

1999 DOMESTIC RESIDUE PROGRAM RESULTS

In all the tables in this section and in Appendix I, the number of violations or positives reflects the number of animals (or the number of composite samples in the case of poultry) that were found to contain at least one violative or detectable residue.

ANTIBIOTICS

Bacitracin	Hygromycin	Streptomycin
Chlortetracycline	Neomycin	Tetracycline
Erythromycin	Novobiocin	Tilmicosin
Flavomycin	Oxytetracycline	Tylosin
Gentamicin sulfate	Penicillins	

(Non-violative positives are reported in Appendix I)

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Horses*	446/46	10.3	(7.7,13.5)	5/3
Bulls	276/0	0.0	(0.0,1.3)	
Beef cows	292/0	0.0	(0.0,1.3)	
Dairy cows	460/2	0.4	(0.1,1.6)	
Heifers	461/0	0.0	(0.0,0.8)	
Steers	459/0	0.0	(0.0,0.8)	
Bob calves	398/7	1.8	(0.7,3.6)	
Formula-fed calves	316/4	1.3	(0.3,3.2)	
Non-formula calves	191/4	2.1	(0.6,5.3)	
Heavy calves	228/2	0.9	(0.1,3.1)	
Cattle				69/3
Sheep	246/0	0.0	(0.0,1.5)	
Lambs	312/0	0.0	(0.0,1.2)	
Sheep/Lambs				2/0

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ANTIBIOTICS, continued

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Goats	305/1	0.3	(0.0,1.8)	0/0
Market hogs	496/1	0.2	(0.0,1.1)	
Boar/Stags	207/1	0.5	(0.0,2.7)	
Sows	268/1	0.4	(0.0,2.1)	
Roaster Pigs	169/2	1.2	(0.1,4.2)	
Swine				110/5
Young chickens	408/0	0.0	(0.0,0.9)	
Mature chickens	293/0	0.0	(0.0,1.3)	
Chickens				1/0
Young turkeys	411/1	0.2	(0.0,1.3)	
Mature turkeys	170/0	0.0	(0.0,2.1)	
Turkeys				0/0
Ducks	327/0	0.0	(0.0,1.1)	0/0
Rabbits	204/14	6.9	(3.8,11.2)	21/0
Total	7,343/86			208/11

* Multiple violations were found in some animals

SPECIFIC VIOLATIVE RESIDUES

Monitoring:

Horses: 35 streptomycin, 8 penicillin, 1 oxytetracycline, 2 chlortetracycline, 1 gentamicin sulfate

Dairy cows: 1 penicillin, 1 erythromycin

Bob calves: 2 streptomycin, 2 neomycin, 2 gentamicin sulfate, 1 oxytetracycline

Formula-fed calves: 1 neomycin, 3 gentamicin sulfate

Non-formula calves: 1 penicillin, 3 gentamicin sulfate

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ANTIBIOTICS, continued

Heavy calves: 2 gentamicin sulfate
Goats: 1 oxytetracycline
Market hogs: 1 penicillin
Boars: 1 streptomycin
Sows: 1 penicillin
Roaster pigs: 2 penicillin
Young turkeys: 1 oxytetracycline
Rabbits: 6 penicillin, 8 streptomycin,

Enforcement Testing:

Horse: 3 streptomycin
Cattle: 1 penicillin, 1 neomycin, 1 tilmicosin
Swine: 4 streptomycin

TILMICOSIN

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violations	95 percent Confidence Interval	Analyses/ Violations
Dairy cows	420/0	0.0	(0.0,0.9)	
Formula-fed calves	446/0	0.0	(0.0,0.8)	
Cattle				0/0
Total	866/0			0/0

TILMICOSIN MONITORING TESTING

Four hundred and twenty dairy cows and 446 formula-fed calves were tested for tilmicosin. There were no violations found.

