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, Scoring, and Ranking Candidate Veterinary Drugs

The candidate veterinary drugs of concern selected by members of the Surveillance Advisory Team (SAT) are presented below and in *Table 1*. Some drugs are grouped together because they are (or are likely to be) detected by the same analytical methodology. Some drugs listed below are prohibited from extra label use in food animals under the Animal Medicinal Drug Use Clarification Act (AMDUCA) and are high regulatory priorities.

Antibiotics:

- At present, the following antibiotics are quantitated using the 7-plate bioassay[1] 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[2])

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[1] 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.

[2]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

- Clorsulon (classification: anthelmintic)
- Dexamethasone (classification: glucocorticoid)
- Diethylstilbestrol (DES; AMDUCA prohibited synthetic hormone)
- Dipyrone (classification: NSAID[3])
- Eprinomectin (classification: antiparasitic; avermectin)
- Etodolac (classification: NSAID)
- Flunixin (classification: NSAID)
- Halofuginone (classification: antiprotozoal, coccidiostat)
- Hormones, naturally-occurring (17-β estradiol, progesterone, testosterone)
- Lasalocid (classification: coccidiostat)
- Levamisole (classification: anthelmintic)
- Melengestrol acetate (MGA; classification: synthetic hormone)
- Methyl prednisone (classification: glucocorticoid)
- Morantel and pyrantel (classification: anthelmintic)
- Nicarbazin (classification: coccidiostat)
- Nitrofurans (compounds: furazolidone, nitrofurazone; AMDUCA prohibited antimicrobials)
- Nitromidazoles (classification: antiprotozoals; compounds in FSIS MRM: dimetridazole, ipronidazole)
- Phenylbutazone (classification: NSAID)
- Prednisone (classification: glucocorticoid)
- Ractopamine (classification: *beta*-agonist)
- Ronidazole (classification: antimicrobial; copound: nitroimidazole)
- Sulfonamides (classification: antimicrobials, and some are coccidiostats; compounds in FSIS MRM: sulfapyridine, sulfadiazine, sulfathiazole, sulfamerazine, sulfamethazine, sulfachlorpyridazine, sulfadoxine, sulfamethoxypyridazine, sulfaquinoxaline, sulfadimethoxine, sulfisoxazole, sulfacetamide, sulfamethoxazole, sulfamethizole, sulfanilamide, sulfaguanidine, sulfabromomethazine, sulfasalazine, sulfaethoxypyridazine, sulfaphenazole, and sulfatroxazole)
- Sulfanitran (classification: antibacterial, coccidiostat)[4]
- 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.

[3] NSAID = *non*-steroidal anti-inflammatory drug

[4] FSIS, in consultation with FDA, rotated sulfanitran out of the NRP beginning in 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, 2006 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 as shown in *Equation 1*.

Equation 1

Risk = Exposure x Toxicity
= Consumption x Residue Levels x Toxicity
= Consumption x Risk per Unit of Consumption

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 1995-2004); and (b) the maximum, for any class, of the violation rate (again, averaged over 1995-2004), 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.[5] 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.[6] 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 correlate. 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 is 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, *Scatter plot for Violation Rate vs. the Product of Regulatory Concern times Number of Animals Treated*.

Eleven 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 no data are listed in *Table 1*. 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

[5] For a more detailed explanation, refer the *Scoring Key for Veterinary Drugs*.

[6] 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.

predict scores in the category "FSIS Historical Testing Information on Violations" for the 19 compounds for which this information is not available. *Equation 2* was derived from the regression analysis.

Equation 2

$Vp = 8.88 + 0.19 * (R*W)$

Vp = Predicted score for "FSIS Historical Testing Information on Violations"
W = score for "Withdrawal Time
R = Score for "Regulatory Concern"
R*W = Product of R and W.

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 "Number of Animals Treated" 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 0.0.066 and the R^2 value is 0.46, which accounts for 46 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.

Equation 3

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;" and a *modifier for* "Impact on New and Existing Human Disease."

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.

The category, "Lack of FSIS Testing Information on Violations," has been removed from the expression for the 2006 NRP. SAT and other residue experts observed that the scores for the category lacked variability and, therefore, did not result in significant variability in the relative public health concern for a residue.

The categories for acute and chronic toxicity concerns and impact on new and existing human disease introduce 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." 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 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 and reflects the relative public health concern, R, rating for veterinary drugs.

Equation 4

$R = V*((D+3*T)/4)$

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"

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.

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.[7] 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 2006 NRP and to determine which compounds and compound classes to include in the 2006 NRP based on the availability of laboratory resources.

The consensus of FSIS and FDA was that those compounds and compound classes with a ranking of 1-9 and 12-14 (out of a total of 30) represent a potential public health concern sufficient to justify their inclusion in the 2006 NRP. In addition, based on intelligence from the field, FDA expressed an interest in having FSIS perform limited testing on three additional compounds: veterinary tranquilizers (ranked 28$^{th)}$); ractopamine (ranked 26th) and MGA (ranked 24th).

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 2006 NRP for domestic sampling:

- Antibiotics
- Arsenicals
- Avermectins
- *beta*-Agonists[8]
- Berenil
- Chloramphenicol
- Florfenicol
- Flunixin

[7] See footnote 4.

[8]See footnote 2.

- Melengestrol acetate (MGA)
- Nitrofurans
- Nitroimidazoles
- Phenylbutazone (NSAID)
- Phenylbutazone (ELISA)
- Ractopamine
- Sulfonamides
- Thyreostats
- Trenbolone
- Zeranol

In the 2006 NRP, FSIS will employ a number of analytical methodologies to characterize (identitify and quantitate) veterinary drug residues. The methodologies are effective for the analysis of individual compounds and there are also multi residue methods (MRMs) for antibiotics, avermecitns, *beta*-agonists, and sulfonamides that distinguish individual compounds in a compound class.

Table 2B 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 2006 NRP. For each highly ranked compound or compound class that is not included for domestic sampling in the 2006 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 2006 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 Considered for Each Veterinary Drug/Drug Class*. Compound/Production Class pairs included in the 2006 NRP are designated by a "●." Those C/PC pairs that are of regulatory concern, but that could not be included in the 2006 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 "**O**" (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[9] 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 2004 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:

9 An open epiphysis.

Equation 5

Percent Estimated Relative Percent of Domestic Consumption (ERC) = AP/TP x 100
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 shown in *Equation 6*:

Equation 6

Priority Score (PS) = CS x RPC
CS = 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 into two classes of sample numbers. Initially, compound-production class pairs in these classes were assigned sampling numbers of 300 and 230. The cutoff scores for Relative Public Health Concern corresponding to each sampling level were as follows: > 0.91 = 300 samples and < 0.91 = 230 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: high regulatory concern (300 samples per year) and moderate regulatory concern (230 samples/year) 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 300, 230 are 95% and 90%, respectively. The 300 per year sampling level is useful for scheduling production classes with somewhat lower violation rates (which is typically done for larger production classes, since these represent a larger potential consumer exposure).

Minor species, rabbits, ratites, squab, geese, ducks, and bison, will not be scheduled for the domestic scheduled sampling program for the 2006 NRP because the minor species are low production animals. 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 01/01/1995-12/31/2004, 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 01/01/1995-12/31/2004), increase the sampling level by +1 (if 230 were assigned initially, increase to 300 samples).
- If the number of samples tested in the FSIS scheduled sampling plan for a compound-production class pair (for the period 01/01/1995-12/31/2004) 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 (if 230 were assigned initially, increase to 300 samples).
- If at least 300 samples were tested in the FSIS scheduled sampling plan for a compound-production class pair (for the period 01/01/1995-12/31/2004), and a violation rate of greater than or equal to 70% ($\geq$ 0.70%) was found, increase the sampling level by +1 (if 230 were assigned initially, increase to 300 samples).
- If at least 300 samples tested in the FSIS scheduled sampling plan for a compound-production class pair (for the period 01/01/2002-12/31/2004), and a violation rate of 0.00% was found, rotate the C/PC pair out of the NRP.[10]
- The maximum number of samples to be scheduled for testing is 300.

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.

No adjustments for laboratory capacity were made for the 2006 NRP.

10 Compound-production class pairs removed from scheduled sampling will be reintroduced at a later date.

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, the number of scheduled samples was adjusted down by 1 level (if 300 were assigned initially, decrease to 230 samples). The total number of samples will not be reduced below 230. 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 (bison, ducks, rabbits, geese, squab, and ratites) since these minor species are suspended from testing for the 2006 NRP.

Adjustment for a zero (0%) violation rate for the three year period, 2002 – 2004

FSIS historical violation data were examined for the 2002-2004 production years. For compound slaughter class pairs that had a zero percent violation rate for the three year period, the number of scheduled samples has been 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 2006 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 2006 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 heifers, formula-fed veal, non-formula-fed veal, and heavy calves for the 2006 NRP; the analytical capacity for the *beta*-agonists in the 2006 NRP is 990 samples. FSIS will schedule 990 analyses for *beta*-agonists in heifers, formula-fed veal, non-formula-fed veal, and heavy calves for domestic sampling.

- Berenil is of concern in bulls for the 2006 NRP; the analytical capacity for berenil is 240 samples in the 2006 NRP. FSIS will schedule 240 analyses for bulls for domestic sampling.

- Chloramphenicol is of concern in dairy cows, formula-fed veal, young chickens, and young turkeys for the 2006 NRP; the analytical capacity is 1,119 samples for chloramphenicol in the 2006 NRP. FSIS will schedule 1,119 analyses for chloramphenicol for dairy cows, formula-fed veal, young chickens, and young turkeys for domestic and import sampling.

- Florfenicol is of concern in dairy cows and non-formula-fed veal. The analytical capacity is 400 samples for florfenicol for the 2006 NRP. FSIS will schedule 400 analyses for florfenicol in dairy cows and non-formula-fed veal for domestic sampling.

- Flunixin is of concern in bulls, beef cows, dairy cows, and heavy calves. The analytical capacity for flunixin is 1,060 samples in the 2006 NRP. FSIS will schedule 1,060 analyses for bulls, beef cows, dairy cows, and heavy calves 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 for the 2006 NRP.

- Nitrofurans (furazolidone and furaltadone) are of concern in dairy cows, heifers, and formula-fed-veal. The analytical capacity for nitrofurans in the 2006 NRP is 830 samples. FSIS will schedule 830 analyses for nitrofurans in dairy cows, heifers, and formula-fed-veal for domestic sampling in the 2006 NRP.

