	0.25	0.25			
	Eggs	0.01	0.1	0.1			
Chlorfenapyr	Cattle	0.1	0.01	0.3			40 CFR 180.513
	Goats	0.1	0.01	0.3			
	Hogs	0.1	0.01	0.3			
	Horses	0.1	0.01	0.3			
	Poultry	0.1	0.01	0.3			
	Sheep	0.1	0.01	0.3			
	Eggs	0.1	0.01	0.3			
2-Chloro-N-isopropylacetanilide [Propachlor]	Cattle	0.02	0.02	0.02			40 CFR 180.211
	Goats	0.02	0.02	0.02			
	Hogs	0.02	0.02	0.02			
	Horses	0.02	0.02	0.02			
	Poultry	0.02	0.02	0.02			
	Sheep	0.02	0.02	0.02			
	Eggs	0.02	0.02	0.02			
Chloroneb	Cattle	0.2	0.2	0.2			40 CFR 180.257
	Goats	0.2	0.2	0.2			
	Hogs	0.2	0.2	0.2			
	Horses	0.2	0.2	0.2			
	Poultry	0.2	0.2	0.2			
	Sheep	0.2	0.2	0.2			
	Eggs	0.2	0.2	0.2			

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Chlorpyrifos-methyl	Cattle	0.5	0.5	0.5			40 CFR 180.419
	Goats	0.5	0.5	0.5			
	Hogs	0.5	0.5	0.5			
	Horses	0.5	0.5	0.5			
	Poultry	0.5	0.5	0.5			
	Sheep	0.5	0.5	0.5			
	Eggs	0.5	0.5	0.5			
Chlorsulfuron	Cattle	0.3	0.3	0.3			40 CFR 180.405
	Goats	0.3	0.3	0.3			
	Hogs	0.3	0.3	0.3			
	Horses	0.3	0.3	0.3			
	Poultry	0.3	0.3	0.3			
	Sheep	0.3	0.3	0.3			
	Eggs	0.3	0.3	0.3			
Clethodim	Cattle	0.2	0.2	0.2			40 CFR 180.458
	Goats	0.2	0.2	0.2			
	Hogs	0.2	0.2	0.2			
	Horses	0.2	0.2	0.2			
	Poultry	0.2	0.2	0.2			
	Sheep	0.2	0.2	0.2			
	Eggs	0.2 <sup>Whl</sup>	0.2	0.2			
Clofencet	Cattle	0.04	0.15	0.5		10.0	40 CFR 180.497
	Goats	0.04	0.15	0.5		10.0	
	Hogs	0.04	0.15	0.5		10.0	
	Horses	0.04	0.15	0.5		10.0	
	Poultry	0.04	0.15	0.2			
	Sheep	0.04	0.15	0.5			
	Eggs	0.04	0.15	0.5		10.0	
Clofentezine	Cattle	0.05	0.05	0.05	0.4		40 CFR 180.446
	Goats	0.05	0.05	0.05	0.4		
	Hogs	0.05	0.05	0.05	0.4		
	Horses	0.05	0.05	0.05	0.4		
	Poultry	0.05	0.05	0.05	0.4		
	Sheep	0.05	0.05	0.05	0.4		
	Eggs	0.05	0.05	0.05	0.4		

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Clopyralid	Cattle	1.0	1.0	36.0 <sup>5</sup>	3.0		40 CFR 180.431
	Goats	1.0	1.0	36.0 <sup>5</sup>	3.0		
	Hogs	0.2	0.2	0.2			
	Horses	1.0	1.0	36.0 <sup>5</sup>	3.0		
	Poultry	0.2	0.2	0.2			
	Sheep	1.0	1.0	36.0 <sup>5</sup>	3.0		
	Eggs						
Coumaphos	Cattle	1	1	1			40 CFR 180.189
	Goats	1	1	1			
	Hogs	1	1	1			
	Horses	1	1	1			
	Poultry	1	1	1			
	Sheep	1	1	1			
	Eggs						
Cuprous oxide	Cattle		Exempt				40 CFR 180.1021
	Goats		Exempt				
	Hogs		Exempt				
	Horses		Exempt				
	Poultry		Exempt				
	Sheep		Exempt				
	Eggs		Exempt				
Cyclanilide	Cattle	0.1	0.02	0.2		2.0	40 CFR 180.506
	Goats	0.1	0.02	0.2		2.0	
	Hogs	0.1	0.02	0.2		2.0	
	Horses	0.1	0.02	0.2		2.0	
	Poultry						
	Sheep	0.1	0.02	0.2		2.0	
	Eggs						
Cyfluthrin	Cattle	10.0	0.4	0.4			40 CFR 180.436
	Goats	10.0	0.4	0.4			
	Hogs	10.0	0.4	0.4			
	Horses	10.0	0.4	0.4			
	Poultry	0.01	0.01	0.4			
	Sheep	10.0	0.4	0.01			
	Eggs	0.01 <sup>whl</sup>		0.4			

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Cyhexatin	Cattle	0.2	0.2	0.2	0.5	0.5	40 CFR 180.144
	Goats	0.2	0.2	0.2	0.5	0.5	
	Hogs	0.2	0.2	0.2	0.5	0.5	
	Horses	0.2	0.2	0.2	0.5	0.5	
	Poultry	0.2	0.2	0.2	0.5	0.5	
	Sheep	0.2	0.2	0.2	0.5	0.5	
Cypermethrin	Eggs	0.2	0.2	0.2	0.5	0.5	40 CFR 180.418
	Cattle	0.05	0.05	0.05			
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.05	0.05	0.05			
Cyromazine	Sheep	0.05	0.05	0.05		0.2	40 CFR 180.414
	Eggs	0.25 <sup>Whl</sup>	0.05	0.05		0.2	
	Cattle	0.05	0.05	0.05		0.2	
	Goats	0.05	0.05	0.05		0.2	
	Hogs	0.05	0.05	0.05		0.2	
	Horses	0.05	0.05	0.05		0.2	
DDT & metabolites	Poultry	0.05	0.05	0.05		0.2	51 FR 46658
	Sheep	0.05	0.05	0.05		0.2	
	Eggs	0.05	0.05	0.05		0.2	
	Cattle	5.0 <sup>1</sup>					
	Goats	5.0 <sup>1</sup>					
	Hogs	5.0 <sup>1</sup>					
Deltamethrin	Horses	5.0 <sup>1</sup>					40 CFR 180.435
	Poultry	5.0 <sup>1</sup>	0.02	0.05			
	Sheep	5.0 <sup>1</sup>	0.02	0.05			
	Eggs	5.0 <sup>1</sup>	0.02	0.05			
	Cattle	0.05	0.02	0.05			
	Goats	0.05	0.02	0.05			

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Diazinon	Cattle	0.7					40 CFR 180.153
	Goats						
	Hogs						
	Horses						
	Poultry						
	Sheep		0.7	0.7	0.7		
	Eggs						
Dicamba	Cattle	0.2	0.2	0.2	1.5	1.5	40 CFR 180.227
	Goats	0.2	0.2	0.2	1.5	1.5	
	Hogs	0.2	0.2	0.2	1.5	1.5	
	Horses	0.2	0.2	0.2	1.5	1.5	
	Poultry	0.2	0.2	0.2	1.5	1.5	
	Sheep	0.2	0.2	0.2	1.5	1.5	
	Eggs						
2,4-Dichlorophenoxyacetic acid	Cattle	0.2	0.2	0.2		2	40 CFR 180.142
	Goats	0.2	0.2	0.2		2	
	Hogs	0.2	0.2	0.2		2	
	Horses	0.2	0.2	0.2		2	
	Poultry	0.05	0.2	0.2		2	
	Sheep	0.2	0.2	0.2		2	
	Eggs	0.05 <sup>Whl</sup>					
3,4-Dichloropropionanilide	Cattle	0.1	0.1	0.1			40 CFR 180.274
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.1	0.1	0.1			
	Sheep	0.1	0.1	0.1			
	Eggs	0.05 <sup>Whl</sup>					
Dichlorvos	Cattle	0.02	0.02	0.02			40 CFR 180.235
	Goats	0.02	0.02	0.02			
	Hogs	0.1	0.1	0.1			
	Horses	0.02	0.02	0.02			
	Poultry	0.05	0.05	0.05			
	Sheep	0.02	0.02	0.02			
	Eggs	0.05 <sup>Whl</sup>					