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IN-PLANT TESTS

Calf Antibiotic and Sulfonamide Test (CAST): There were 111 violations found in the 8,988 animals tested

CAST SPECIFIC VIOLATIVE RESIDUES

Cattle: 9 penicillin, 10 streptomycin, 9 tetracycline, 5 oxytetracycline, 18 neomycin, 41 gentamicin sulfate, 1 lincomycin, 2 sulfadimethoxine, 8 sulfamethazine, 1 sulfadiazine, 7 sulfamethoxazole

Swab Test on Premises (STOP) [Includes samples tested for sulfonamides	Enforcement Testing: Analyses/Violations
Horses	222/1
Bulls	412/3
Steers	1,896/11
Beef cows	10,714/62
Heifers	1,020/12
Dairy cows	17,359/125
Formula-fed calves	640/1
Non- formula calves	134/6
Bob calves	36/2
Heavy calves	55/0
Calves	17/0
Sheep	42/0
Lambs	1,098/0
Goats	70/0
Market hogs	3,372/10
Boar/Stags	89/0
Sows	350/0
TOTAL STOP	37,526/233

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STOP SPECIFIC VIOLATIVE RESIDUES

Horses: 1 penicillin

Bulls: 2 penicillin, 1 sulfamethazine

Steers: 2 penicillin, 1 neomycin, 1 oxytetracycline, 1 gentamicin sulfate, 5 tilmicosin, 1 sulfadimethoxine,

Beef cows: 20 penicillin, 1 erythromycin, 1 neomycin, 9 oxytetracycline, 17 gentamicin sulfate, 4 tilmicosin, 6 sulfadimethoxine, 4 sulfamethazine

Heifers: 3 penicillin, 1 oxytetracycline, 1 gentamicin sulfate, 4 tilmicosin, 1 sulfadimethoxine, 2 sulfamethazine

Dairy cows: 74 penicillin, 4 streptomycin, 4 tetracycline, 1 tylosin, 1 neomycin, 10 oxytetracycline, 18 gentamicin sulfate, 1 tilmicosin, 10 sulfadimethoxine, 2 sulfamethazine

Bob calves: 2 neomycin

Formula-fed calves: 1 gentamicin sulfate

Non-formula calves: 1 tetracycline, 1 gentamicin sulfate, 1 tilmicosin, 3 sulfamethazine

Market hogs: 4 penicillin, 1 streptomycin, 1 tylosin, 2 oxytetracycline, 1 lincomycin, 1 sulfamethazine

Fast Antimicrobial Screen Test (FAST) [Includes samples tested for sulfonamides also]	Enforcement Testing: Analyses/Violations
Bulls	596/3
Steers	672//17
Beef cows	8,850/55
Heifers	398/11
Dairy cows	111,403/1,021
Bob calves	10,320/60
Formula-fed calves	96/4
Non-formula fed calves	38/0
Heavy calves	33/3
Market hogs	5/1
Sows	56/0
Roaster pig	3/0
Boar/Stag	3/0
TOTAL FAST	132,473/1,175

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FAST SPECIFIC VIOLATIVE RESIDUES

Bulls: 1 oxytetracycline, 1 gentamicin sulfate, 1 sulfadimethoxine
Steers: 1 penicillin, 1 streptomycin, 1 oxytetracycline, 5 gentamicin sulfate, 4 tilmicosin, 5 sulfamethazine
Beef cows: 18 penicillin, 1 tetracycline, 3 neomycin, 9 oxytetracycline, 12 gentamicin sulfate, 5 tilmicosin, 2 sulfadimethoxine, 5 sulfamethazine,
Heifers: 3 penicillin, 1 oxytetracycline, 1 gentamicin sulfate, 1 tilmicosin, 3 sulfadimethoxine, 2 sulfamethazine,
Dairy cows: 355 penicillin, 44 streptomycin, 8 tetracycline, 5 tylosin, 1 erythromycin, 42 neomycin, 61 oxytetracycline, 1 chlortetracycline, 301 gentamicin sulfate, 3 lincomycin, 26 tilmicosin, 1 sulfachlorpyridazine, 137 sulfadimethoxine, 36 sulfamethazine,
Bob calves: 13 penicillin, 1 streptomycin, 1 tetracycline, 17 neomycin, 3 oxytetracycline, 1 gentamicin sulfate, 1 chlortetracycline, 1 tilmicosin, 4 sulfamethazine, 5 sulfamethoxazole, 3 sulfadimethoxine
Formula-fed calves: 2 gentamicin sulfate, 2 sulfadimethoxine,
Heavy calves: 1 penicillin, 1 streptomycin, 1 sulfamethazine,
Market hog: 1 streptomycin,

SULFONAMIDES

Sulfachlorpyridazine
Sulfadimethoxine

Sulfamethazine
Sulfamethoxazole

Sulfadizine

(Non-violative positives are reported in Appendix I)