- Nitroimidazoles (dimetridazole and ipronidazole) are of concern in young turkeys. The analytical capacity for nitroimidazoles in the 2006 NRP is 332 samples. FSIS will schedule 332 analyses for nitroimidazoles for young turkeys in the 2006 NRP

- Phenylbutazone is of concern in bulls, beef cows, dairy cows, heifers, steers, formula-fed veal, non-formula-fed veal, and heavy calves. The analytical capacity for phenylbutazone is 2,190 samples in the 2006 NRP. FSIS will schedule 2,190 analyses for phenylbutazone in bulls, beef cows, dairy cows, heifers, steers, formula-fed veal, non-formula-fed veal, and heavy calves for domestic sampling.

- The *beta*-agonist, ractopamine, is of concern in formula-fed veal and non-formula-fed veal in the 2006 NRP; the analytical capacity for ractopamine for the 2006 NRP is 559 samples. FSIS will schedule 559 analyses for ractopamine in formula-fed veal and non-formula-fed veal for domestic and import sampling.

- Thyreostats are of concern market hogs in the 2006 NRP; the analytical capacity for thyreostats is 531 samples. FSIS will schedule 531 analyses in market hogs for domestic and import sampling.

- Trenbolone is of concern in formula-fed veal and non-formula-fed veal for the 2006 NRP; the analytical capacity for trenbolone is 530 samples in 2006. FSIS will schedule 530 samples in formula-fed veal and non-formula-fed veal for domestic sampling.

- Zeranol is of concern in formula-fed veal for the 2006 NRP; the analytical capacity for zeranol is 399 samples in 2006. FSIS will schedule 399 samples for formula-fed veal for domestic and import sampling.

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 Exploratory Assessments*, Table 50, *Summary, 2005 FSIS NRP, Domestic Scheduled Sampling and Exploratory Assessments*, and in Table 54, *Combined Summary, 2005 FSIS NRP, Domestic and Import Scheduled Sampling, and Exploratory Assessments*.

V. Scoring Key

FSIS Historical Testing Information on Violations (01/01/1995 - 12/31/2004)

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 1995 - 2004, 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.

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
2006 FSIS NRP, Domestic Scheduled Sampling

Compound / Compound Class	*Historical Testing for Violations[1] (V)*	*Regulatory Concern[2] (R)*	*Withdrawal Time[3] (W)*	*Relative Number Treated[4] (N)*	*Predicted V (V = 0.881 + 0.19 (R*W))[5]*	*Impact New & Existing Human Disease[6] (D)*	*Acute or Chronic Toxicity Concerns[7] (T)*	*Relative Public Health Concern Score (P = V*[(D+3*T)/4])*
Antibiotics[8]	4	4	4	4	4.00	3	4	15.00
Carbadox[9]	3	4	4	3	3.00	3	4	11.25
Sulfonamides[10]	4	4	3	4	4.00	3	3	12.00
Florfenicol	Not Tested[11]	3	4	4	3.92	3	3	11.76
Avermectins[12]	4	3	4	4	4.00	2	4	14.00
Arsenicals[13]	2	4	2	4	2.00	3	2	4.50
Flunixin	4	4	2	3	4.00	1	2	7.00
Ractopamine (*beta*-agonist)	1	4	2	3	1.00	2	3	2.75
Thyreostats[14]	Not Tested	4	3	1	3.16	2	4	11.06
Dipyrone[15]	Not Tested	4	3	1	3.16	1	4	10.27
Berenil[16]	Not Tested	4	4	1	3.92	2	3	10.78
Trenbolone[17]	Not Tested	4	1	3	1.64	3	3	4.92
Zeranol[18]	NA-2[19]	4	1	3	1.64	3	3	4.92
Methyl prednisone	Not Tested	4	2	2	2.40	1	3	6.00
Eprinomectin	Not Tested	2	2	3	1.64	2	2	3.28
Clorsulon[20]	Not Tested	2	3	2	2.02	2	2	4.04
Dexamethasone	NA-O[21]	4	2	2	2.40	1	3	6.00
Thiamphenicol	Not Tested	3	2	1	1.26	3	3	3.78
Amprolium[22]	Not Tested	4	2	2	1.64	3	2	3.69
Hormones, endogenous[23]	Not Tested	4	1	4	1.64	2	2	3.28

Table 1 - *continued*
Scoring Table for Veterinary Drugs
2006 FSIS NRP, Domestic Scheduled Sampling

Compound / Compound Class	*Historical Testing for Violations[1] (V)*	*Regulatory Concern[2] (R)*	*Withdrawal Time[3] (W)*	*Relative Number Treated[4] (N)*	*Predicted V (V = 0.881 + 0.19 (R*W))[5]*	*Impact New & Existing Human Disease[6] (D)*	*Acute or Chronic Toxicity Concerns[7] (T)*	*Relative Public Health Concern Score (P = V*[(D+3*T)/4])*
Lasalocid[24]	Not Tested	2	1	3	1.26	3	2	2.84
Melengesterol acetate (MGA)[25]	1	2	1	4	1.26	3	3	3.00
Levamisole[26]	NA-1[27]	3	3	2	2.59	1	1	2.59
Prednisone[28]	Not Tested	3	2	1	2.02	1	3	3.15
Etodolac[29]	Not Tested	3	2	1	2.02	1	3	3.15
Halofuginone[30]	NA-1	1	2	2	1.26	2	2	3.28
Benzimidazoles[31]	Not Tested	1	3	2	1.45	1	2	3.54
Veterinary tranquilizers	Not Tested	4	2	2	2.40	1	1	1.64
Nicarbazin[32]	Not Tested	2	2	1	1.64	2	1	1.58
Morantel and pyrantel[33]	Not Tested	1	1	2	1.07	2	1	1.58

[1] Scores for historical testing information for residue violations, *V*, are provided by USDA's Food Safety Inspection Service (FSIS)
[2] Scores for regulatory concern, *R*, are provided by FDA's Center for Veterinary Medicine (CVM)
[3] Scores for withdrawal time *W*, are provided by FDA's Center for Veterinary Medicine (CVM)
[4] Scores for relative number of animals treated, *N*, are provided by FDA's Center for Veterinary Medicine (CVM)
[5] Equation is derived from linear regression. For an explanation, see the section on *Compound Rankings, Estimating Violation Rates.* Note that the predicted value is used unless *V* is known
[6] Scores for relative number of animals treated, *N*, are provided by FDA's Centers for Disease Control (CDC)
[7] Scores for acute or chronic toxicity concerns, *T*, are provided by FDA's Center for Veterinary Medicine (CVM)
[8] Antibiotics quantitated by the FSIS Bioassay Multi-Residue Method (MRM). 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; 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.
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.

[9] Antimicrobial

[10] Antimicrobials and some are coccidiostats

[11] Not Tested = not scheduled for sampling by FSIS during the 10 year period, 01/01/1995 - 12/31/2004.

[12] Avermectins in the FSIS MRM are doramectin, ivermectin, moxidectin

[13] Detected as As

[14] Includes thiouracil

[15] Non-Steroidal Anti-Inflammatory Drug (NSAID)

[16] Antiprotozoal, histomonas

[17] Xenobiotic hormone

[18] Xenobiotic hormone; FDA increased the score for regulatory concern for zeranol from 3 (2005 NRP) to 4 for the 2006 NRP

[19] NA-2 = Scheduled sampling data have been collected for a single production class and for a limited time period.

[20] Anthelmintic, Trematodes

[21] NA-O = The data are preliminary. No useable data on this compound (i.e., data not subject to any of the various problems listed immediately above) have been collected.

[22] Coccidiostat

[23] FDA increased the score for regulatory concern for naturally occurring hormones from 2 (2005 NRP) to 4 for the 2006 NRP

[24] Coccidiostat

[25] Xenobiotic hormone; FDA decreased the score for regulatory concern for melengersterol acetate (MGA) from 3 (2005 NRP) to 2 for the 2006 NRP

[26] Anthelmintic, Nematodes

[27] NA-1 = Scheduled sampling data have not been collected in the past 3-5 years; therefore, the data are not current enough to be considered reliable for calculating a value for V.

[28] FDA increased the score for regulatory concern for prednisone from 2 (2005 NRP) to 3 for the 2006 NRP

[29] Non-Steroidal Anti-Inflammatory Drug (NSAID)

[30] Antiprotozoal, coccidiostat

[31] Anthelmintics

[32] Coccidiostat

[33] Anthelmintics

Table 2A
Drugs Banned from Extra Label Use Under AMDUCA
2006 FSIS NRP – Domestic Scheduled Sampling

AMDUCA[1] Prohibited Drug	*Status in the 2006 NRP*
Avoparcin	Not in the 2006 NRP.
Chloramphenicol	*Domestic Scheduled Sampling*: 230, 230, 230, 230 samples are scheduled for dairy cows, non-formula-fed veal, young chickens, and young turkeys, respectively.
	Import Scheduled Sampling: Cattle, chickens and turkeys.
beta-Agonists[2]	*Domestic Scheduled Sampling*: 300, 230, 230, 230 samples are scheduled for heifers, formula-fed veal, non-formula-fed veal, and heavy calves, respectively. Confirmation done by FDA-NCTR.[3]
	Import Scheduled Sampling: No samples are scheduled for the 2006 NRP.
Diethylstilbestrol[4]	Not in the 2006 NRP.
Fluoroquinolones[5]	Not in the 2006 NRP.
Nitrofurans[6]	*Domestic Scheduled Sampling*: 300, 300, and 230 samples are scheduled for dairy cows, heifers, and formula-fed veal, respectively.
	Import Scheduled Sampling: No samples are scheduled for the 2006 NRP.
Nitroimidazoles[7]	*Domestic Scheduled Sampling*: 300 samples are scheduled for young turkeys.

Table 2A - *continued*
Drugs Banned from Extra Label Use Under AMDUCA
2006 FSIS NRP – Domestic Scheduled Sampling

AMDUCA[1] Prohibited Drug	*Status in the 2006 NRP*
	Import Scheduled Sampling: Turkeys.
Phenylbutazone[8]	*Domestic Scheduled Sampling*: 300, 300, 300, 300, 300, 230, 230, and 230 samples are scheduled for bulls, beef cows, dairy cows, heifers, steers, formula-fed veal, non-formula-fed veal, and heavy calves, respectively (by ELISA).
	Domestic Scheduled Sampling: 300, 300, 300, 230, 300, 300, 230, 230, 230, and 230 samples are scheduled for beef cows, dairy cows, heifers, non-formula-fed veal, boars and stags, sows, sheep, lambs, goats, and equine, respectively are scheduled as part of the CHC/COP MRM.
	Import Scheduled Sampling: Cattle, pigs, sheep, goats, turkeys, chickens and other fowl are scheduled as part of the CHC/COP MRM.
Ronidazole[9]	Not in the 2006 NRP.
Vancomycin[10]	Not in the 2006 NRP.