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Dieldrin	Cattle	0.3 <sup>1</sup>					51 FR 46662
	Goats	0.3 <sup>1</sup>					
	Hogs	0.3 <sup>1</sup>					
	Horses	0.3 <sup>1</sup>					
	Poultry	0.3 <sup>1</sup>					
	Sheep	0.3 <sup>1</sup>					
	Eggs	0.3 <sup>1</sup>					
Difenoconazole	Cattle	0.05	0.05	0.05			40 CFR 180.475
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.05	0.05	0.05			
	Sheep	0.05	0.05	0.05			
	Eggs	0.05 <sup>whl</sup>					
Difenzoquat	Cattle	0.05	0.05	0.05			40 CFR 180.369
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.05	0.05	0.05			
	Sheep	0.05	0.05	0.05			
	Eggs						
Diflubenzuron	Cattle	0.05	0.05	0.15			40 CFR 180.377
	Goats	0.05	0.05	0.15			
	Hogs	0.05	0.05	0.15			
	Horses	0.05	0.05	0.15			
	Poultry	0.05	0.05	0.05			
	Sheep	0.05	0.05	0.15			
	Eggs	0.05 <sup>whl</sup>					
2,6-Diisopropylnaphthalene	Cattle		1.35	1.35			40 CFR 180.590
	Goats		1.35	1.35			
	Hogs		1.35	1.35			
	Horses		1.35	1.35			
	Poultry		1.35	1.35			
	Sheep		1.35	1.35			
	Eggs		1.35	1.35			

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Dimethipin	Cattle	0.02	0.02	0.02			40 CFR 180.406
	Goats	0.02	0.02	0.02			
	Hogs	0.02	0.02	0.02			
	Horses	0.02	0.02	0.02			
	Poultry	0.02	0.02	0.02			
	Sheep Eggs	0.02	0.02	0.02			
Dimethoate	Cattle			0.02			40 CFR 180.204
	Goats			0.02			
	Hogs			0.02			
	Horses			0.02			
	Poultry			0.02			
	Sheep Eggs	0.02 <sup>Whl</sup>		0.02			
N,N-Dimethylpiperidinium chloride (Mepiquat chloride)	Cattle	0.1	0.1	0.1			40 CFR 180.384
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.1	0.1	0.1			
	Sheep Eggs	0.1 0.05 <sup>Whl</sup>	0.1	0.1			
Diphenamide	Cattle	0.05	0.05	0.05			40 CFR 180.230
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry						
	Sheep Eggs	0.05	0.05	0.05			
Diphenylamine	Cattle	0.01	0.01	0.01	0.10		40 CFR 180.190
	Goats	0.01	0.01	0.01	0.10		
	Hogs						
	Horses	0.01	0.01	0.01	0.10		
	Poultry						
	Sheep Eggs	0.01	0.01	0.01	0.01		

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Dipropyl isocinchomerate	Cattle	0.1	0.1	0.1			40 CFR 180.143
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry						
	Sheep	0.1	0.1	0.1			
Diquat dibromide	Cattle	0.02	0.02	0.02			40 CFR 180.226
	Goats	0.02	0.02	0.02			
	Hogs	0.02	0.02	0.02			
	Horses	0.02	0.02	0.02			
	Poultry	0.02	0.02	0.02			
	Sheep	0.02	0.02	0.02			
Eggs	0.02 <sup>whl</sup>						
Diuron	Cattle	1	1	1			40 CFR 180.106
	Goats	1	1	1			
	Hogs	1	1	1			
	Horses	1	1	1			
	Poultry						
	Sheep	1	1	1			
Dodin	Cattle		0				40 CFR 180.172
	Goats		0				
	Hogs		0				
	Horses		0				
	Poultry		0				
	Sheep		0				
Emamectin benzoate	Cattle	0.003	0.002	0.005 <sup>5</sup>	0.02		40 CFR 180.505
	Goats	0.003	0.002	0.005 <sup>5</sup>	0.02		
	Hogs	0.003	0.002	0.005 <sup>5</sup>	0.02		
	Horses	0.003	0.002	0.005 <sup>5</sup>	0.02		
	Poultry			0.005 <sup>5</sup>	0.02		
	Sheep	0.003	0.002	0.005 <sup>5</sup>	0.02		
Eggs							

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Endosulfan	Cattle	0.2	0.2	0.2			40 CFR 180.182
	Goats	0.2	0.2	0.2			
	Hogs	0.2	0.2	0.2			
	Horses	0.2	0.2	0.2			
	Poultry	0.2	0.2	0.2			
	Sheep	0.2	0.2	0.2			
Endrin	Eggs	0.2	0.2	0.2			MPI Dir 917.1
	Cattle	0.3 <sup>1</sup>					
	Goats	0.3 <sup>1</sup>					
	Hogs	0.3 <sup>1</sup>					
	Horses	0.3 <sup>1</sup>					
	Poultry	0.3 <sup>1</sup>					
Esfenvalerate	Sheep	0.3 <sup>1</sup>					40 CFR 180.533
	Eggs	0.3 <sup>1</sup>					
	Cattle						
	Goats						
	Hogs						
	Horses						
Ethalfuralin	Poultry	0.3	0.03	0.3	0.03		40 CFR 180.416
	Sheep	0.03 <sup>Whl</sup>					
	Eggs						
	Cattle						
	Goats						
	Hogs						
Ethepon	Horses	0.05	0.05	0.05			40 CFR 180.300
	Poultry						
	Sheep						
	Eggs						
	Cattle	0.1	0.1	0.1			
	Goats	0.1	0.1	0.1			

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Ethion	Cattle	0.2	0.2	0.2			40 CFR 180.173
	Goats	0.2	0.2	0.2			
	Hogs	0.2	0.2	0.2			
	Horses	0.2	0.2	0.2			
	Poultry						
	Sheep	0.2	0.2	0.2			
	Eggs						
Ethofumesate	Cattle	0.05	0.05	0.05			40 CFR 180.345
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry						
	Sheep	0.05	0.05	0.05			
	Eggs						
Etoxazole	Cattle	0.02			0.01		40 CFR 180.593
	Goats	0.02			0.01		
	Hogs						
	Horses	0.02			0.01		
	Poultry						
	Sheep	0.02			0.01		
	Eggs						
Etridiazole	Cattle	0.1	0.1	0.1			40 CFR 180.370
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.1	0.1	0.1			
	Sheep	0.1	0.1	0.1			
	Eggs	0.05 <sup>whl</sup>					
Famozadone	Cattle	0.02			0.05		40 CFR 180.587
	Goats	0.02			0.05		
	Hogs						
	Horses	0.02			0.05		
	Poultry						
	Sheep	0.02			0.05		
	Eggs						

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Fenamiphos	Cattle	0.05	0.05	0.05			40 CFR 180.349
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.05	0.05	0.05			
	Sheep	0.05	0.05	0.05			
Eggs							
Fenarimol	Cattle	0.1	0.01	0.05	0.1	0.1	40 CFR 180.421
	Goats	0.1	0.01	0.05		0.1	
	Hogs	0.1	0.01	0.01	0.1	0.1	
	Horses	0.1	0.01	0.05		0.1	
	Poultry	0.01	0.01	0.01		0.1	
	Sheep	0.1	0.01	0.05			
	Eggs	0.01 <sup>Whl</sup>	0.01			0.1	
Fenbuconazole	Cattle	0.01	0.01	0.01			40 CFR 180.480
	Goats	0.01	0.01	0.01			
	Hogs	0.01	0.01	0.01			
	Horses	0.01	0.01	0.01			
	Poultry	0.01	0.01	0.01			
	Sheep	0.01	0.01	0.01			
Eggs							
Fenbutatin Oxide	Cattle	0.5	0.5	0.5			40 CFR 180.362
	Goats	0.5	0.5	0.5			
	Hogs	0.5	0.5	0.5			
	Horses	0.5	0.5	0.5			
	Poultry	0.1	0.1	0.1			
	Sheep	0.5	0.5	0.5			
Eggs	0.1 <sup>Whl</sup>						
Fenoxaprop-ethyl	Cattle	0.05	0.05	0.05			40 CFR 180.430
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.05	0.05	0.05			
	Sheep	0.05	0.05	0.05			
Eggs							