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Horses	285/1	0.4	(0.0,1.9)	0/0
Bulls	275/1	0.4	(0.0,2.0)	
Beef cows	291/0	0.0	(0.0,1.3)	
Dairy cows	303/1	0.3	(0.0,1.8)	
Heifers	304/0	0.0	(0.0,1.2)	
Steers	466/0	0.0	(0.0,0.8)	
Bob calves	397/3	0.8	(0.2,2.2)	
Formula-fed calves	316/2	0.6	(0.1,2.3)	
Non-formula calves	151/0	0.0	(0.0,2.4)	

1999 DOMESTIC RESIDUE PROGRAM RESULTS

SULFONAMIDES, continued

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Heavy calves	176/0	0.0	(0.0,2.1)	
Cattle				2/0
Lambs	308/1	0.3	(0.0,1.8)	
Sheep/Lambs				0/0
Goats	235/0	0.0	(0.0,1.6)	0/0
Market hogs	481/1	0.2	(0.0,1.2)	
Boars/Stags	323/1	0.3	(0.0,1.7)	
Roaster pigs	88/1	1.1	(0.0,6.2)	
Sows	406/2	0.5	(0.1,1.8)	
Swine				21/2
Young chickens	410/1	0.2	(0.0,1.4)	
Mature chickens	225/0	0.0	(0.0,1.6)	
Chickens				0/0
Young turkeys	412/2	0.5	(0.1,1.7)	
Mature turkeys	128/0	0.0	(0.0,2.8)	
Turkeys				0/0
Ducks	249/0	0.0	(0.0,1.5)	0/0
Total	6,229/17			23/2

SPECIFIC VIOLATIVE RESIDUES

Monitoring:

Horses: 1 sulfadimethoxine
Bulls: 1 sulfamethazine,
Dairy cows: 1 sulfamethazine
Bob calves: 2 sulfamethazine, 1 sulfamethaxazole
Formula-fed calves: 1 sulfadimethoxine, 1 s-chlorpyridazin
Lambs: 1 sulfamethazine
Market hogs: 1 sulfamethazine
Boars: 1 sulfamethazine

1999 DOMESTIC RESIDUE PROGRAM RESULTS

SULFONAMIDES, continued

Sows: 2 sulfamethazine

Roaster pigs: 1 sulfamethazine

Young chickens: 1 sulfamethazine

Young turkeys: 1 sulfadimethoxine, 1 sulfadoxine

Enforcement Testing:

Cattle: 1 sulfadimethoxine

Swine: 2 sulfamethazine

SULFA-ON-SITE (SOS)

Of the 9,460 swine that were tested, 13 animals contained violative levels of sulfamethazine.

ARSENIC

(Non-violative positives are reported in Appendix I)

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Heifers	317/0	0.0	(0.0,1.2)	
Steers	312/0	0.0	(0.0,1.2)	
Bob calves	194/0	0.0	(0.0,1.9)	
Formula-fed calves	250/0	0.0	(0.0,1.5)	
Cattle				0/0
Market hogs	336/0	0.0	(0.0,1.1)	
Boars/Stags	66/0	0.0	(0.0,5.4)	
Sows	223/0	0.0	(0.0,1.6)	
Roaster pigs	94/0	0.0	(0.0,3.8)	
Swine				8/0
Young chickens	410/0	0.0	(0.0,0.9)	
Mature chickens	217/0	0.0	(0.0,1.7)	
Chickens				5/0
Young turkeys	274/0	0.0	(0.0,1.3)	

1999 DOMESTIC RESIDUE PROGRAM RESULTS

ARSENIC, continued

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Mature turkeys	53/0	0.0	(0.0,6.7)	
Turkeys				6/0
Ducks	259/1	0.4	(0.0,2.1)	0/0
Totals	3005/1			19/0

CHLORINATED HYDROCARBONS, ORGANOPHOSPHATES (CHC/COP'S) & PHENYL BUTAZONE

Aldrin	Chlorpyrifos	Endrin
Benzene Hexachloride (BHC)	Coumaphos and oxygen analog	Heptachlor and heptachlor epoxide
Carbophenothion (trithion)	DDT and metabolites	Hexachlorobenzene (HCB)
Chlordane (technical)	Dieldrin	Lindane
2-Chloro-1 (2,4,-dichlorophenyl)vinyl diethyl phosphate [chlorfenvinphos, supona]	Dodecachlorooctahydro-1,3,4-metheno-2H-cyclobuta(cd)pentalene [mirex]	Linuron
2-Chloro-1-(2,4,5-trichlorophenyl)vinyl dimethyl phosphate [stirofos, gardona]	Endosulfan	Methoxychlor
		Phosalone
		Polybrominated biphenyls
		Polychlorinated biphenyls
		Phenylbutazone