[1] 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.
[2] The *beta*-agonist 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.
[3] Food and Drug Administration, National Center for Toxicological Research, Jefferson, AR.
[4] Xenobiotic hormone.
[5] The fluoroquinolones, enrofloxacin and danofloxacin, are approved for use steers and heifers.
[6] Furazolidone and nitrofurazone; antimicrobials.

Table 2A - *continued*
Drugs Banned from Extra Label Use Under AMDUCA
2006 FSIS NRP – Domestic Scheduled Sampling

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[7] Nitroimidazoles in the FSIS multi residue method (MRM) are dimetridazole and ipronidazole; antiprotozoal
[8] The Surveillance Advisory Team (SAT) decided that all cattle classes will be sampled for phenylbutazone (ELISA method) for the 2006 NRP; non-Steroidal Anti-inflammatory Drug (NSAID).
[9] Antimicrobial.
[10] Glycopeptide.

Table 2B
Rank and Status of Veterinary Drugs
2006 NRP, Domestic Scheduled Sampling

Rank	*Drug*	*Score*	*Status in the 2006 NRP*
1	Antibiotics[1]	15.0	*Domestic Scheduled Sampling*: 300, 300, 300, 230, 300, 230, 230, 230, 300, 300, 90, 300, 300 samples are scheduled for beef cows, dairy cows, heifers, bob veal, formula-fed veal, non-formula-fed veal, heavy calves, roaster pigs, boars and stags, sows, equine, young chickens, and young turkeys[2], respectively. *Import Scheduled Sampling*: Cattle, pigs, chickens, turkeys and other fowl.
2	Avermectins[3]	14.0	*Domestic Scheduled Sampling*: 300, 300, 300, 230, 230, 300, 230, 230, and 90 samples are scheduled for steers, heifers, bulls, heavy calves, non-formula-fed veal, sheep, lambs, goats, and equine, respectively. *Import Scheduled Sampling*: Cattle, sheep and goats.
3	Sulfonamides[4]	12.0	*Domestic Scheduled Sampling*: 300, 300, 300, 300, 300, 230, 230, 300, 300, 230, and 230 samples are scheduled for market hogs, steers, dairy cows, beef cows, bulls, formula-fed veal, mature turkeys, bob veal, roaster pigs, non-formula-fed veal, and heavy calves, respectively. *Import Scheduled Sampling*: Cattle, pigs, sheep, goats, turkeys, chickens and other fowl.
4	Florfenicol[5]	11.8	*Domestic Scheduled Sampling*: 300 and 100 samples are scheduled for dairy cows and non-formula-fed veal, respectively. *Import Scheduled Sampling*: No samples are scheduled for the 2006 NRP.

Table 2B - *continued*
Rank and Status of Veterinary Drugs
2006 NRP, Domestic Scheduled Sampling

Rank	*Drug*	*Score*	*Status in the 2006 NRP*
5	Carbadox[6]	11.3	*Domestic Scheduled Sampling*: No samples are scheduled for the 2006 NRP
			Exploratory Assessment: No samples are scheduled for the 2006 NRP
			Import Scheduled Sampling: No samples are scheduled for the 2006 NRP
6	Thyreostats[7]	11.1	*Domestic Scheduled Sampling*: 300 samples are scheduled for market hogs.
			Exploratory Assessment: No samples are scheduled for the 2006 NRP
			Import Scheduled Sampling: Pigs
7	Berenil[8]	10.8	*Domestic Scheduled Sampling*: Scheduled as an exploratory assessment
			Exploratory Assessment: 240 samples are scheduled for bulls
			Import Scheduled Sampling: No samples are scheduled for the 2006 NRP.

Table 2B - *continued*
Rank and Status of Veterinary Drugs
2006 NRP, Domestic Scheduled Sampling

Rank	*Drug*	*Score*	*Status in the 2006 NRP*
8	Dipyrone[9]	10.3	*Domestic Scheduled Sampling*: No samples are scheduled for the 2006 NRP
			Import Scheduled Sampling: No samples are scheduled for the 2006 NRP
9	Flunixin[10]	7.0	*Domestic Scheduled Sampling*: 230, 300, 300, and 230 samples are scheduled for bulls, beef cows, dairy cows, and heavy calves, respectively.
			Import Scheduled Sampling: No samples are scheduled for the 2006 NRP.
10	Methyl prednisone[11]	6.0	Not in the 2006 NRP.
11	Dexamethasone[12]	6.0	Not in the 2006 NRP.
12	Trenbolone	4.9	*Domestic Scheduled Sampling*: 300 and 230 samples are scheduled for formula-fed veal and non-formula-fed veal, respectively.
			Import Scheduled Sampling: No samples are scheduled for the 2006 NRP.

Table 2B - *continued*
Rank and Status of Veterinary Drugs
2006 NRP, Domestic Scheduled Sampling

Rank	*Drug*	*Score*	*Status in the 2006 NRP*
13	Zeranol[13]	4.9	*Domestic Scheduled Sampling*: 300 samples are scheduled for formula-fed veal. *Import Scheduled Sampling*: No samples are scheduled for the 2006 NRP.
14	Arsenicals[14]	4.5	*Domestic Scheduled Sampling*: 300 samples each are scheduled for market hogs and young chickens[15] *Import Scheduled Sampling*: Pigs, goats, turkeys, and chickens.
15	Clorsulon[16]	4.0	Not in the 2006 NRP.
16	Thiamphenicol[17]	3.8	Not in the 2006 NRP.
17	Amprolium[18]	3.7	Not in the 2006 NRP.
18	Benzimidazoles in the FSIS MRM[19]	3.5	Not in the 2006 NRP.

Table 2B - *continued*
Rank and Status of Veterinary Drugs
2006 NRP, Domestic Scheduled Sampling

Rank	*Drug*	*Score*	*Status in the 2006 NRP*
19	Hormones, naturally-occurring[20]	3.3	Not in the 2006 NRP.
20	Halofuginone[21]	3.3	Not in the 2006 NRP.
21	Eprinomectin	3.3	Not in the 2006 NRP.
22	Prednisone[22]	3.2	Not in the 2006 NRP.
23	Etodolac[23]	3.2	Not in the 2006 NRP.
24	Melengesterol acetate[24] (MGA)	3.0	*Domestic Scheduled Sampling*: 300 samples are scheduled for heifers. *Import Scheduled Sampling*: No samples are scheduled for the 2006 NRP.
25	Lasalocid[25]	2.8	Not in the 2006 NRP.

Table 2B - *continued*
Rank and Status of Veterinary Drugs
2006 NRP, Domestic Scheduled Sampling

Rank	*Drug*	*Score*	*Status in the 2006 NRP*
26	Ractopamine[26]	2.8	*Domestic Scheduled Sampling*: 230 samples each are scheduled for formula-fed veal and non-formula-fed veal. *Import Scheduled Sampling*: Cattle (veal).
27	Levamisole[27]	2.6	Not in the 2006 NRP.
28	Veterinary tranquilizers[28]	1.6	Not in the 2006 NRP.
29	Nicarbazin[29]	1.6	Not in the 2006 NRP.
30	Morantel and pyrantel	1.6	Not in the 2006 NRP.

[1] 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.
[2] Young chickens and young turkeys have a 0% violation rate for antibiotics for the 3 year period (2001-2003). These production classes were rotated back into the scheduled sampling program for 2006 based on the expert opinion of the Surveillance Advisory Team (SAT).
[3] Doramectin, ivermectin, and moxidectin; Antiparasitic.

Table 2B - *continued*
Rank and Status of Veterinary Drugs
2006 NRP, Domestic Scheduled Sampling

[4] Sulfonamides in the FSIS multi-residue method (MRM): Sulfapyridine, sulfadiazine, sulfathiazole, sulfamerazine, sulfamethazine, sulfachloropyridazine, sulfadoxine, sulfamethoxypyridazine, sulfaquinoxaline, sulfadimethoxine, sulfisoxazole, sulfacetamide, sulfamethoxazole, sulfamethizole, sulfanilamide, sulfaguanidine, sulfabromomethazine, sulfasalazine, sulfaethoxypyridazine, sulfaphenazole, and sulfatroxazole; Antimicrobials, some are coccidiostats; FDA has not set a tolerance for the following sulfonamides: sulfapyridine, sulfadiazine, sulfadoxine, sulfamethoxypyridazine, sulfisoxazole, sulfacetamide, sulfamethoxazole, sulfamethizole, sulfanilamide, sulfaguanidine, sulfasalazine, sulfaphenazole, and sulfatroxazole.
[5] Chloramphenicol derivative.
[6] Antimicrobial.
[7] Includes thiouracil.
[8] Antiprotozoal.
[9] Non-Steroidal Anti-Inflammatory Drug (NSAID).
[10] Non-Steroidal Anti-Inflammatory Drug (NSAID).
[11] Glucocorticoid.
[12] Glucocorticoid.
[13] Xenobiotic hormone
[14] Detected as As
[15] Beef cows, market hogs, roaster pigs, boars and stags, sows, mature chickens, and mature turkeys have a 0% violation rate for arsenic for the 3 year period (2001-2003). These production classes were rotated back into the scheduled sampling program for 2006 based on the expert opinion of the Surveillance Advisory Team (SAT).
[16] Anthelmintic, Trematodes
[17] Chloramphenicol derivative
[18] Coccidiostat
[19] Benzimidazoles in the FSIS multi-residue method (MRM) (thiabendazole and its 5-hydroxythiabendazole metabolite, albendazole 2-animosulfone metabolite, benomyl in the active hydrolyzed form carbendazim, oxfendazole, mebendazole, cambendazole, and fenbendazole); Anthelmintic
[20] 17-Estradiol, testosterone, and progesterone
[21] Antiprotozoal, coccidiostat
[22] Glucocorticoid
[23] Non-Steroidal Anti-Inflammatory Drug (NSAID).
[24] Xenobiotic hormone
[25] Coccidiostat
[26] *beta*-Agonist
[27] Anthelmintic
[28] Azaperone and its metabolite azaperol, xylazine, haloperidol, acetopromazine, propionylpromazine, and chlorpromazine
[29] Coccidiostat