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Fenpropathrin	Cattle	1.0	0.1	0.1			40 CFR 180.466
	Goats	1.0	0.1	0.1			
	Hogs	1.0	0.1	0.1			
	Horses	1.0	0.1	0.1			
	Poultry	0.05	0.05	0.05			
	Sheep	1.0	0.05	0.05			
	Eggs	0.05	0.1	0.1			
Fenridazone-potassium	Cattle	0.05	0.05	0.05	1.0	1.0	40 CFR 180.423
	Goats	0.05	0.05	0.05	1.0	1.0	
	Hogs	0.05	0.05	0.05	1.0	1.0	
	Horses	0.05	0.05	0.05	1.0	1.0	
	Poultry	0.3	0.05	0.05		1.0	
	Sheep	0.05	0.3	0.3	1.0		
	Eggs	0.05	0.05	0.05		1.0	
Fenthion	Cattle						40 CFR 180.214
	Goats	0.1	0.1	0.1			
	Hogs						
	Horses	0.1	0.1	0.1			
	Poultry						
	Sheep						
	Eggs						
Fenvalerate	Cattle	1.5	1.5	1.5			40 CFR 180.379
	Goats	1.5	1.5	1.5			
	Hogs	1.5	1.5	1.5			
	Horses	1.5	1.5	1.5			
	Poultry						
	Sheep	1.5	1.5	1.5			
	Eggs						
Fipronil	Cattle	0.4	0.04	0.04	0.1		40 CFR 180.517
	Goats	0.4	0.04	0.04	0.1		
	Hogs	0.04	0.01	0.01	0.02		
	Horses	0.4	0.04	0.01	0.1		
	Poultry	0.05	0.02	0.04			
	Sheep	0.4	0.04	0.02	0.1		
	Eggs	0.03		0.04			

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Fluazifop-butyl	Cattle	0.05	0.05	0.05			40 CFR 180.411
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.05	0.05	0.05			
	Sheep	0.05	0.05	0.05			
	Eggs	0.05	0.05	0.05			
Flufenacet	Cattle	0.05	0.05	0.1		0.5	40 CFR 180.527
	Goats	0.05	0.05	0.1		0.5	
	Hogs	0.05	0.05	0.1		0.5	
	Horses	0.05	0.05	0.1		0.5	
	Poultry			0.1			
	Sheep	0.05	0.05			0.5	
	Eggs			0.1			
Fluridone	Cattle	0.05	0.05	0.05	0.1	0.1	40 CFR 180.420
	Goats	0.05	0.05	0.05	0.1	0.1	
	Hogs	0.05	0.05	0.05	0.1	0.1	
	Horses	0.05	0.05	0.05	0.1	0.1	
	Poultry	0.05	0.05	0.05	0.1	0.1	
	Sheep	0.05	0.05	0.05	0.1	0.1	
	Eggs	0.05	0.05	0.05			
Fluroxypyr 1-methylheptyl ester	Cattle	0.1	0.1	0.1		1.5	40 CFR 180.535
	Goats	0.1	0.1	0.1		1.5	
	Hogs	0.1	0.1	0.1		1.5	
	Horses	0.1	0.1	0.1		1.5	
	Poultry						
	Sheep	0.1	0.1	0.1		1.5	
	Eggs						
Flutolanil	Cattle	0.1	0.05	0.05	2.00	1.00	40 CFR 180.484
	Goats	0.1	0.05	0.05	2.00	1.00	
	Hogs	0.1	0.05	0.05	2.00	1.00	
	Horses	0.1	0.05	0.05	2.00	1.00	
	Poultry	0.05	0.05	0.05			
	Sheep	0.1	0.05	0.05	2.00	1.00	
	Eggs	0.05	0.05	0.05			

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Fluvalinate	Cattle	0.01	0.01	0.01			40 CFR 180.427
	Goats	0.01	0.01	0.01			
	Hogs	0.01	0.01	0.01			
	Horses	0.01	0.01	0.01			
	Poultry	0.01	0.01	0.01			
	Sheep	0.01	0.01	0.01			
	Eggs	0.01					
Glufosinate – ammonium	Cattle	0.04	0.15	6.0			40 CFR 180.473
	Goats	0.04	0.15	6.0			
	Hogs	0.04	0.15	6.0			
	Horses	0.04	0.15	6.0			
	Poultry	0.15	0.15	6.0			
	Sheep	0.04	0.15	6.0			
	Eggs	0.15 <sup>Whl</sup>					
Glyphosate and its metabolites	Cattle				0.5	4.0	40 CFR 180.364
	Goats				0.5	4.0	
	Hogs				0.5	4.0	
	Horses				0.5	4.0	
	Poultry				0.5	0.5	
	Sheep				0.5	4.0	
	Eggs						
Halosulfuron	Cattle			0.1			40 CFR 180.479
	Goats			0.1			
	Hogs			0.1			
	Horses			0.1			
	Poultry						
	Sheep						
	Eggs				0.1		
HCB	Cattle	0.5 <sup>1</sup>					MPI Dir 917.1
	Goats	0.5 <sup>1</sup>					
	Hogs	0.5 <sup>1</sup>					
	Horses	0.5 <sup>1</sup>					
	Poultry	0.5 <sup>1</sup>					
	Sheep	0.5 <sup>1</sup>					
	Eggs	0.5 <sup>1</sup>					

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Heptachlor & heptachlor epoxide	Cattle	0.2 <sup>1</sup>	0.2 <sup>1</sup>	0.2 <sup>1</sup>			54 FR 33690 MPI Dir 917.1
	Goats	0.2 <sup>1</sup>	0.2 <sup>1</sup>	0.2 <sup>1</sup>			
	Hogs	0.2 <sup>1</sup>	0.2 <sup>1</sup>	0.2 <sup>1</sup>			
	Horses	0.2 <sup>1</sup>	0.2 <sup>1</sup>	0.2 <sup>1</sup>			
	Poultry	0.2 <sup>1</sup>	0.2 <sup>1</sup>	0.2 <sup>1</sup>			
	Sheep	0.2 <sup>1</sup>	0.2 <sup>1</sup>	0.2 <sup>1</sup>			
	Eggs						
Hexazinone	Cattle	0.1	0.1	0.1			40 CFR 180.396
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry		0.1	0.1			
	Sheep	0.1					
	Eggs		0.1	0.1			
Imazalil	Cattle	0.01	0.01	0.01	0.5		40 CFR 180.413
	Goats	0.01	0.01	0.01	0.5		
	Hogs	0.01	0.01	0.01	0.5		
	Horses	0.01	0.01	0.01	0.5		
	Poultry		0.01	0.01			
	Sheep	0.01				0.5	
	Eggs		0.01	0.01			
Imazapyr	Cattle	0.05	0.05	0.05 <sup>4</sup>		0.20	40 CFR 180.500
	Goats	0.05	0.05	0.05 <sup>4</sup>		0.02	
	Hogs						
	Horses	0.05	0.05	0.05 <sup>4</sup>		0.02	
	Poultry						
	Sheep	0.05	0.05	0.05 <sup>4</sup>		0.02	
Eggs							
Imazethapyr	Cattle			0.10			40 CFR 180.447
	Goats			0.10			
	Hogs			0.10			
	Horses			0.10			
	Poultry			0.10			
	Sheep						
Eggs			0.10				

