

**NATIONAL MILK DRUG RESIDUE DATA BASE
FISCAL YEAR 2016 ANNUAL REPORT
October 1, 2015 - September 30, 2016**

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Contract Number: HHSF 223 2013 10019C

February 14, 2017

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INTRODUCTION

The National Milk Drug Residue Data Base (NMDRD) is a voluntary industry reporting program. Mandatory reporting is required by State Regulatory Agencies under the National Conference on Interstate Milk Shipments (NCIMS). Data are reported on the extent of the national testing activities, the analytical methods used, the kind and extent of the animal drug residues identified, and the amount of contaminated milk that was removed from the human food supply. The system includes all milk, Grade "A" and non-Grade "A", commonly known as manufacturing grade. Grade "A" milk represents approximately 99% of the milk supply in the United States and is regulated through the NCIMS by the State Regulatory Agencies. Manufacturing grade milk is under the direction of the Regulatory Agencies in the States where it is produced and may be subject to the standards recommended by the United States Department of Agriculture (USDA). Data reported to the NMDRD are for educational and analytical purposes and are not intended or suitable for regulatory action or follow up.

BACKGROUND

The NCIMS is a voluntary organization directed and controlled by member States to promote the availability of a high quality milk supply. The Food and Drug Administration (FDA) and the NCIMS through their collaborative efforts have developed a cooperative, federal-state program (the Grade "A" Interstate Milk Shippers Program) to ensure the sanitary quality of Grade "A" milk and milk products shipped in interstate commerce. During the 1991 meeting of the NCIMS, the Conference authorized a national program to compile the results of milk drug residue testing by industry and State Regulatory Agencies.

Subsequently, FDA awarded a contract to develop a NMDRD. The data base is operated by an independent third party, under contract to the FDA. The data base design was developed in consultation with a project advisory group with members from the FDA and a NCIMS committee representing dairy producers, dairy processors, USDA, State Regulatory Agencies, and academia. The data base was designed to promote maximum participation by the dairy industry to report on a voluntary basis all of their testing results, without compromising any confidential data. Information regarding individual firm's data is not submitted to the data base contractor.

It is important to recognize that the samples and tests reported do not necessarily represent one hundred percent (100%) of the milk supply from every State. However, as State and industry participation in the data base increased, reporting of the number of samples and tests similarly increased.

Continuing efforts are being made to ensure that there is uniform reporting among all the States and the industry and to ensure that the drugs and test methods reported are correct. Through collaboration with test kit manufacturers and FDA, the contractor is attempting to update the drug code list utilized with the reporting application at least every six months to assure that outdated codes are removed and new test codes have been created for new test kits. The most recent drug code list can be found on the data base contractor's web site at: <https://www.kandc-sbcc.com/nmdrd/>.

During FY 2006, a web-based version of the reporting software was developed, field evaluated, and then made available to all data reporters on September 1, 2006. Instructions for registering and using the software are posted on the contractor's web site at: <https://www.kandc-sbcc.com/nmdrd/>. Fifty (50) data reporters utilized the web-based software to submit their data for the FY 2016 Annual Report.

At the request of one of the attendees at a meeting of the NCIMS, the contractor converted all of the tabular information from previous Annual Reports into Microsoft Excel format and posted them on the contractor's web site at: <https://www.kandc-sbcc.com/nmdrd/>. All of the Annual Reports are now available in portable document file (pdf), Microsoft Excel and Open Document Spreadsheet (ods) formats.

SUMMARY

This report presents summary data on samples and tests conducted during Fiscal Year 2016 (October 1, 2015 to September 30, 2016). Fifty (50) States and Puerto Rico submitted data for this report. We appreciate all the data providers' cooperation for this fiscal year's report.

The Grade "A" Pasteurized Milk Ordinance (PMO), the regulations, which govern the State Regulatory Agencies in the implementation and enforcement of their Grade "A" milk safety program, requires that all bulk milk tankers and/or all raw milk supplies that have not been transported in bulk milk tankers, regardless of final use, be sampled and analyzed for animal drug residues before the milk is processed. Any bulk milk tanker and/or raw milk supply that has not been transported in a bulk milk pickup tanker, found positive is rejected for human consumption.

During this period **3,581,396** samples were analyzed for animal drug residues. Of these samples **618** were positive for a drug residue. A total of **3,661,063** tests were reported on the samples for five (5) different groups of families or individual drugs. Twenty (20) testing methods were used to analyze the samples for drug residues. Details are presented in the Tables in this report.

SAMPLE RESULTS

A SAMPLE is defined as representing a load or lot of milk sampled and analyzed, e.g. a bulk milk pickup tanker, or raw milk supply that has not been transported in a bulk milk pickup tanker, producer, milk transport tankers, a silo, etc.

Table 1 shows the results of the samples tested by source.