Table 3A
Production Classes Considered for each Veterinary Drug and Drug Class
2006 FSIS NRP, Domestic Scheduled Sampling

ERC[1]	*Production Class*	*AMDUCA Drugs*[2]						
		beta-Agonists [3]	*Chloramphenicol*	*Fluoroquinolones*	*Nitrofurans*	*Nitroimidazoles*	*Phenylbutazone (ELISA method)*	*Phenylbutazone (CHC method)*
0.03	Equine							●
0.52	Bulls						●	
3.16	Beef cows						●	●
1.39	Dairy cows		●	○	●		●	●
7.36	Heifers	●		○	●		●	●
12.5	Steers			○			●	
0.02	Bob veal		○					
0.12	Formula-fed veal	●	○		●		●	
0.01	non-Formula-fed veal	●	●				●	●
0.02	Heavy calves	●					●	
0.01	Bison							
0.01	Sheep							●
0.17	Lambs							●
0.03	Goats							●
18.44	Market hogs	○						
0.03	Roaster pigs							
0.07	Boars/Stags							●
1.03	Sows							●
44.87	Young chickens		●					
0.8	Mature chickens							
6.7	Young turkeys		●			●		
0.08	Mature turkeys							
0.17	Ducks							
< 0.01	Geese							
> 0.01	Squab							
< 0.01	Ratites							
< 0.01	Rabbits							
2.35	Egg products							⊙

● = Compound/Production Class Pairs included in the 2006 NRP.
○ = Compound/Production Class Pairs that are of regulatory concern, but are not included in the 2006 NRP because of laboratory resource constraints.

Table 3A
Production Classes Considered for each Veterinary Drug and Drug Class
2006 FSIS NRP, Domestic Scheduled Sampling

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[1] ERC = Estimated relative percent of domestic consumption, calendar year 2004. 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).
[2] AMDUCA drugs are considered high priority in the NRP; for this reason, they do not receive a ranking score.
[3] The *beta*-agonist 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 3B
Production Classes Considered for each Veterinary Drug and Drug Class
2006 FSIS NRP, Domestic Scheduled Sampling

ERC[i]	*Production Class*	*Veterinary Drug and Priority Rating*						
		Antibiotics	*Arsenicals*	*Avermectins*	*Berenil*	*Carbadox*	*Dipyrone*	*Florfenicol*
		15.0	4.5	14.0	10.8	11.3	10.3	11.8
0.03	Equine	●		●				
0.52	Bulls	■		●	●			
3.16	Beef cows	●		■				
1.39	Dairy cows	●		■			○	●
7.36	Heifers	●		●				
12.50	Steers	■		●				
0.02	Bob veal	●		■				
0.12	Formula-fed veal	●		■				○
0.01	non-Formula-fed veal	●		●				●
0.02	Heavy calves	●		●				
0.01	Bison	■		■				
0.01	Sheep	■		●				
0.17	Lambs	■		●				
0.03	Goats	■		●				
18.44	Market hogs	■	●	■		○		
0.03	Roaster pigs	●		■		○		
0.07	Boars/Stags	●		■				
1.03	Sows	●		■				
44.87	Young chickens	●	●					
0.79	Mature chickens	■						
6.70	Young turkeys	●						
0.08	Mature turkeys	■						
0.17	Ducks	■						
<0.01	Geese	■						
>0.01	Squab	■						
<0.01	Ratites	■		■				
<0.01	Rabbits	■						
2.35	Egg products	○						

● = Compound/Production Class Pairs included in the 2006 NRP.
■ = Compound/Production Class Pairs that have been suspended from testing by FSIS in the 2006 NRP.
○ = Compound/Production Class Pairs that are of regulatory concern, but are not included in the 2006 NRP because of laboratory resource constraints.

Table 3B
Production Classes Considered for each Veterinary Drug and Drug Class
2006 FSIS NRP, Domestic Scheduled Sampling

ERC	*Production Class*	*Veterinary Drug and Priority Rating*						
		Flunixin	*Melengestrol Acetate (MGA)*	*Ractopamine*	*Sulfonamides*	*Thyreostats*	*Trenbolone*	*Zeranol*
		7.0	3.0	2.8	12.0	11.1	4.9	4.9
0.03	Equine				■			
0.52	Bulls	●			●			
3.16	Beef cows	●			●			
1.39	Dairy cows	●			●			
7.36	Heifers		●	○	■	○		
12.50	Steers		○	○	●	○		
0.02	Bob veal				●			
0.12	Formula-fed veal		○	●	●		●	●
0.01	non-Formula-fed veal		○	●	●		●	○
0.02	Heavy calves	●			●		○	○
0.01	Bison				■			
0.01	Sheep				■			
0.17	Lambs				■			
0.03	Goats				■			
18.44	Market hogs			○	●	●		
0.03	Roaster pigs			○	●			
0.07	Boars/Stags				■			
1.03	Sows				■			
44.87	Young chickens				■			
0.79	Mature chickens				■			
6.70	Young turkeys			○	■			
0.08	Mature turkeys				●			
0.17	Ducks				■			
<0.01	Geese				■			
>0.01	Squab				■			
<0.01	Ratites				■			
<0.01	Rabbits				■			
2.35	Egg products				■			

● = Compound/Production Class Pairs included in the 2006 NRP.
■ = Compound/Production Class Pairs that have been suspended from testing by FSIS in the 2006 NRP.
○ = Compound/Production Class Pairs that are of regulatory concern, but are not included in the 2006 NRP because of laboratory resource constraints.

Table 3B
Production Classes Considered for each Veterinary Drug and Drug Class
2006 FSIS NRP, Domestic Scheduled Sampling

[i] ERC = Estimated relative percent of domestic consumption, calendar year 2004. 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).

Table 4
Estimated Relative Consumption, Domestically Produced Meat, Poultry, and Egg Products
2006 FSIS NRP, Domestic Scheduled Sampling Plan

2004 Animal and Egg Production Data[1] *Cattle*				
Production Class	Number of Head Slaughtered[2]	Pounds per Animal (dressed weight)	Total Pounds (dressed weight)	Percent Estimated Relative Consumption
Bulls	579,294	893	517,309,542	0.516
Beef cows	5,213,832	607	3,164,796,024	3.155
Dairy cows	2,363,000	590	1,394,170,000	1.390
Heifers	10,069,695	733	7,381,086,435	7.359
Steers	15,652,526	801	12,537,673,326	12.501
Bob veal	299,623	75	22,471,725	0.022
Formula-fed veal	497,228	245	121,820,860	0.121
non-Formula-fed veal	32,760	350	11,466,000	0.011
Heavy calves	46,721	400	18,688,400	0.019
Subtotal	**34,754,679**		**25,169,482,312**	**25.095**

2004 Animal and Egg Production Data *Swine*				
Production Class	Number of Head Slaughtered	Pounds per Animal (dressed weight)	Total Pounds (dressed weight)	Percent Estimated Relative Consumption
Market hogs	94,816,009	195	18,489,121,755	18.435
Roaster pigs	389,006	70	27,230,420	0.027
Boars/Stags	308,886	228	70,426,008	0.070
Sows	3,291,364	314	1,033,488,296	1.030
Subtotal	**98,805,265**		**19,620,266,479**	**19.562**

Table 4
Estimated Relative Consumption, Domestically Produced Meat, Poultry, and Egg Products
2006 FSIS NRP, Domestic Scheduled Sampling Plan

2004 Animal and Egg Production Data

Ovine

Production Class	Number of Head Slaughtered	Pounds per Animal (dressed weight)	Total Pounds (dressed weight)	Percent Estimated Relative Consumption
Sheep	145,346	66	9,592,836	0.010
Goats	582,337	50	29,116,850	0.029
Lambs	2,533,589	69	174,817,641	0.174
Subtotal	**3,261,272**		**213,527,327**	**0.213**

2004 Animal and Egg Production Data

Equine

Production Class	Number of Head Slaughtered	Pounds per Animal (dressed weight)	Total Pounds (dressed weight)	Percent Estimated Relative Consumption
Equine	58,736	500	29,368,000	0.029
Subtotal	**58,736**		**29,368,000**	**0.029**

2004 Animal and Egg Production Data

Bison

Production Class	Number of Head Slaughtered	Pounds per Animal (dressed weight)	Total Pounds (dressed weight)	Percent Estimated Relative Consumption
Bison	19,218	610	11,722,980	0.012
Subtotal	**19,218**		**11,722,980**	**0.012**

Table 4
Estimated Relative Consumption, Domestically Produced Meat, Poultry, and Egg Products
2006 FSIS NRP, Domestic Scheduled Sampling Plan

2004 Animal and Egg Production Data *Poultry*				
Production Class	Number of Head Slaughtered	Pounds per Animal (dressed weight)	Total Pounds (dressed weight)	Percent Estimated Relative Consumption
Young chickens	8,562,564,251		44,997,441,652	44.865
Mature chickens	140,247,682		797,014,728	0.795
Young turkeys	251,544,359		6,720,913,003	6.701
Mature turkeys	2,987,269		75,021,422	0.075
Ducks	25,183,681		168,624,661	0.168
Geese	253,352		3,408,189	0.003
Other fowl (include ratites)	1,374,886		2,554,560	0.003
Subtotal	**8,984,155,480**		**52,764,978,215**	**52.6092**

2004 Animal and Egg Production Data *Rabbits*				
Production Class	Number of Head Slaughtered	Pounds per Animal (dressed weight)	Total Pounds (dressed weight)	Percent Estimated Relative Consumption
Rabbits	323,161		1,633,317	0.002
Subtotal	**323,161**		**1,633,317**	**0.002**

Table 4
Estimated Relative Consumption, Domestically Produced Meat, Poultry, and Egg Products
2006 FSIS NRP, Domestic Scheduled Sampling Plan

2004 Animal and Egg Production Data *Egg Products*				
Production Class	Number of Head Slaughtered	Pounds per Animal (dressed weight)	Total Pounds (dressed weight)	Percent Estimated Relative Consumption
Egg products			2,485,118,000	2.478
Subtotal			**2,485,118,000**	**2.478**

2004 Animal and Egg Production Data *Totals for All Production Classes*				
Production Class	Number of Head Slaughtered	Pounds per Animal (dressed weight)	Total Pounds (dressed weight)	Percent Estimated Relative Consumption
Cattle	34,754,679		25,169,482,312	25.095
Swine	98,805,265		19,620,266,479	19.562
Ovine	3,261,272		213,527,327	0.213
Equine	58,736		29,368,000	0.029
Bison	19,218		11,722,980	0.012
Poultry	8,984,155,480		52,764,978,215	52.6092
Rabbits	323,161		1,633,317	0.002
Egg Products			2,485,118,000	2.478
Total			**100,296,096,630**	**100**

Table 4
Estimated Relative Consumption, Domestically Produced Meat, Poultry, and Egg Products
2006 FSIS NRP, Domestic Scheduled Sampling Plan

[1] 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 2004 (CY '04), with the exception of the numbers for veal and calves, which were obtained from the FSIS Automated Data Reporting System (ADRS).
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 domestic products consumed domestically and products that are exported).*

[2] For livestock, NASS does not provide figures for total pounds dressed weight. Therefore, CY '04 NASS figures for number of head slaughtered were multiplied by CY '04 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.
For poultry, rabbits, and egg products the figures for total pounds dressed weight, CY '04, were available from NASS, and it was therefore not necessary to calculate them from the number of head slaughtered.