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Imidacloprid	Cattle	0.3	0.3	0.3			40 CFR 180.472
	Goats	0.3	0.3	0.3			
	Hogs	0.3	0.3	0.3			
	Horses	0.3	0.3	0.3			
	Poultry	0.05	0.05	0.05			
	Sheep	0.3	0.3	0.3			
	Eggs	0.02 <sup>Whl</sup>	0.3	0.3			
Indoxacarb	Cattle	1.5	0.05	0.03			40 CFR 180.564
	Goats	1.5	0.05	0.03			
	Hogs	1.5	0.05	0.03			
	Horses	1.5	0.05	0.03			
	Poultry	1.5	0.05	0.03			
	Sheep	1.5	0.05	0.03			
	Eggs	1.5	0.05	0.03			
Iprodione	Cattle	0.5	0.5	0.5	3.0	3.0	40 CFR 180.399
	Goats	0.5	0.5	0.5	3.0	3.0	
	Hogs	0.5	0.5	0.5	3.0	3.0	
	Horses	0.5	0.5	0.5	3.0	3.0	
	Poultry	3.5	1.0	1.0			
	Sheep	0.5	0.5	0.5	3.0	3.0	
	Eggs	1.5 <sup>Whl</sup>					
Isoxaflutole	Cattle	0.2	0.2	0.1	0.5		40 CFR 180.537
	Goats	0.2	0.2	0.1	0.5		
	Hogs	0.2	0.2	0.1	0.5		
	Horses	0.2	0.2	0.1	0.5		
	Poultry	0.2	0.2	0.1	0.3		
	Sheep	0.2	0.2	0.1	0.5		
	Eggs	0.2 <sup>Whl</sup>					
Lambda-cyhalothrin	Cattle	3.0	0.2	0.2			40 CFR 180.438
	Goats	3.0	0.2	0.2			
	Hogs	3.0	0.2	0.2			
	Horses	3.0	0.2	0.2			
	Poultry	0.03	0.01	0.01			
	Sheep	3.0	0.2	0.2			
	Eggs	0.01 <sup>Whl</sup>					

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Lindane (gamma isomer of benzene hexachloride)	Cattle	7	7				40 CFR 180.133 MPI Dir 917.1
	Goats	7	7				
	Hogs	4	4				
	Horses	7	7				
	Poultry	4 <sup>1</sup>					
	Sheep	7	7				
	Eggs						
Linuron	Cattle	1	1	1			40 CFR 180.184
	Goats	1	1	1			
	Hogs	1	1	1			
	Horses	1	1	1			
	Poultry						
	Sheep	1	1	1			
	Eggs						
Malathion	Cattle	4	4	4			40 CFR 180.111
	Goats	4	4	4			
	Hogs	4	4	4			
	Horses	4	4	4			
	Poultry	4	4	4			
	Sheep	4	4	4			
	Eggs	0.1 <sup>Whl</sup>					
Maleic hydrazide	Cattle	3	2.5		7	32	40 CFR 180.175
	Goats	3	2.5		7	32	
	Hogs	3	2.5		7	32	
	Horses	3	2.5		7	32	
	Poultry	0.5	0.5		0.5		
	Sheep	3	2.5	1.4	7	32	
	Eggs	0.5 <sup>Whl</sup>					
Mancozeb	Cattle				0.5	0.5	40 CFR 180.176
	Goats				0.5	0.5	
	Hogs				0.5	0.5	
	Horses				0.5	0.5	
	Poultry				0.5	0.5	
	Sheep				0.5	0.5	
	Eggs				0.5	0.5	

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>	
Mefenpyr-diethyl	Cattle							
	Goats			0.1				
	Hogs			0.1				
	Horses			0.1				
	Poultry							
	Sheep							
Eggs				0.1				
	Mesosulfuron-methyl	Cattle			0.01			40 CFR 180.597
		Goats			0.01			
		Hogs						
		Horses			0.01			
		Poultry						
Sheep								
Eggs				0.01				
	Metalxyl	Cattle	0.4	0.05	0.05	0.4	0.4	40 CFR 180.408
		Goats	0.4	0.05	0.05	0.4	0.4	
		Hogs	0.4	0.05	0.05	0.4	0.4	
		Horses	0.4	0.05	0.05	0.4	0.4	
		Poultry	0.4	0.05	0.05	0.4	0.4	
Sheep		0.4	0.05	0.05	0.4	0.4		
Eggs		0.4	0.05	0.05	0.4	0.4		
	Methoprene	Cattle	1.0	0.1	0.1			40 CFR 180.359
		Goats	1.0	0.1	0.1			
		Hogs	1.0	0.1	0.1			
		Horses	1.0	0.1	0.1			
		Poultry	1.0	0.1	0.1			
Sheep		1.0	0.1	0.1				
Eggs		0.1 <sup>Whl</sup>						
	Methoxychlor	Cattle	3	3				40 CFR 180.120 MPI Dir. 917.1
		Goats	3	3				
		Hogs	3	3				
		Horses	3	3				
		Poultry	3	3				
Sheep		3 <sup>1</sup>						
Eggs		3	3					

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Methoxyfenozide	Cattle	0.1	0.02	0.02	0.1		40 CFR 180.544
	Goats	0.1	0.02	0.02	0.1		
	Hogs	0.1	0.02	0.02	0.1		
	Horses	0.1	0.02	0.02	0.1		
	Poultry	0.1	0.02	0.02	0.1		
	Sheep	0.1	0.02	0.02	0.1		
	Eggs	0.1	0.02	0.02	0.1		
2-Methyl-4-chlorophenoxy-acetic acid [MCPA]	Cattle	0.1	0.1	0.1			40 CFR 180.339
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.1	0.1	0.1			
	Sheep	0.1	0.1	0.1			
	Eggs	0.1	0.1	0.1			
6-Methyl-1,3- dithiolo [4,5-b] quinoxalin-2-one [Oxythioquinox]	Cattle	0.05	0.05	0.05			40CFR 180.338
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.05	0.05	0.05			
	Sheep	0.05	0.05	0.05			
	Eggs	0.05	0.05	0.05			
1-Methylethyl-2-ethoxy-1-methylethyl amino phosphinothiyl -oxy benzoate [Isofenphos]	Cattle	0.1	0.1	0.1			40CFR 180.387
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.1	0.1	0.1			
	Sheep	0.1	0.1	0.1			
	Eggs	0.1	0.1	0.1			
Metolachlor	Cattle	0.02	0.02	0.02	0.05	0.2	40CFR 180.368
	Goats	0.02	0.02	0.02	0.05	0.2	
	Hogs						
	Horses	0.02	0.02	0.02	0.05	0.2	
	Poultry	0.02	0.02	0.02	0.05	0.2	
	Sheep	0.02	0.02	0.02	0.05	0.2	
	Eggs	0.02 <sup>Whl</sup>	0.02	0.02	0.05	0.2	