(Non-violative positives are reported in Appendix I)

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Horses	301/1	0.3	(0.0,1.8)	4/0
Bulls	271/2	0.7	(0.1,2.6)	
Beef cows	282/0	0.0	(0.0,1.3)	
Dairy cows	463/1	0.2	(0.0,1.2)	
Heifers	492/0	0.0	(0.0,0.7)	
Steers	474/0	0.0	(0.0,0.8)	

1999 DOMESTIC RESIDUE PROGRAM RESULTS

CHC/COP'S and PHENYLBUTAZONE. continued

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Bob calves	263/2	0.8	(0.1,2.7)	
Formula-fed calves	331/0	0.0	(0.0,1.1)	
Non-formula calves	159/1	0.6	(0.0,3.5)	
Heavy calves	218/1	0.5	(0.0,2.5)	
Cattle				34/0
Sheep	263/0	0.0	(0.0,1.4)	
Lambs	341/1	0.3	(0.0,1.6)	0/0
Goats	298/1	0.3	(0.0,1.9)	13/0
Market hogs	492/0	0.0	(0.0,0.7)	
Boars/Stags	351/0	0.0	(0.0,1.0)	
Sows	280/1	0.4	(0.0,2.0)	
Swine				7/0
Young chickens	418/0	0.0	(0.0,0.9)	
Mature chickens	305/0	0.0	(0.0,1.2)	
Chickens				1/0
Young turkeys	449/0	0.0	(0.0,0.8)	
Mature turkeys	131/0	0.0	(0.0,2.8)	
Turkeys				1/0
Ducks	334/0	0.0	(0.0,1.1)	1/0
Rabbit	70/0	0.0	(0.0,5.1)	
Egg products	384/0	0.0	(0.0,1.0)	
Others				5/0
Total	7,370/11			66/0

1999 DOMESTIC RESIDUE PROGRAM RESULTS

SPECIFIC VIOLATIVE RESIDUES

Monitoring:

Horses: 1 phenylbutazone
Bulls: 1 endosulfan I, 1 famphur
Dairy cows: 1 famphur
Bob calves: 1 lindane, 1 polychlorinated biphenyls
Heavy calves: 1 phenylbutazone
Non-formula calves: 1 DDT
Lambs: 1 endosulfan I
Goats: 1 BHC
Sows: 1 DDT

AVERMECTINS

Ivermectin and Doramectin

(Non-violative positives are reported in Appendix I)

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violatives	95 Percent Confidence Interval	Analyses/ Violations
Horses	237/2	0.8	(0.1,3.0)	0/0
Bulls	268/1	0.4	(0.0,2.1)	
Beef cows	305/1	0.3	(0.0,1.8)	
Dairy cows	302/0	0.0	(0.0,1.2)	
Heifers	479/0	0.0	(0.0,0.8)	
Steers	468/0	0.0	(0.0,0.8)	
Formula-fed calves	250/0	0.0	(0.0,1.5)	
Non-formula calves	64/0	0.0	(0.0,5.6)	
Heavy calves	63/1	1.6	(0.0,8.5)	
Cattle				9/1

1999 DOMESTIC RESIDUE PROGRAM RESULTS

AVERMECTINS, continued

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 Percent Confidence Intervals	Analyses/ Violations
Sheep	83/0	0.0	(0.0,4.3)	
Lambs	255/0	0.0	(0.0,1.4)	
Sheep/Lambs				0/0
Goats	245/1	0.4	(0.0,2.3)	0/0
Market hogs	500/0	0.0	(0.0,0.7)	
Boar/Stags	166/0	0.0	(0.0,2.2)	
Sows	279/0	0.0	(0.0,1.3)	
Roaster pigs	84/0	0.0	(0.0,4.3)	
Swine				2/0
Rabbits	172/0	0.0	(0.0,1.8)	0/0
Total	4,220/6			11/1

SPECIFIC VIOLATIVE RESIDUES

Monitoring:

Horses: 2 ivermectin
Bulls: 1 ivermectin
Beef cows: 1 ivermectin
Heavy calves: 1 ivermectin
Goats: 1 ivermectin

Enforcement Testing:

Cattle: 1 doramectin

1999 DOMESTIC RESIDUE PROGRAM RESULTS

CARBADOX

(Non-violative positives are reported in Appendix I)

Production Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Market hogs	332/0	0.0	(0.0,1.1)	
Swine				0/0
Total	332/0			0/0

SPECIAL PROJECT FOR CARBADOX

One hundred forty-six roaster pigs were tested for carbadox. One violation was found.