Table 5
Veterinary Drug Compound/Production Class Pairs,
Sorted by Sampling Priority Score
2006 FSIS NRP, Domestic Scheduled Sampling Plan

Veterinary Drug or Drug Class	*Compound Priority Rating (P)*	*Production Class*	*Relative Percent Consumption in 2004 (C)*	***Sampling Priority Score (P * C)***	*Unadjusted Number of Samples*
Antibiotic	15.0	Young chickens	44.87	**672.975**	300
Sulfonamides	12.0	Market hogs	18.435	**221.220**	300
Thyreostats	11.1	Market hogs	18.435	**203.891**	300
Arsenicals	4.5	Young chickens	44.87	**201.893**	300
Avermectins	14	Steers	12.50	**175.014**	300
Sulfonamides	12.0	Steers	12.501	**150.012**	300
Antibiotic	15.0	Heifers	7.36	**110.385**	300
Avermectins	14	Heifers	7.36	**103.026**	300
Antibiotic	15.0	Young turkeys	6.70	**100.515**	300
Arsenicals	4.5	Market hogs	18.44	**82.958**	300
Antibiotic	15.0	Beef cows	3.16	**47.325**	300
Sulfonamides	12.0	Beef cows	3.155	**37.860**	300
Flunixin	7.0	Beef cows	3.16	**22.085**	300
MGA	3.0	Heifers	7.359	**22.077**	300
Antibiotic	15.0	Dairy cows	1.39	**20.850**	300
Sulfonamides	12.0	Dairy cows	1.390	**16.680**	300
Florfenicol	11.8	Dairy cows	1.39	**16.346**	300
Antibiotic	15.0	Sows	1.03	**15.450**	300
Flunixin	7.0	Dairy cows	1.39	**9.730**	300
Avermectins	14.0	Bulls	0.52	**7.224**	300
Sulfonamides	12.0	Bulls	0.516	**6.192**	300
Berinil	10.8	Bulls	0.52	**5.562**	300
Flunixin	7.0	Bulls	0.52	**3.612**	300
Avermectins	14.0	Lambs	0.17	**2.436**	300
Antibiotic	15.0	Formula-fed veal	0.12	**1.815**	300
Sulfonamides	12.0	Formula-fed veal	0.121	**1.452**	300

Table 5
Veterinary Drug Compound/Production Class Pairs,
Sorted by Sampling Priority Score
2006 FSIS NRP, Domestic Scheduled Sampling Plan

Veterinary Drug or Drug Class	*Compound Priority Rating (P)*	*Production Class*	*Relative Percent Consumption in 2004 (C)*	***Sampling Priority Score (P * C)***	*Unadjusted Number of Samples*
Antibiotic	15.0	Boars/Stags	0.07	**1.050**	300
Sulfonamides	12.0	Mature turkeys	0.075	**0.900**	230
Trenbolone	4.9	Formula-fed veal	0.121	**0.595**	230
Zeranol	4.9	Formula-fed veal	0.121	**0.595**	230
Antibiotic	15.0	Equine	0.03	**0.435**	230
Avermectins	14.0	Goats	0.03	**0.406**	230
Avermectins	14.0	Equine	0.03	**0.406**	230
Antibiotic	15.0	Roaster pigs	0.03	**0.405**	230
Ractopamine	2.8	Formula-fed veal	0.121	**0.333**	230
Antibiotic	15.0	Bob veal	0.02	**0.330**	230
Sulfonamides	12.0	Roaster pigs	0.027	**0.324**	230
Antibiotic	15.0	Heavy calves	0.02	**0.285**	230
Avermectins	14.0	Heavy calves	0.02	**0.266**	230
Sulfonamides	12.0	Bob veal	0.022	**0.264**	230
Sulfonamides	12.0	Heavy calves	0.019	**0.228**	230
Antibiotic	15.0	non-Formula-fed veal	0.01	**0.165**	230
Avermectins	14.0	non-Formula-fed veal	0.01	**0.154**	230
Avermectins	14.0	Sheep	0.01	**0.140**	230
Flunixin	7.0	Heavy calves	0.02	**0.133**	230
Sulfonamides	12.0	non-Formula-fed veal	0.011	**0.132**	230
Florfenicol	11.8	non-Formula-fed veal	0.01	**0.129**	230
Trenbolone	4.9	non-Formula-fed veal	0.011	**0.054**	230
Ractopamine	2.8	non-Formula-fed veal	0.011	**0.030**	230

Table 6A
Number of Scheduled Samples for Veterinary Drug/Production Class Pairs
2006 NRP, Domestic Scheduled Sampling

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Antibiotics	Young chickens	672.975	4,117	0.05	0.09	300	300	300	300	300	300
Antibiotics	Market hogs	276.525	5,359	0.19	0.00	300	0	0	0	0	0
Antibiotics	Steers	187.515	3,545	0.03	0.00	300	0	0	0	0	0
Antibiotics	Heifers	110.385	3,751	0.08	0.08	300	300	300	300	300	300
Antibiotics	Young turkeys	100.515	3,757	0.05	0.00	300	0	0	0	0	300
Antibiotics	Beef cows	47.325	3,809	0.11	0.83	300	300	300	300	300	300
Antibiotics	Egg products	37.170	NT	NT	NT	0	0	0	0	0	0
Antibiotics	Dairy cows	20.850	4,993	0.54	0.83	300	300	300	300	300	300
Antibiotics	Sows	15.450	3,706	0.46	0.36	300	300	300	300	300	300
Antibiotics	Mature chickens	11.925	2,639	0.04	0.00	300	0	0	0	0	0
Antibiotics	Bulls	7.740	2,190	0.00	0.00	300	0	0	0	0	0
Antibiotics	Lambs	2.610	3,701	0.05	0.00	300	0	0	0	0	0
Antibiotics	Ducks	2.520	3,426	0.06	0.00	300	0	0	0	0	0
Antibiotics	Formula-fed veal	1.815	4,951	0.67	1.05	300	300	300	300	0	300
Antibiotics	Mature turkeys	1.125	1,561	0.00	0.00	300	0	0	0	0	0
Antibiotics	Boars/Stags	1.050	2,709	0.22	0.14	300	300	300	300	300	300
Antibiotics	Equine	0.435	2,711	5.98	0.82	230	230	230	230	230	90
Antibiotics	Goats	0.435	2,421	0.08	0.00	230	0	0	0	0	0
Antibiotics	Roaster pigs	0.405	626	1.12	0.43	230	230	230	230	230	230
Antibiotics	Bob veal	0.330	4,057	1.95	4.02	230	230	230	230	0	230
Antibiotics	Heavy calves	0.285	2,644	0.53	0.88	230	230	230	230	230	230
Antibiotics	Bison	0.180	62	0.00	0.00	230	0	0	0	0	0
Antibiotics	non-Formula-fed veal	0.165	2,070	1.06	3.75	230	230	230	230	230	230
Antibiotics	Sheep	0.150	2,146	0.00	0.00	230	0	0	0	0	0
Antibiotics	Squab	0.150	77	0.00	0.00	230	0	0	0	0	0
Antibiotics	Geese	0.045	408	0.00	0.00	230	0	0	0	0	0
Antibiotics	Ratites	0.045	181	0.00	0.00	230	0	0	0	0	0
Antibiotics	Rabbits	0.030	1,316	3.19	2.07	230	--	0	0	0	0
Totals			**48,595**			**7,260**	**3,250**	**3,250**	**3,250**	**2,720**	**3,410**

Table 6A
Number of Scheduled Samples for Veterinary Drug/Production Class Pairs
2006 NRP, Domestic Scheduled Sampling

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Avermectins	Market hogs	258.090	2,494	0.00	0.00	300	0	0	0	0	0
Avermectins	Steers	175.014	3,637	0.00	0.00	300	0	0	0	0	300
Avermectins	Heifers	103.026	2,562	0.00	0.00	300	0	0	0	0	300
Avermectins	Beef cows	44.170	3,118	0.06	NT	300	300	300	300	300	0
Avermectins	Dairy cows	19.460	2,594	0.12	0.00	300	0	0	0	0	0
Avermectins	Sows	14.420	1,851	0.00	0.00	300	0	0	0	0	0
Avermectins	Bulls	7.224	2,948	0.34	0.36	300	300	300	300	300	300
Avermectins	Lambs	2.436	2,202	0.14	0.35	300	300	300	300	300	300
Avermectins	Formula-fed veal	1.694	2,123	0.05	0.00	300	0	0	0	0	0
Avermectins	Boars/Stags	0.980	1,039	0.00	0.00	230	0	0	0	0	0
Avermectins	Equine	0.406	2,047	0.73	0.53	230	230	230	230	230	90
Avermectins	Goats	0.406	2,922	1.51	3.20	230	230	230	230	230	230
Avermectins	Roaster pigs	0.378	433	0.00	0.00	230	0	0	0	0	0
Avermectins	Bob veal	0.308	660	0.00	0.00	230	0	0	0	0	0
Avermectins	Heavy calves	0.266	2,125	0.19	0.24	230	230	230	230	230	230
Avermectins	Bison	0.168	45	0.00	0.00	230	0	0	0	0	0
Avermectins	non-Formula-fed veal	0.154	1,244	0.24	0.94	230	230	230	230	230	230
Avermectins	Sheep	0.140	74	1.35	1.47	230	230	230	230	230	300
Avermectins	Rabbits	0.028	581	0	0.00	230	0	0	0	0	0
Totals			**23,036**			**5,460**	**2,280**	**2,050**	**2,050**	**2,050**	**2,280**