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Metribuzin	Cattle	0.7	0.7	0.7			40 CFR 180.332
	Goats	0.7	0.7	0.7			
	Hogs	0.7	0.7	0.7			
	Horses	0.7	0.7	0.7			
	Poultry	0.7	0.7	0.7			
	Sheep	0.7	0.7	0.7			
	Eggs	0.01 <sup>Whl</sup>		0.7			
Metsulfuron-methyl	Cattle	0.1	0.1	0.1		0.5	40 CFR 180.428
	Goats	0.1	0.1	0.1		0.5	
	Hogs	0.1	0.1	0.1		0.5	
	Horses	0.1	0.1	0.1		0.5	
	Poultry						
	Sheep	0.1	0.1	0.1			
	Eggs					0.5	
Mirex	Cattle	0.1 <sup>1</sup>	0.1 <sup>1</sup>	0.1 <sup>1</sup>			51 FR45114
	Goats	0.1 <sup>1</sup>	0.1 <sup>1</sup>	0.1 <sup>1</sup>			
	Hogs	0.1 <sup>1</sup>	0.1 <sup>1</sup>	0.1 <sup>1</sup>			
	Horses	0.1 <sup>1</sup>	0.1 <sup>1</sup>	0.1 <sup>1</sup>			
	Poultry	0.1 <sup>1</sup>	0.1 <sup>1</sup>	0.1 <sup>1</sup>			
	Sheep	0.1 <sup>1</sup>	0.1 <sup>1</sup>	0.1 <sup>1</sup>			
	Eggs	0.1 <sup>1</sup>	0.1 <sup>1</sup>	0.1 <sup>1</sup>			
Myclobutanil	Cattle	0.05	0.1	0.2	1.0		40 CFR 180.443
	Goats	0.05	0.1	0.2	1.0		
	Hogs	0.05	0.1	0.2	1.0		
	Horses	0.05	0.1	0.2	1.0		
	Poultry	0.02	0.02	0.02			
	Sheep	0.05	0.1	0.2	1.0		
	Eggs	0.02 <sup>Whl</sup>					
Nicotine	Cattle						40 CFR 180.167
	Goats						
	Hogs						
	Horses						
	Poultry	0	0				
	Sheep			0			
	Eggs	0					

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Nitrapyrin	Cattle	0.05					40 CFR 180.350
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.05	0.05	0.05			
	Sheep		0.05	0.05			
	Eggs						
Norflurazon	Cattle	0.1	0.1	0.1	0.25		40 CFR 180.356
	Goats	0.1	0.1	0.1	0.25		
	Hogs	0.1	0.1	0.1	0.25		
	Horses	0.1	0.1	0.1	0.25		
	Poultry	0.1	0.1	0.1			
	Sheep	0.1	0.1	0.1	0.25		
	Eggs						
Novaluron	Cattle	11	0.60	0.60	1.0	1.0	40 CFR 180.598
	Goats	11	0.60	0.60	1.0	1.0	
	Hogs	0.05	0.01	0.01			
	Horses	11	0.60	0.60	1.0	1.0	
	Poultry	0.40	0.03	0.04			
	Sheep	11	0.06	0.06	1.0	1.0	
	Eggs	0.05					
N-Octyl bicycloheptene dicarboximide	Cattle	0.3					40 CFR 180.367
	Goats	0.3					
	Hogs	0.3					
	Horses	0.3					
	Poultry						
	Sheep	0.3					
	Eggs						
Oxydemeton-methyl	Cattle	0.01	0.01	0.01			40 CFR 180.330
	Goats	0.01	0.01	0.01			
	Hogs	0.01	0.01	0.01			
	Horses	0.01	0.01	0.01			
	Poultry		0.01	0.01			
	Sheep	0.01					
	Eggs		0.01	0.01			

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Oxyfluorfen	Cattle	0.05	0.05	0.05			40 CFR 180.381
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.05	0.05	0.05			
	Sheep	0.05	0.05	0.05			
	Eggs	0.05 <sup>Whl</sup>					
Paraquat dichloride	Cattle	0.05	0.05	0.05		0.3	40 CFR 180.205
	Goats	0.05	0.05	0.05		0.3	
	Hogs	0.05	0.05	0.05		0.3	
	Horses	0.05	0.05	0.05		0.3	
	Poultry						
	Sheep	0.05	0.05	0.05			
	Eggs	0.01 <sup>Whl</sup>				0.3	
Permethrin	Cattle	3.0	0.25	2.0			40 CFR 180.378
	Goats	3.0	0.25	2.0			
	Hogs	3.0	0.25	3.0			
	Horses	3.0	0.25	2.0			
	Poultry	0.15	0.05	0.25			
	Sheep	3.0	0.25	2.0			
	Eggs	1 <sup>Whl</sup>					
Phosmet	Cattle	0.2	0.2	0.2			40 CFR 180.261
	Goats	0.2	0.2	0.2			
	Hogs	0.2	0.2	0.2			
	Horses	0.2	0.2	0.2			
	Poultry						
	Sheep	0.2	0.2	0.2			
	Eggs						
Picloram	Cattle	0.2	0.2	0.2	0.5	5	40 CFR 180.292
	Goats	0.2	0.2	0.2	0.5	5	
	Hogs	0.2	0.2	0.2	0.5	5	
	Horses	0.2	0.2	0.2	0.5	5	
	Poultry	0.05	0.05	0.05			
	Sheep	0.2	0.2	0.2			
	Eggs	0.05 <sup>Whl</sup>			0.5	5	

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Piperonyl butoxide	Cattle	0.1	0.1	0.1			40 CFR 180.127
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	3.0	0.1	0.1			
	Sheep	0.1	3.0	3.0			
	Eggs	1 <sup>Whl</sup>	0.1	0.1			
Pirimiphos-methyl	Cattle	0.2	0.2	0.2	2.0	2.0	40 CFR 180.409
	Goats	0.2	0.2	0.2	2.0	2.0	
	Hogs	0.2	0.2	0.2	2.0	2.0	
	Horses	0.2	0.2	0.2	2.0	2.0	
	Poultry	0.2	2.0	2.0	2.0	2.0	
	Sheep	0.2	0.2	0.2	2.0	2.0	
	Eggs	0.5 <sup>Whl</sup>					
Polyoxyethylene	Cattle		Exempt				40 CFR 180.1078
	Goats		Exempt				
	Hogs		Exempt				
	Horses		Exempt				
	Poultry		Exempt				
	Sheep		Exempt				
	Eggs		Exempt				
Primisulfuron	Cattle	0.1	0.1	0.1			40 CFR 180.452
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.1	0.1	0.1			
	Sheep	0.1	0.1	0.1			
	Eggs	0.1 <sup>Whl</sup>	0.1	0.1			
Profenofos	Cattle	0.05	0.05	0.05			40 CFR 180.404
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry						
	Sheep	0.05	0.05	0.05			
	Eggs						

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Prohexadione calcium	Cattle			0.05		0.1	40 CFR 180.547
	Goats			0.05		0.1	
	Hogs			0.05		0.1	
	Horses			0.05		0.1	
	Poultry						
	Sheep			0.05		0.1	
	Eggs					0.1	
Propamocarb hydrochloride	Cattle	0.1	0.1	0.1			40 CFR 180.499
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry		0.1	0.1			
	Sheep	0.1	0.1	0.1			
	Eggs						
Propargite	Cattle	0.1	0.1	0.1			40 CFR 180.259
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.1	0.1	0.1			
	Sheep	0.1	0.1	0.1			
	Eggs	0.1 <sup>Whl</sup>	0.1	0.1			
Propham	Cattle	0.5	0.5	0.5			40 CFR 180.319
	Goats	0.5	0.5	0.5			
	Hogs	0.5	0.5	0.5			
	Horses	0.5	0.5	0.5			
	Poultry	0.5	0.5	0.5			
	Sheep	0.5	0.5	0.5			
	Eggs	0.5 <sup>Whl</sup>					
Propiconazole	Cattle	0.1	0.1	0.1 <sup>3</sup>	2.0	2.0	40 CFR 180.434
	Goats	0.1	0.1	0.1 <sup>3</sup>	2.0	2.0	
	Hogs	0.1	0.1	0.1 <sup>3</sup>	2.0	2.0	
	Horses	0.1	0.1	0.1 <sup>3</sup>	2.0	2.0	
	Poultry				2.0	2.0	
	Sheep	0.1	0.1	0.1 <sup>3</sup>		2.0	
	Eggs				2.0	2.0	