Data are reported by four (4) SOURCES OF SAMPLES:

1. Bulk Milk Pickup Tanker and/or Raw Milk Supply that has not been transported in a Bulk Milk Pickup Tanker - bulk raw milk from a dairy farm.
2. Pasteurized Fluid Milk and Milk Products - after pasteurization; finished product in package form or bulk. This term includes milk products such as milk, cream, condensed and dry milk and milk products, and condensed and dry whey and whey products.
3. Producer - raw milk obtained from the bulk tank/silo from a dairy farm. Samples are reported by the permitting State, rather than by the analyzing State.
4. Other - milk from milk plant tank/silos, milk transport tankers, etc.

A POSITIVE result, as used in this report, means that the sample was found to be positive for a drug residue by a test acceptable for taking regulatory action in an accredited laboratory by a certified analyst or the milk was rejected on the basis of an initial screening presumptive positive test by the milk processor.

The DISPOSITION per PMO column represents the amount of milk contained in the tanker, raw milk supply that has not been transported in a bulk milk pickup tanker, tank/silo or lot found to be positive and disposed of in accordance with the PMO and/or applicable State regulations.

TABLE 1 -- Sample Results October 1, 2015 to September 30, 2016				
Source of Sample	Total Samples	Number Positive	Percent Positive	Disposition per PMO (Pounds)
Bulk Milk Pickup Tanker	3,085,627	350	0.011%	14,413,000
Pasteurized Fluid Milk and Milk Products	38,329	0	0.000%	0
Producer	407,592	261	0.064%	690,000
Other	49,848	7	0.014%	225,000
TOTALS	3,581,396	618	*	15,328,000

The asterisk (*) notes that a summary of the percent positive cannot be provided because there is no uniformity in terms of sampling in the four (4) categories. For example, the PMO sets forth specific sampling requirements for Beta lactams testing as follows:

1. Bulk Milk Pickup Tanker Samples and/or Raw Milk Supplies That Have Not Been Transported In A Bulk Milk Pickup Tanker -- samples are taken on receipt of every tanker load and/or raw milk supply that has not been transported in a bulk milk pickup tanker at a milk receiving facility;
2. Pasteurized Fluid Milk and Milk Products -- a minimum of four (4) samples in at least four (4) separate months, except when three (3) months show a month containing two (2) sampling dates separated by at least twenty (20) days, shall be tested for each finished milk or milk product from each milk plant during any consecutive six (6) months;
3. Producer -- each producer shall be tested at least four (4) times in at least four (4)

separate months, except when three (3) months show a month containing two (2) sampling dates separated by at least twenty (20) days, during any consecutive six (6) months; and

4. Other -- samples are conducted on a random basis.

Table 2 presents these results in greater detail and indicates the number of samples conducted by industry and by State Regulatory Agencies. Industry samples are taken by milk plants, receiving and transfer stations, and marketing groups or cooperatives. Industry sampling and testing may be conducted to meet the industry requirements of Appendix N of the PMO, which sets forth testing and reporting requirements for animal drug residues or for quality control purposes. Regulatory samples are taken by State and Local Regulatory Agencies.

**TABLE 2 -- Industry and Regulatory Samples
October 1, 2015 to September 30, 2016**

Source of Sample	Number of Industry Samples	Number of Positive Industry Samples	Number of Regulatory Samples	Number of Positive Regulatory Samples	Total Samples	Total Positive Samples	Total Percent Positive	Disposition Per PMO (Pounds)
GRADE "A"								
Bulk Milk Pickup Tanker	2,939,215	324	7,269	1	2,946,484	325	0.011%	13,485,000
Pasteurized Fluid Milk and Milk Products	2,933	0	34,140	0	37,073	0	0.000%	0
Producer	307,300	202	78,997	35	386,297	237	0.061%	690,000
Other	37,594	7	7,797	0	45,391	7	0.015%	225,000
NON-GRADE "A"								
Bulk Milk Pickup Tanker ¹	139,033	25	110	0	139,143	25	0.018%	928,000
Pasteurized Fluid Milk and Milk Products	1,109	0	147	0	1,256	0	0.000%	0
Producer	21,004	24	291	0	21,295	24	0.113%	0
Other	3,827	0	630	0	4,457	0	0.000%	0
TOTALS	3,452,015	582	129,381	36	3,581,396	618	*	15,328,000²

¹ It is a common practice in some States, including two large milk production States, that bulk milk pickup tankers pickup milk from both Grade "A" and non-Grade "A" milk producers on the same tanker. Then, these loads are delivered to non-Grade "A" processing facilities. Because of this commingling of the two grades of milk, all data related to these loads are reported under non-Grade "A".

² Note that this represents 0.01% of the total milk supply of the United States with an annual production of 211.3 billion pounds.

* See Table 1 for explanation

TESTS CONDUCTED

An objective of the NMDRD is to record every test run on each sample analyzed. Since some samples are analyzed for more than one (1) drug residue, the number of tests conducted 3,661,063 is greater than the number of samples 3,581,396. To avoid duplicate reporting of samples, the number of samples analyzed is reported separately from the number of tests run in the data base.