Table 6A
Number of Scheduled Samples for Veterinary Drug/Production Class Pairs
2006 NRP, Domestic Scheduled Sampling

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Arsenic	Young chickens	201.89	7,362	0.16	0.08	300	300	300	300	300	300
Arsenic	Market hogs	82.96	2,161	0.00	0.00	300	0	0	0	0	300
Arsenic	Steers	56.25	500	0.00	NT	0	0	0	0	0	0
Arsenic	Heifers	33.12	508	0.00	NT	0	0	0	0	0	0
Arsenic	Young turkeys	30.15	3,613	0.17	0.04	300	300	300	300	230	0
Arsenic	Beef cows	14.20	1,325	0.00	0.00	300	0	0	0	0	0
Arsenic	Egg products	11.15	1,819	0.00	0.00	300	0	0	0	0	0
Arsenic	Dairy cows	6.26	192	0.00	NT	0	0	0	0	0	0
Arsenic	Sows	4.64	1,419	0.00	0.00	300	0	0	0	0	0
Arsenic	Mature chickens	3.58	1,628	0.00	0.00	300	0	0	0	0	0
Arsenic	Bulls	2.32	209	0.00	NT	0	0	0	0	0	0
Arsenic	Lambs	0.78	214	0.00	NT	0	0	0	0	0	0
Arsenic	Ducks	0.76	1,431	0.28	0.37	230	230	0	0	0	0
Arsenic	Formula-fed veal	0.54	453	0.00	NT	0	0	0	0	0	0
Arsenic	Mature turkeys	0.34	472	0.00	0.00	230	0	0	0	0	0
Arsenic	Boars/Stags	0.32	592	0.00	0.00	230	0	0	0	0	0
Arsenic	Equine	0.13	178	0.00	NT	0	0	0	0	0	0
Arsenic	Goats	0.13	2,191	0.14	0.09	230	230	230	230	230	0
Arsenic	Roaster pigs	0.12	456	0.00	0	230	0	0	0	0	0
Arsenic	Bob veal	0.10	352	0.00	NT	0	0	0	0	0	0
Arsenic	Heavy calves	0.09	167	0.00	NT	0	0	0	0	0	0
Arsenic	Bison	0.05	NT	NT	NT	0	0	0	0	0	0
Arsenic	non-Formula-fed veal	0.05	103	0.00	NT	0	0	0	0	0	0
Arsenic	Sheep	0.05	NT	0.00	NT	0	0	0	0	0	0
Arsenic	Squab	0.05	173	0.00	NT	0	0	0	0	0	0
Arsenic	Geese	0.01	13	0.00	0	230	230	0	0	0	0
Arsenic	Ratites	0.01	NT	NT	NT	0	0	0	0	0	0
Arsenic	Rabbits	0.01	NT	NT	NT	0	0	0	0	0	0
Totals			**10,243**			**3,480**	**1,290**	**830**	**830**	**760**	**600**

Table 6A
Number of Scheduled Samples for Veterinary Drug/Production Class Pairs
2006 NRP, Domestic Scheduled Sampling

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Sulfonamides	Young chickens	538.38	3,288	0.09	0.00	300	0	0	0	0	0
Sulfonamides	Market hogs	221.22	4,504	0.49	0.34	300	300	300	300	300	300
Sulfonamides	Steers	150.01	3,183	0.19	0.11	300	300	300	300	300	300
Sulfonamides	Heifers	88.31	2,696	0.04	0.00	300	0	0	0	0	0
Sulfonamides	Young turkeys	80.41	3,127	0.13	0.00	300	0	0	0	0	0
Sulfonamides	Beef cows	37.86	3,368	0.15	0.24	300	300	300	300	300	300
Sulfonamides	Egg products	29.74	1,460	0.00	0.00	300	0	0	0	0	0
Sulfonamides	Dairy cows	16.68	3,209	0.22	0.49	300	300	300	300	300	300
Sulfonamides	Sows	12.36	3,545	0.48	0.00	300	0	0	0	0	0
Sulfonamides	Mature chickens	9.54	2,097	0.00	0.00	300	0	0	0	0	0
Sulfonamides	Bulls	6.19	2,874	0.14	0.11	300	300	300	300	300	300
Sulfonamides	Lambs	2.09	2,707	0.15	0.00	300	0	0	0	0	0
Sulfonamides	Ducks	2.02	2,544	0.04	0.00	300	0	0	0	0	0
Sulfonamides	Formula-fed veal	1.45	3,325	0.21	0.13	300	300	300	300	230	230
Sulfonamides	Mature turkeys	0.90	1,839	0.22	0.55	230	230	230	230	0	230
Sulfonamides	Boars/Stags	0.84	3,095	0.36	0.00	230	0	0	0	0	0
Sulfonamides	Equine	0.35	1,569	0.19	0.00	230	0	0	0	0	0
Sulfonamides	Goats	0.35	2,328	0.21	0.00	230	0	0	0	0	0
Sulfonamides	Roaster pigs	0.32	508	0.98	0.98	230	230	230	230	230	300
Sulfonamides	Bob veal	0.26	3,797	0.79	0.83	230	230	230	230	0	300
Sulfonamides	Heavy calves	0.23	2,495	0.16	0.30	230	230	230	230	230	230
Sulfonamides	Bison	0.14	138	0.00	0.00	230	0	0	0	0	0
Sulfonamides	non-Formula-fed veal	0.13	2,117	0.76	0.54	230	230	230	230	230	230
Sulfonamides	Sheep	0.12	795	0.00	0.00	230	0	0	0	0	0
Sulfonamides	Squab	0.12	51	0.00	0.00	230	0	0	0	0	0
Sulfonamides	Geese	0.04	93	1.08	0.00	230	0	0	0	0	0
Sulfonamides	Ratites	0.04	82	0.00	0.00	230	0	0	0	0	0
Sulfonamides	Rabbits	0.02	337	0.00	0.00	230	0	0	0	0	0
Totals			**39,545**			**7,420**	**2,950**	**2,950**	**2,950**	**2,420**	**3,020**

Table 6A
Number of Scheduled Samples for Veterinary Drug/Production Class Pairs
2006 NRP, Domestic Scheduled Sampling

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[1] For an explanation of this score, See Table 5.
[2] Number of Samples (1995-2004 analyzed by the FSIS Scheduled Sampling Plan.
[3] 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), for the 10 year period, 1995-2004.
[4] 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), for the 3 year period, 2002-2004.
[5] The number obtained from the last column of Table 5
[6] If the violation rate for a compound-production class pair was determined to be 0% for the 3 year period (2002-2004), it was rotated out of the program and no samples were scheduled. Note that, SAT can, based on new intelligence or professional judgment, rotate a compound-production class pair back into the FSIS scheduled sampling program at any time.
[7] The following minor species have been rotated out of the FSIS scheduled sampling plan: Bison; ducks; geese; squab; ratites; and rabbits.
[8] Change is based on the analytical capabilities of the FSIS Laboratories. No changes were made for the 2006 NRP due to laboratory analytical capacity.
[9] 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, the number of scheduled samples was adjusted down by 1 level (if 300 were assigned initially, decrease to 230 samples). The total number of samples will not be reduced below 230. 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 (bison, ducks, rabbits, geese, squab, and ratites) since these minor species are suspended from testing for the 2006 NRP.
[10] Final 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).

Table 6B
Number of Scheduled Samples for Veterinary Drug/Production Class Pairs
2006 NRP, Domestic Scheduled Sampling

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
beta-Agonists	Market hogs	NA	655	0.00	0.00	300	300	300	300	300	0
beta-Agonists	Steers	NA	430	0.00	0.00	300	300	300	300	300	0
beta-Agonists	Heifers	NA	NT	NT	NT	300	300	300	300	300	300
beta-Agonists	Formula-fed veal	NA	532	0.00	0.00	300	300	300	300	230	230
beta-Agonists	Heavy calves	NA	NT	NT	NT	300	300	300	300	300	230
beta-Agonists	non-Formula-fed veal	NA	NT	NT	NT	300	300	300	300	300	230
Totals			**1,617**			**1,800**	**1,800**	**1,800**	**1,800**	**1,730**	**990**

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Berenil	Bulls	5.56	NT	NT	NT	300	300	300	300	300	240
Totals						**300**	**300**	**300**	**300**	**300**	**240**

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Chloramphenicol	Young chickens	NA	282	0.00	0.00	300	--	300	230	230	230
Chloramphenicol	Young turkeys	NA	147	0.00	0.00	300	--	300	230	230	230
Chloramphenicol	Dairy cows	NA	854	0.00	0.00	300	--	300	230	230	230
Chloramphenicol	Formula-fed veal	NA	1,059	0.00	0.00	300	--	300	0	0	0
Chloramphenicol	non-Formula-fed veal	NA	400	0.00	0.00	300	--	300	230	230	230
Totals			**2,742**			**1,500**	**0**	**1,500**	**920**	**920**	**920**

Table 6B
Number of Scheduled Samples for Veterinary Drug/Production Class Pairs
2006 NRP, Domestic Scheduled Sampling

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Florfenicol	Dairy cows	16.35	50	0.00	0.00	300	300	300	300	300	300
Florfenicol	Formula-fed veal	1.42	63	0.00	0.00	300	300	300	100	100	100
Totals			**113**			**600**	**600**	**600**	**400**	**400**	**400**

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Flunixin	Beef cows	22.09	NT	NT	NT	300	300	300	300	300	300
Flunixin	Dairy cows	9.73	1,210	0.83	1.13	300	300	300	300	300	300
Flunixin	Bulls	3.61	NT	NT	NT	300	300	300	230	230	230
Flunixin	Bob veal	0.15	85	0.00	0.00	300	0	0	0	0	0
Flunixin	Heavy calves	0.13	NT	NT	NT	300	300	300	230	230	230
Totals			**1,295**			**1,500**	**1,200**	**1,200**	**1,060**	**1,060**	**1,060**

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Melengesterol acetate	Heifers	22.077	451	0.00	0.00	300	NA	300	300	300	300
Totals			**451**			**300**	**0**	**300**	**300**	**300**	**300**

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Nitrofurans	Heifers	NA	NT	NT	NT	300	300	300	300	300	300
Nitrofurans	Dairy cows	NA	NT	NT	NT	300	300	300	300	300	300
Nitrofurans	Formula-fed veal	NA	NT	NT	NT	300	300	300	300	230	230
Totals						**900**	**900**	**900**	**900**	**830**	**830**