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Propionic acid	Cattle		Exempt	Exempt			40 CFR 180.1023
	Goats		Exempt	Exempt			
	Hogs		Exempt	Exempt			
	Horses		Exempt	Exempt			
	Poultry		Exempt	Exempt			
	Sheep		Exempt	Exempt			
	Eggs		Exempt	Exempt			
	Eggs		Exempt	Exempt			
Propoxycarbazone-sodium	Cattle		0.05	0.05			40 CFR 180.600
	Goats		0.05	0.05			
	Hogs		0.05	0.05			
	Horses		0.05	0.05			
	Poultry		0.05	0.05			
	Sheep		0.05	0.05			
	Eggs						
	Eggs						
Propyzamide	Cattle	0.02	0.02	0.02 <sup>3</sup>	0.4	0.4	40 CFR 180.317
	Goats	0.02	0.02	0.02 <sup>3</sup>	0.4	0.4	
	Hogs	0.02	0.02	0.02 <sup>3</sup>	0.4	0.4	
	Horses	0.02	0.02	0.02 <sup>3</sup>	0.4	0.4	
	Poultry	0.02	0.02	0.02 <sup>3</sup>	0.2	0.2	
	Sheep	0.02	0.02	0.02 <sup>3</sup>	0.4	0.4	
	Eggs	0.02 <sup>Whl</sup>					
	Eggs						
Pyraclostrobin	Cattle	0.10	0.10	0.20	1.50		40 CFR 180.582
	Goats	0.10	0.10	0.20	1.50		
	Hogs	0.10	0.10	0.20	1.50		
	Horses	0.10	0.10	0.20	1.50		
	Poultry						
	Sheep	0.10	0.10	0.20	1.50		
	Eggs						
	Eggs						
Pyrethrins	Cattle	0.1	0.1	0.1			40 CFR 180.128
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.2	0.2	0.2			
	Sheep	0.1	0.1	0.1			
	Eggs	0.1 <sup>Whl</sup>					
	Eggs						

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Pyridaben	Cattle	0.05	0.05	0.05			40 CFR 180.494
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.05	0.05	0.05			
	Sheep Eggs	0.05	0.05	0.05			
Pyrimethanil	Cattle	0.01	0.01	0.01		0.30	40 CFR 180.518
	Goats	0.01	0.01	0.01		0.30	
	Hogs						
	Horses	0.01	0.01	0.01		0.30	
	Poultry	0.01	0.01	0.01		0.30	
	Sheep Eggs	0.01	0.01	0.01		0.30	
Quinclorac	Cattle	0.7	0.05	1.5			40 CFR 180.463
	Goats	0.7	0.05	1.5			
	Hogs	0.7	0.05	1.5			
	Horses	0.7	0.05	1.5			
	Poultry	0.2	0.05	0.1			
	Sheep Eggs	0.7 0.05 <sup>Whl</sup>	0.05	1.5			
Quizalofop-ethyl	Cattle	0.05	0.02	0.05			40 CFR 180.441
	Goats	0.05	0.02	0.05			
	Hogs	0.05	0.02	0.05			
	Horses	0.05	0.02	0.05			
	Poultry	0.05	0.02	0.05			
	Sheep Eggs	0.05 0.02 <sup>Whl</sup>	0.02	0.05			
Sethoxydim	Cattle	0.2	0.2	1.0			40 CFR 180.412
	Goats	0.2	0.2	1.0			
	Hogs	0.2	0.2	1.0			
	Horses	0.2	0.2	1.0			
	Poultry	0.2	0.2	2.0			
	Sheep Eggs	0.2 2.0 <sup>Whl</sup>	0.2	1.0			

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Simazine	Cattle	0.02	0.02	0.02			40 CFR 180.213
	Goats	0.02	0.02	0.02			
	Hogs	0.02	0.02	0.02			
	Horses	0.02	0.02	0.02			
	Poultry	0.02	0.02	0.02			
	Sheep	0.02	0.02	0.02			
	Eggs	0.02 <sup>Whl</sup>					
Sodium acifluorfen	Cattle				0.02	0.02	40 CFR 180.383
	Goats				0.02	0.02	
	Hogs				0.02	0.02	
	Horses				0.02	0.02	
	Poultry	0.02			0.02	0.02	
	Sheep		0.02	0.02			
	Eggs	0.02 <sup>Whl</sup>			0.02	0.02	
Spinosad	Cattle	3.5	.15	1.0			40 CFR 180.495
	Goats	3.5	.15	1.0			
	Hogs	3.5	.15	1.0			
	Horses	3.5	.15	1.0			
	Poultry	0.2	.02	.02			
	Sheep	3.5	.15	1.0			
	Eggs						
Sulfonium, trimethyl-salt with n-(phosphonomethyl)glycine	Cattle						40 CFR 180.489
	Goats						
	Hogs						
	Horses						
	Poultry						
	Sheep			0.50			
	Eggs						
Sulfosate	Cattle	0.5	1.0	1.5		6.0	40 CFR 180.489
	Goats	0.5	1.0	1.5		6.0	
	Hogs	0.5	1.0	1.5		6.0	
	Horses	0.5	1.0	1.5		6.0	
	Poultry	0.05	1.0	1.5		6.0	
	Sheep	0.5	0.05	0.1			
	Eggs	0.05 <sup>Whl</sup>	1.0	1.5		6.0	

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Tebuconazole	Cattle			0.2			40 CFR 180.474
	Goats			0.2			
	Hogs			0.2			
	Horses			0.2			
	Poultry			0.2			
	Sheep			0.2			
	Eggs						
Tebufenozide	Cattle	0.1	0.08	0.08	1.0	0.02	40 CFR 180.482
	Goats	0.1	0.08	0.08			
	Hogs	0.1	0.08	0.08			
	Horses	0.1	0.08	0.08			
	Poultry	0.1	0.01	0.05			
	Sheep	0.1	0.08	0.08			
	Eggs	0.01 <sup>whl</sup>			1.0	0.02	
Tebuthiuron	Cattle	2	2	2			40 CFR 180.390
	Goats	2	2	2			
	Hogs						
	Horses	2	2	2			
	Poultry						
	Sheep	2	2	2			
	Eggs						
Tepraloxymid	Cattle	0.15	0.20	0.20 <sup>4</sup>	1.0	0.50	40 CFR 180.573
	Goats	0.15	0.20	0.20 <sup>4</sup>		0.50	
	Hogs	0.15	0.20	0.20 <sup>4</sup>		0.50	
	Horses	0.15	0.20	0.20 <sup>4</sup>		0.50	
	Poultry	0.30	0.20	0.20 <sup>5</sup>			
	Sheep	0.15	0.20	0.20 <sup>4</sup>			
	Eggs	0.20 <sup>whl</sup>					
Terbacil	Cattle	0	0	0			40 CFR 180.209
	Goats	0	0	0			
	Hogs	0	0	0			
	Horses	0	0	0			
	Poultry						
	Sheep	0	0	0			
	Eggs						

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Tetrachlorvinphos [Stirofos, Gardona]	Cattle	1.5					40 CFR 180.252
	Goats	0.5					
	Hogs	1.5					
	Horses	0.5					
	Poultry	0.75					
	Sheep	0.5					
	Eggs	0.1 <sup>Whl</sup>					
Tetraconazole	Cattle	0.6	0.03	0.03	6.0	0.2	40 CFR 180.557
	Goats						
	Hogs						
	Horses						
	Poultry						
	Sheep						
	Eggs						
Tetradifon	Cattle		0				40 CFR 180.174
	Goats		0				
	Hogs		0				
	Horses		0				
	Poultry		0				
	Sheep		0				
	Eggs		0				
Thiabendazole	Cattle	0.1	0.1	0.1			40 CFR 180.242
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.1	0.1	0.1			
	Sheep	0.1	0.1	0.1			
	Eggs	0.1 <sup>Whl</sup>					
Thiacloprid	Cattle	0.02	0.03	0.05	0.15	0.05	40 CFR 180.594
	Goats	0.02	0.03	0.05	0.15	0.05	
	Hogs						
	Horses	0.02	0.03	0.05	0.15	0.05	
	Poultry						
	Sheep						
	Eggs	0.02	0.03	0.05	0.15	0.05	