SPECIAL PROJECT FOR CLENBUTEROL

Two hundred and sixty five formula-fed calves and 271 market hogs were tested for clenbuterol. There were no violations found.

SPECIAL PROJECT FOR DEXAMETHASONES

Three hundred and fourteen dairy cows were tested for dexamethoxones. There were no violations found.

SPECIAL PROJECT FOR FLUNIXIN

Three hundred and twenty-five dairy cows were tested for flunixin. There were no violations found.

SPECIAL PROJECT FOR FLUOROQUINOLONES

Three hundred and twenty dairy cows, 297 young chickens, and 307 young turkeys were tested for fluoroquinolones. There were no violations found.

SPECIAL PROJECT FOR NITROIMIDAZOLES

Four hundred and eight formula-fed calves were tested for nitroimidazoles. There were no violations found.

1999 DOMESTIC RESIDUE PROGRAM RESULTS

SPECIAL PROJECT TO TEST FOR SULFONAMIDES AND ARSENICALS IN EGG PRODUCTS

Sixty egg products were tested for arsenic and sulfonamides. There were no violations found.

CLENBUTEROL ENFORCEMENT TESTING

The following animals were analyzed for clenbuterol: 11 bovine (unspecified class), 144 steers, 1 beef cow, 4 heifers, 1 dairy cow, 3 formula fed veal, 105 lambs, and 104 market hogs. There were no violations.

DEXAMETHASONE ENFORCEMENT TESTING

One beef cow was tested for dexamethasone. There was no violation found.

FLUNIXIN ENFORCEMENT TESTING

Two dairy cows were tested for flunixin. One violation was detected.

TRACE METAL ENFORCEMENT TESTING

Two steers, 10 porcine (unspecified), one sow, two market hogs, one boar/stag and one young chicken were tested for trace metals. There were no violations found.

CUMULATIVE TOTALS - BY PRODUCTION CLASS

Production Class	Monitoring: Analyses	Special Projects: Analyses	Enforcement Testing:Analyses*
Horses	1,269		9
Bulls	1,090		
Beef cows	1,170		
Dairy cows	1,948	959	
Heifers	2,053		
Steers	2,179		
Bob calves	1,252		
Formula-fed calves	1,909	673	
Non-formula calves	565		
Heavy calves	685		
Cattle			115

1999 DOMESTIC RESIDUE PROGRAM RESULTS

CUMULATIVE TOTALS, continued

Production Class	Monitoring: Analyses	Special Projects: Analyses	Enforcement Testing: Analyses*
Sheep	592		
Lambs			105
Sheep/Lambs			2
Goats	1,083		13
Market hogs	2,637	271	
Boars/Stags	1,113		
Roaster pig	435	145	
Sows	1,456		
Swine			148
Young chickens	1,646	297	
Mature chickens	1,040		
Chickens			7
Young turkeys	1,546	307	
Mature turkeys	482		
Turkeys			7
Ducks	1,169		1
Rabbits	446		21
Egg products	384	120	
Other			5
TOTAL	29,365	2,772	433*

* Domestic follow-up and inspector-generated sampling; does not include in-plant testing

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CUMULATIVE TOTALS - BY COMPOUND OR CLASS

Compound Class	Monitoring: Analyses	Special Project: Analyses	Enforcement Testing:Analyses
Antibiotics	7,343		179,195 ¹
Tilmicosin	866		0
Sulfonamides	6,229	60	9,483 ²
Arsenic	3,005	60	19
CHC's/COP's/phenyl butazone	7,370		66
Avermectins	4,220		11
Carbadox	332	145	
Clenbuterol	0.0	536	373
Flunixin	0.0	325	2
Fluoroquinolones	0.0	924	
Nitroimidazoles	0.0	408	
Dexamethoxone	0.0	314	1
Metals			16
TOTAL	29,365	2,772	189,166

¹ Includes CAST, FAST, STOP data

² Includes SOS data

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**STATISTICAL TABLE: NUMBER OF SAMPLES REQUIRED TO ENSURE
DETECTION OF A PROBLEM THAT AFFECTS A GIVEN PERCENTAGE OF
THE SAMPLED POPULATION**

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