Table 6B
Number of Scheduled Samples for Veterinary Drug/Production Class Pairs
2006 NRP, Domestic Scheduled Sampling

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Nitroimidazoles	Young turkeys	NA	NT	NT	NT	300	300	300	300	300	300
Nitroimidazoles	Formula-fed veal	NA	860	0.00	0.00	300	300	300	0	0	0
Totals			**860**			**600**	**300**	**300**	**300**	**300**	**300**

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Phenylbutazone	Steers	NA	NT	NT	NT	300	300	300	300	300	300
Phenylbutazone	Heifers	NA	91	0.00	0.00	300	300	300	300	300	300
Phenylbutazone	Beef cows	NA	189	0.00	0.00	300	300	300	300	300	300
Phenylbutazone	Dairy cows	NA	237	0.84	0.84	300	300	300	300	300	300
Phenylbutazone	Bulls	NA	NT	NT	NT	300	300	300	300	300	300
Phenylbutazone	Formula-fed veal	NA	13	0.00	0.00	300	300	300	230	230	230
Phenylbutazone	Heavy calves	NA	75	0.00	0.00	300	300	300	230	230	230
Phenylbutazone	non-Formula-fed veal	NA	NT	NT	NT	300	300	300	230	230	230
Totals			**605**			**2,400**	**2,400**	**2,400**	**2,190**	**2,190**	**2,190**

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Ractopamine	Formula-fed veal	0.33	NT	NT	NT	300	300	300	300	230	230
Ractopamine	non-Formula-fed veal	0.03	NT	NT	NT	300	300	300	300	230	230
Totals						**600**	**600**	**600**	**600**	**460**	**460**

Table 6B
Number of Scheduled Samples for Veterinary Drug/Production Class Pairs
2006 NRP, Domestic Scheduled Sampling

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Thyreostats	Market hogs	203.89	NT	NT	NT	300	300	300	300	300	300
Totals						**300**	**300**	**300**	**300**	**300**	**300**

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Trenbolone	Formula-fed veal	0.60	NT	NT	NT	300	300	300	300	230	300
Trenbolone	non-Formula-fed veal	0.05	NT	NT	NT	300	300	300	300	300	230
Totals						**600**	**600**	**600**	**600**	**530**	**530**

Veterinary Drug (or drug class)	*Production Class*	*Priority Score*[1]	*Number of Samples*[2]	*% Violation*[3]	*% Violation*[4]	*Unadjusted Number of Samples*[5]	*Adjustment for Violations*[6]	*Adjustment for minor species*[7]	*Adjustment for Lab Capacity*[8]	*Adjustment for Production Facilities*[9]	*Final*[10]
Zeranol	Formula-fed veal	0.60	556	8.09	7.85	300	300	300	300	230	300
Totals			**556**			**300**	**300**	**300**	**300**	**230**	**300**

Table 6B
Number of Scheduled Samples for Veterinary Drug/Production Class Pairs
2006 NRP, Domestic Scheduled Sampling

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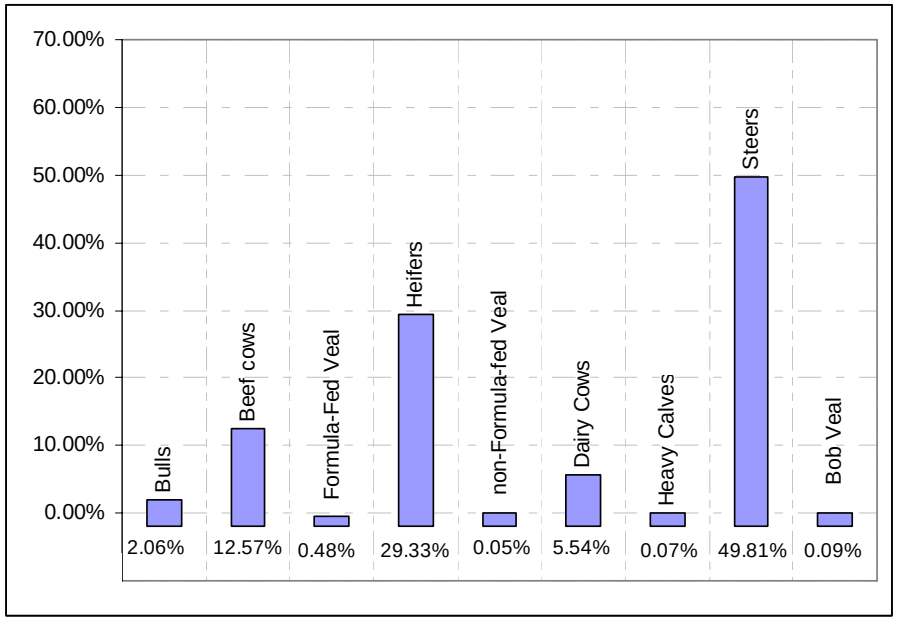
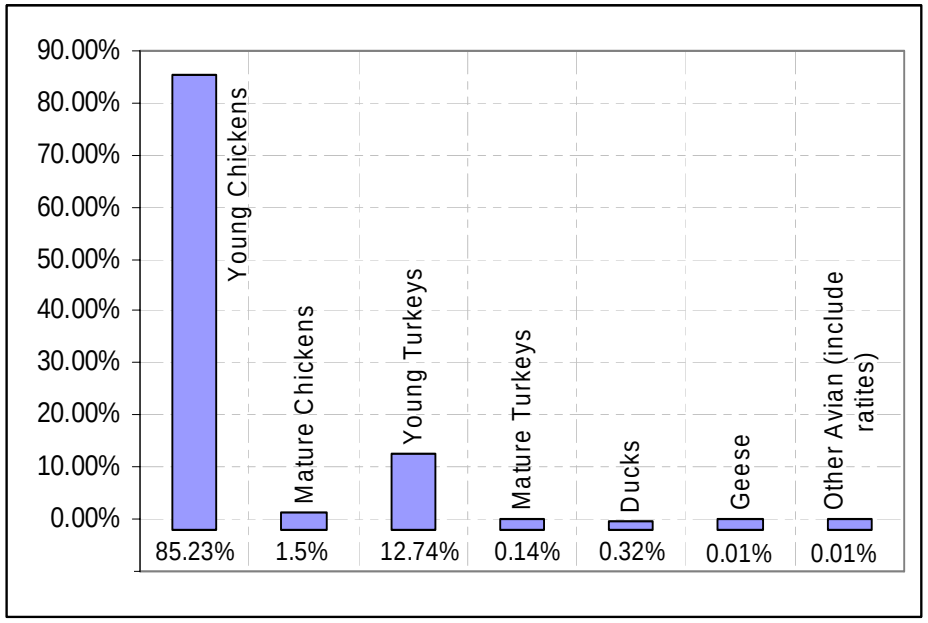
[1] For an explanation of this score, See Table 5.
[2] Number of Samples (1995-2004) analyzed by the FSIS Scheduled Sampling Plan.
[3] The percent of samples with residue concentrations exceeding the tolerance or action level (or, for a drug whose use was not permitted in the production class in which it was detected, the percent of samples with any detectable residue), for the 10 year period, 1995-2004.
[4] 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), for the 3 year period, 2002-2004.
[5] The number obtained from the last column of Table 5
[6] If the violation rate for a compound-production class pair was determined to be 0% for the 3 year period (2002-2004), it was rotated out of the program and no samples were scheduled. Note that, SAT can, based on new intelligence or professional judgment, rotate a compound-production class pair back into the FSIS scheduled sampling program at any time.
[7] The following minor species have been rotated out of the FSIS scheduled sampling plan: Bison, ducks, geese, squab, ratites, and rabbits.
[8] Change is based on the analytical capabilities of the FSIS Laboratories. No changes were made for the 2006 NRP due to laboratory analytical capacity.
[9] 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, the number of scheduled samples was adjusted down by 1 level (if 300 were assigned initially, decrease to 230 samples). The total number of samples will not be reduced below 230. 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 (bison, ducks, rabbits, geese, squab, and ratites) since these minor species are suspended from testing for the 2006 NRP.
[10] Final 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).

Graph I
2004 Relative Consumption Data for Bovine, Porcine, Ovine, and Avian

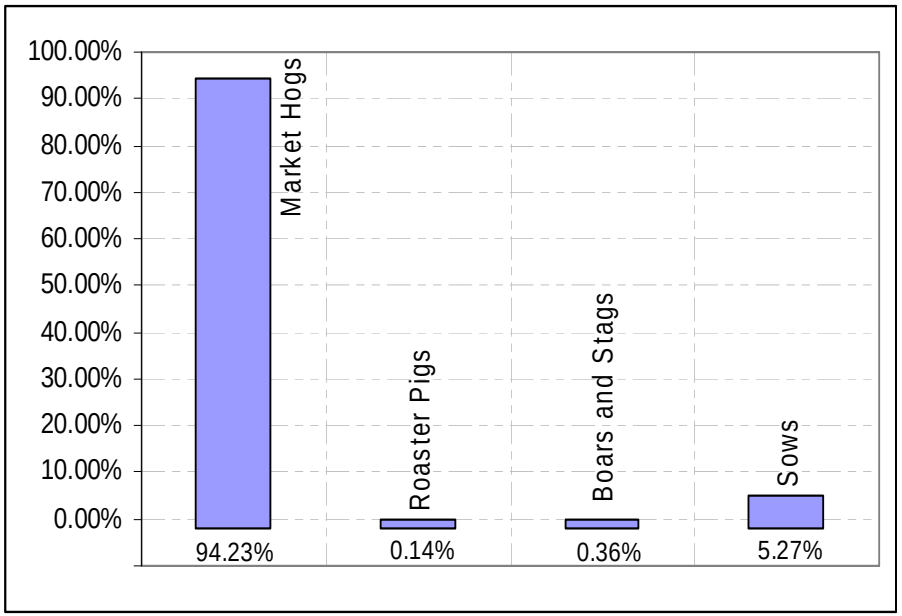
2004 Relative Consumption Data for Bovine