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Thiobencarb	Cattle	0.2	0.2	0.2			40 CFR 180.401
	Goats	0.2	0.2	0.2			
	Hogs	0.2	0.2	0.2			
	Horses	0.2	0.2	0.2			
	Poultry	0.2	0.2	0.2			
	Sheep	0.2	0.2	0.2			
	Eggs	0.2 <sup>Whl</sup>					
Thiophanate-methyl	Cattle	0.1	0.1		2.5	0.2	40 CFR 180.371
	Goats	0.1	0.1	0.1 <sup>3</sup>	2.5	0.2	
	Hogs			0.1 <sup>3</sup>			
	Horses	0.1	0.1		1.0		
	Poultry	0.1	0.1	0.1 <sup>3</sup>	0.2		
	Sheep	0.1	0.1		2.5	0.2	
	Eggs	0.1 <sup>Whl</sup>					
Triadimefon	Cattle	1.0	1.0	1.0			40 CFR 180.410
	Goats	1.0	1.0	1.0			
	Hogs	0.04	0.04	0.04			
	Horses	1.0	1.0	1.0			
	Poultry	0.04	0.04	0.04			
	Sheep	1.0	1.0	1.0			
	Eggs	0.04 <sup>Whl</sup>					
Triadimenol	Cattle	0.1	0.1	0.1			40 CFR 180.450
	Goats	0.1	0.1	0.1			
	Hogs	0.1	0.1	0.1			
	Horses	0.1	0.1	0.1			
	Poultry	0.01	0.01	0.01			
	Sheep	0.1	0.1	0.1			
	Eggs	0.01 <sup>Whl</sup>					
Triasulfuron	Cattle	0.1	0.1	0.1 <sup>4</sup>		0.5	40 CFR 180.459
	Goats	0.1	0.1	0.1 <sup>4</sup>		0.5	
	Hogs	0.1	0.1	0.1 <sup>4</sup>		0.5	
	Horses	0.1	0.1	0.1 <sup>4</sup>		0.5	
	Poultry						
	Sheep	0.1	0.1	0.1 <sup>4</sup>		0.5	
	Eggs						

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
S,S,S-Tributyl phosphorotrithioate	Cattle	0.02	0.02	0.02			40 CFR 180.272
	Goats	0.02	0.02	0.02			
	Hogs						
	Horses						
	Poultry						
	Sheep						
Trichlorfon	Eggs	0.02	0.02	0.02			40 CFR 180.198
	Cattle						
	Goats						
	Hogs						
	Horses	0.1	0.1	0.1			
	Poultry						
Trifloxystrobin	Sheep						40 CFR 180.555
	Eggs						
	Cattle	0.05	0.05	0.05			
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
Triclopyr	Poultry	0.04	0.04	0.04			40 CFR 180.417
	Sheep	0.05	0.05	0.05			
	Eggs	0.04	0.05	0.05			
	Cattle	0.05	0.05	0.05	0.5	0.5	
	Goats	0.05	0.05	0.05	0.5	0.5	
	Hogs	0.05	0.05	0.05	0.5	0.5	
Triflumazole	Horses	0.05	0.05	0.05	0.5	0.5	40 CFR 180.476
	Poultry	0.1	0.1	0.1			
	Sheep	0.05	0.05	0.05	0.5	0.5	
	Eggs	0.05 <sup>whl</sup>	0.05	0.05			
	Cattle	0.5	0.05	0.5			
	Goats	0.5	0.05	0.5			

**Table AIII - Continued**  
**U.S. Residue Limits For Pesticides In Meat, Poultry, and Egg Products**  
**2005 FSIS National Residue Program**

<i>Compound</i>	<i>Production Class</i>	<i>Fat (ppm)</i>	<i>Meat (ppm)</i>	<i>Meat By-product (ppm)</i>	<i>Liver (ppm)</i>	<i>Kidney (ppm)</i>	<i>Reference</i>
Triphenyltin hydroxide	Cattle				0.05	0.05	40 CFR 180.236
	Goats				0.05	0.05	
	Hogs				0.05	0.05	
	Horses				0.05	0.05	
	Poultry					0.05	
	Sheep				0.05	0.05	
Vinclozolin <sup>6</sup>	Cattle	0.05	0.05	0.05			40 CFR 180.380
	Goats	0.05	0.05	0.05			
	Hogs	0.05	0.05	0.05			
	Horses	0.05	0.05	0.05			
	Poultry	0.1	0.1	0.1			
	Sheep	0.05	0.05	0.05			
Eggs	0.05 <sup>Whl</sup>	0.05	0.05				
Zeta-cypermethrin	Cattle	1.0	1.0	0.05			40 CFR 180.418
	Goats	1.0	1.0	0.05			
	Hogs	1.0	1.0	0.05			
	Horses	1.0	1.0	0.05			
	Poultry	0.05	0.05	0.05			
	Sheep	1.0	1.0	0.05			
Eggs	0.05 <sup>Whl</sup>	0.05	0.05				

1. Action level
  2. All tissues of poultry excluding kidney
  3. Excluding liver and kidney
  4. Excluding kidney
  5. Excluding liver
  6. Time limit (11-30-08)
- Whl = Whole eggs

# **Appendix IV**

## **FSIS Laboratory Analytical Methods**

# **FSIS Laboratory Analytical Methods**

The Food Safety and Inspection Service (FSIS) requires analytical methods for detecting, quantifying, and identifying residues that may be present in meat, poultry, and processed egg products. These methods can be used by the Agency for monitoring and surveillance activities to determine whether a product is adulterated and for human risk assessment evaluations. The Agency uses available methodology to take appropriate regulatory action against adulterated products, consistent with the reliability of the analytical data. This section describes the types of methods used by FSIS to conduct analyses.

**Table AIV  
Analytical Methods  
2005 National Residue Program**

Compound Class	Compound	Analytical Method			Minimum Proficiency Level <sup>a</sup>				
		Screen	Determinative (quantitative)	Confirmatory (identification)	Screen	Determinative (quantitative)	Confirmatory (identification)		
Antibiotics	Carbadox		GC-ECD	TBD		15 ppb	TBD		
	Chloramphenicol		GC	GC-MS		0.25 ppb (M)	0.30 ppb (M)		
	Florfenicol		HPLC	GC/SIM-MS		1.9 ppm (L)	1.9 ppm (L)		
Antibiotics : <i>beta</i> -Lactams	Amoxicillin	7-Plate Bioassay	Bioassay			TBD			
	Ampicillin					0.01 ppm			
	Cefazolin					0.02 ppm			
	Cloxacillin					TBD			
	Desacetyl cephalixin					0.1 ppm			
	Desfuoylceftiofur cysteine disulfide (DCCD)					0.05 ppm			
	Dicloxacillin					0.05 ppm			
	Nafcillin								
Penicillin-G					0.05 ppm				
Antibiotics : Tetracyclines	Chlortetracycline	7-Plate Bioassay	Bioassay	HPLC (chemistry)	0.5 ppm	0.08 ppm			
	Oxytetracycline								
	Tetracycline								
Antibiotics: Macrolides	Clindamycin	7-Plate Bioassay		MS			0.1 ppm		
	Erythromycin						Bioassay	0.05 ppm	0.1 ppm
	Lincomycin								0.1 ppm
	Pirlimycin								0.1 ppm
	Tilmicosin						HPLC- Ion Pairing	300 ppb (M) 600 ppb (L,K)	0.1 ppm
	Tylosin						Bioassay	0.2 ppm	0.1 ppm