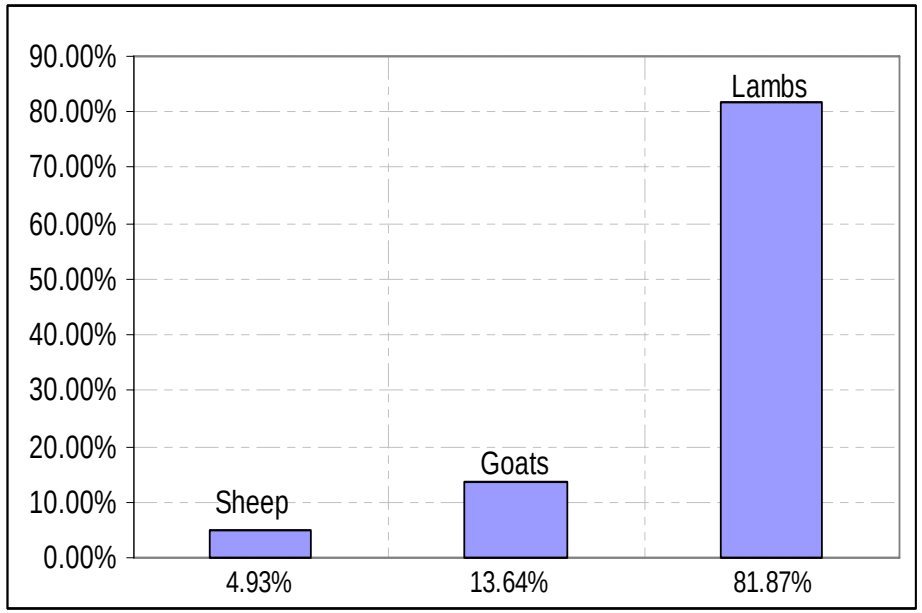
2004 Relative Consumption for Avian



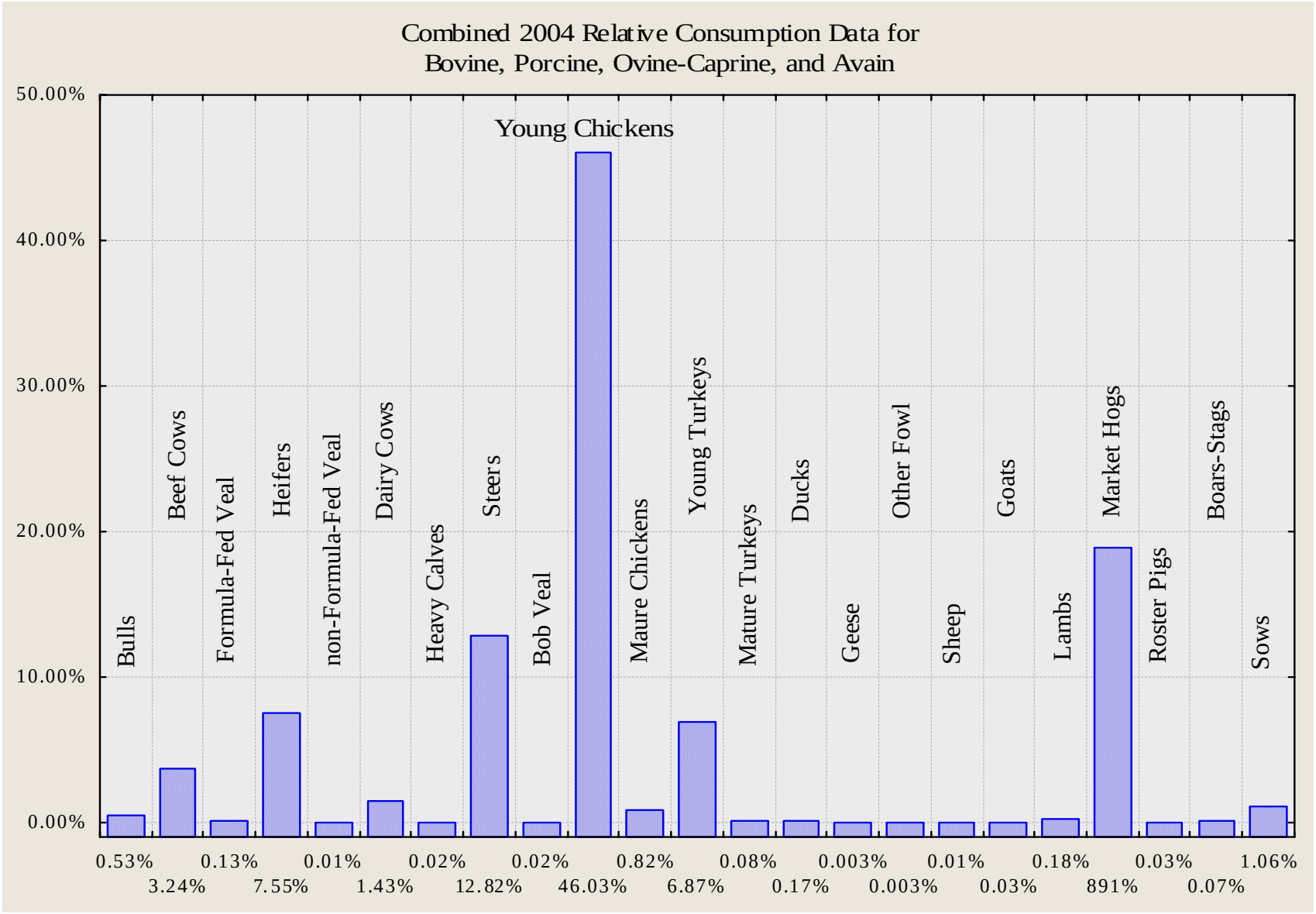
2004 Relative Consumption Data for Porcine



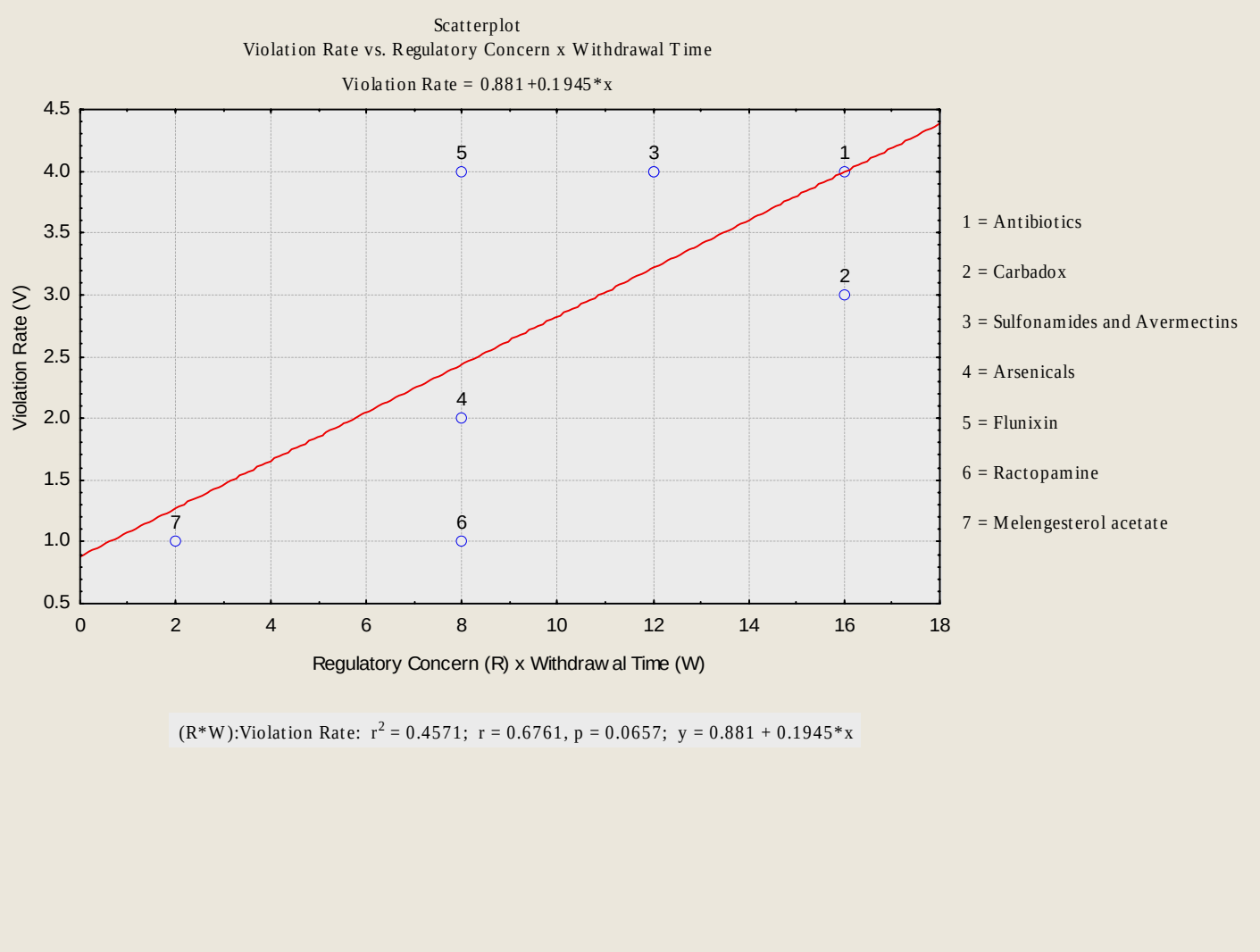
2004 Relative Consumption Data for Ovine



Graph II


Combined 2004 Relative Consumption Data for
Bovine, Porcine, Ovine-Caprine, and Avain
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Young Chickens
Bulls
Beef Cows
Formula-Fed Veal
Heifers
non-Formula-Fed Veal
Dairy Cows
Heavy Calves
Steers
Bob Veal
Maure Chickens
Young Turkeys
Mature Turkeys
Ducks
Geese
Other Fowl
Sheep
Goats
Lambs
Market Hogs
Roster Pigs
Boars-Stags
Sows
0.53%
3.24%
0.13%
7.55%
0.01%
1.43%
0.02%
12.82%
0.02%
46.03%
0.82%
6.87%
0.08%
0.17%
0.003%
0.003%
0.01%
0.03%
0.18%
891%
0.03%
0.07%
1.06%

Graph III


Scatterplot
Violation Rate vs. Regulatory Concern x Withdrawal Time
Violation Rate = 0.881+0.1945*x
Violation Rate (V)
Regulatory Concern (R) x Withdrawal Time (W)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0
2
4
6
8
10
12
14
16
18
5
3
1
2
4
7
6
1 = Antibiotics
2 = Carbadox
3 = Sulfonamides and Avermectins
4 = Arsenicals
5 = Flunixin
6 = Ractopamine
7 = Melengesterol acetate
(R*W):Violation Rate: r2 = 0.4571; r = 0.6761, p = 0.0657; y = 0.881 + 0.1945*x