**Table AIV – continued**  
**Analytical Methods**  
**2005 National Residue Program**

Compound Class	Compound	Analytical Method			Minimum Proficiency Level <sup>a</sup>		
		Screen	Determinative (quantitative)	Confirmatory (identification)	Screen	Determinative (quantitative)	Confirmatory (identification)
Antibiotics: Aminoglycosides	Amikacin	7-Plate Bioassay	Bioassay	MS			1.0 ppm (L,K), 0.4 ppm (M)
	Apramycin						0.4 ppm (K) 0.1 ppm (L,M)
	Dihydrostreptomycin						0.4 ppm (L,K,M)
	Gentamicin						0.1 ppm (K,M), 0.4 (L)
	Hygromycin						1.0 ppm (L,K) 0.4 ppm (M)
	Kanamycin						4.0 ppm(L), 2.0 ppm (K), 0.4 ppm (M)
	Neomycin						0.1ppm (K,M), 0.4 (L)
	Spectinomycin						1.0 ppm (L) 0.4 ppm (K) 0.25 ppm (M)
	Streptomycin						0.4 ppm (L,K,M)
Tobramycin	1.0 ppm (L) 0.1 ppm (K,M)						
Arsenicals	Arsenicals		AA	AA		0.2 ppm	0.2 ppm
Avermectins	Ivermectin		HPLC	HPLC/APCI-MS		7.5 ppb	25 ppb
	Doramectin						
	Moxidectin						
<i>beta</i> -Agonists	Cimaterol	ELISA			6 ppb		
	Clenbuterol	ELISA		LC/MS-MS	3 ppb		TBD
	Ractopamine		HPLC	LC/MS		1 ppb (M), 25 ppb (L)	1 ppb
	Salbutamol	ELISA			3 ppb		
Hormones, synthetic	Diethylstilbesterol (DES)		GC-MS	GC-MS		0.5 ppb	1.0 ppb (L,M)
	Zeranol	ELISA	GC-MS	GC-MS		0.5 ppb	5.0 ppb (L)
	<i>alpha</i> -Trenbolone			GC/MS-MS			5.0 ppb (L)
	<i>beta</i> -Trenbolone			GC/MS-MS			5.0 ppb (M)

**Table AIV – continued**  
**Analytical Methods**  
**2005 National Residue Program**

Compound Class	Compound	Analytical Method			Minimum Proficiency Level <sup>a</sup>		
		Screen	Determinative (quantitative)	Confirmatory (identification)	Screen	Determinative (quantitative)	Confirmatory (identification)
Nonsteroidal Anti-inflammatory Drugs (NSAIDs)	Dipyrone <sup>b</sup>	HPLC	HPLC		0.2 ppm	0.2 ppm	
	Flunixin	ELISA	HPLC	HPLC/ESI-MS-MS	50 ppb	62.5 ppb	125 ppb
	Phenylbutazone	ELISA		HPLC/ESI-MS-MS	50 ppb		50 ppb
Anabolic Steroids	Melengesterol Acetate (MGA)		GC/ECD	HPLC/APCI-MS		10 ppb	12.5 ppb
Sulfonamides	Sulfapyridine		TLC	GC/ESI-MS		0.08 ppm	0.08 ppm
	Sulfadiazine						
	Sulfathiazole						
	Sulfamerazine						
	Sulfamethazine						
	Sulfachloropyridazine						
	Sulfamethoxypryridazine						
	Sulfaquinoxaline						
	Sulfadimethoxine						
	Sulfaethoxypyridazine						
	Sulfaphenazole						
	Sulfatroxazole						
Sulfisoxazole							
Sulfadoxine							
Thyreostats	2-Mercaptobenzimidazole			HPLC/MS-MS			25 ppb
	6-Methyl-2-thiouracil						
	2-Mercapto-1-methylimidazole						
	6-Phenyl-2-thiouracil						

**Table AIV – continued**  
**Analytical Methods**  
**2005 National Residue Program**

<i>Compound Class</i>	<i>Compound</i>	<i>Analytical Method</i>			<i>Minimum Proficiency Level<sup>a</sup></i>		
		<i>Screen</i>	<i>Determinative (quantitative)</i>	<i>Confirmatory (identification)</i>	<i>Screen</i>	<i>Determinative (quantitative)</i>	<i>Confirmatory (identification)</i>
Thyreostats (continued)	6-Propyl-2-thiouracil 2-Thiouracil			HPLC/MS-MS			25 ppb
CHCs/COPs/PCBs	Aldrin		GPC with GC- EC	GC-MS		0.10 ppm	
	<i>alpha</i> -BHC					0.10 ppm	0.01 ppm
	Captan				0.04 ppm		
	Carbophenothion				0.06 ppm		
	Chlorfenvinphos					0.05 ppm	
	Chlorpyrifos					0.10 ppm	
	<i>cis</i> -chlordane					0.30 ppm	
	Coumaphos-O					0.20 ppm	
	Coumaphos-S					0.20 ppm	
	Dieldrin					0.10 ppm	0.01 ppm
	Endosulfan I				0.02 ppm		
	Endosulfan II					0.04 ppm	
	Endrin					0.10 ppm	0.03 ppm
	HCB					0.10 ppm	0.01 ppm
	Heptachlor epoxide					0.10 ppm	0.10 ppm
	Heptachlor					0.10 ppm	0.01 ppm
	Kepone				0.06 ppm		
	Lindane					0.10 ppm	0.01 ppm
Linuron		0.50 ppm					
Methoxychlor			0.50 ppm	0.15 ppm			
Mirex				0.10 ppm			

**Table AIV – continued**  
**Analytical Methods**  
**2005 National Residue Program**

<i>Compound Class</i>	<i>Compound</i>	<i>Analytical Method</i>			<i>Minimum Proficiency Level<sup>a</sup></i>		
		<i>Screen</i>	<i>Determinative (quantitative)</i>	<i>Confirmatory (identification)</i>	<i>Screen</i>	<i>Determinative (quantitative)</i>	<i>Confirmatory (identification)</i>
CHCs/COPs/PCBs (continued)	Nonachlor		GPC with GC-EC	GC-MS		0.15 ppm	
	<i>o,p'</i> -TDE				0.15 ppm		
	Oxychlordane				0.04 ppm	0.1 ppm	
	<i>p,p'</i> -DDE				0.10 ppm	0.02 ppm	
	<i>p,p'</i> -DDT				0.15 ppm	0.04 ppm	
	<i>p,p'</i> -TDE				0.15 ppm	0.04 ppm	
	PCB 1260				0.50 ppm		
	PCB 1254				0.50 ppm		
	PCB 1242				0.50 ppm		
	PCB 1248				0.50 ppm		
	Phosalone				0.02 ppm		
	Ronnel				0.03 ppm		
	Stirofos				0.06 ppm		
	Toxaphene				1.00 ppm		
<i>trans</i> -chlordane		0.30 ppm					

a Minimum Proficiency Level: The lowest amount of individual residue or sample component that FSIS requires its laboratories to reliably detect, quantify, or confirm. This is usually the lowest amount for which the method used by FSIS laboratories has been validated.

b 4-methylaminoantipyrine, 4-formylaminoantipyrine, and 4-aminoantipyrine

**Table AIV – *continued***  
**Analytical Methods**  
**2005 National Residue Program**

Key:

AA = Atomic Absorption Spectroscopy

APCI = Atmospheric Pressure Chemical Ionization

CHCs = Chlorinated hydrocarbons

COPs = Chlorinated organophosphates

ECD = Electron Capture Detection

ELISA = Enzyme Linked Immunosorbent Assay

GC = Gas Chromatography

GPC = Gel Permeation Chromatography

HPLC = high performance liquid chromatography

K = Kidney

L = Liver

M = Muscle

Method detection limit = The lowest quantity of residue (or sample component) that can be reliably observed or found in the sample matrix by the analytical methodology used.

MS = Mass Spectroscopy

NA = not applicable

PCBs = Polychlorinated biphenyls

ppb = parts per billion

ppm = parts per million

SIM = selected ion mode

TBD = To be determined

TLC = Thin Layer Chromatography

# **Appendix V**

## **Statistical Table**

## Statistical Table

Table V, *Statistical Table*, indicates the number of samples required to ensure detection of a violation that affects a given percentage of the sampled population.

Table AV  
Statistical Table  
2005 FSIS National Residue Program

<i>Percentage Violative in Sampled Population</i>	<i>Probability of Detection (Percent)</i>			
	90	95	99	99.9
	<i>Samples Required</i>			
10	22	29	44	66
5	45	59	90	135
1	230	299	459	688
0.5	460	598	919	1,379
0.1	2,302	2,995	4,603	6,905
0.05	4,605	5,990	9,209	13,813