Table 3 presents summary results of the number of tests which were conducted during October 1, 2015 to September 30, 2016. The term, “validated test”, as used in this report, is a test used for the screening of raw milk for drug residue, which has been evaluated by FDA in accordance with the standards established for the evaluation of these types of tests and found acceptable by the NCIMS in accordance with Appendix N of the PMO. In addition, FDA validated drug residue detection procedures for screening and quantification of drug residues in milk may be used. Table 3A presents summary results using validated tests and Table 3B presents summary results using non-validated tests.

TABLE 3 -- Tests Conducted October 1, 2015 to September 30, 2016			
Source of Sample	Total Tests	Number of Positive Tests	Percent Positive
Bulk Milk Pickup Tanker	3,164,363	351	0.011%
Pasteurized Fluid Milk and Milk Products	38,563	0	0.000%
Producer	407,731	261	0.064%
Other	50,406	7	0.014%
TOTALS	3,661,063	619	*

* See Table 1 for explanation

TABLE 3A -- Validated Tests Conducted October 1, 2015 to September 30, 2016			
Source of Sample	Total Tests	Number of Positive Tests	Percent Positive
Bulk Milk Pickup Tanker	3,041,991	348	0.011%
Pasteurized Fluid Milk and Milk Products	38,563	0	0.000%
Producer	405,904	259	0.064%
Other	49,313	7	0.014%
TOTALS	3,535,771	614	*

* See Table 1 for explanation

TABLE 3B -- Non-Validated Tests Conducted October 1, 2015 to September 30, 2016			
Source of Sample	Total Tests	Number of Positive Tests	Percent Positive
Bulk Milk Pickup Tanker	122,372	3	0.002%
Pasteurized Fluid Milk and Milk Products	0	0	0.000%
Producer	1,827	2	0.109%
Other	1,093	0	0.000%
TOTALS	125,292	5	*

* See Table 1 for explanation

Table 4 presents additional details in terms of the tests conducted by industry and by State Regulatory Agencies. Tables 4A and 4B present these data by validated and non-validated tests.

TABLE 4 -- Tests Conducted by Industry and Regulatory Agencies October 1, 2015 to September 30, 2016							
Source of Sample	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Total Percent Positive
GRADE "A"							
Bulk Milk Pickup Tanker	3,016,155	325	8,481	1	3,024,636	326	0.011%
Pasteurized Fluid Milk and Milk Products	2,989	0	34,308	0	37,297	0	0.000%
Producer	307,349	202	79,087	35	386,436	237	0.061%
Other	38,073	7	7,876	0	45,949	7	0.015%
NON-GRADE "A"							
Bulk Milk Pickup Tanker ¹	139,617	25	110	0	139,727	25	0.018%
Pasteurized Fluid Milk and Milk Products	1,109	0	157	0	1,266	0	0.000%
Producer	21,004	24	291	0	21,295	24	0.113%
Other	3,827	0	630	0	4,457	0	0.000%
TOTALS	3,530,123	583	130,940	36	3,661,063	619	*

¹ It is a common practice in some States, including two large milk production States, that bulk milk pickup tankers pickup milk from both Grade "A" and non-Grade "A" milk producers on the same tanker. Then, these loads are delivered to non-Grade "A" processing facilities. Because of this commingling of the two grades of milk, all data related to these loads are reported under non-Grade "A".

See Table 1 for explanation

**TABLE 4A -- Validated Tests Conducted by Industry and Regulatory Agencies
October 1, 2015 to September 30, 2016**

Source of Sample	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Total Percent Positive
GRADE "A"							
Bulk Milk Pickup Tanker	2,895,204	322	8,481	1	2,903,685	323	0.011%
Pasteurized Fluid Milk and Milk Products	2,989	0	34,308	0	37,297	0	0.000%
Producer	305,877	200	78,732	35	384,609	235	0.061%
Other	37,595	7	7,876	0	45,471	7	0.015%
NON-GRADE "A"							
Bulk Milk Pickup Tanker ¹	138,196	25	110	0	138,306	25	0.018%
Pasteurized Fluid Milk and Milk Products	1,109	0	157	0	1,266	0	0.000%
Producer	21,004	24	291	0	21,295	24	0.113%
Other	3,212	0	630	0	3,842	0	0.000%
TOTALS	3,405,186	578	130,585	36	3,535,771	614	*

¹ It is a common practice in some States, including two large milk production States, that bulk milk pickup tankers pickup milk from both Grade "A" and non-Grade "A" milk producers on the same tanker. Then, these loads are delivered to non-Grade "A" processing facilities. Because of this commingling of the two grades of milk, all data related to these loads are reported under non-Grade "A".

* See Table 1 for explanation

**TABLE 4B -- Non-Validated Tests Conducted by Industry and Regulatory Agencies
October 1, 2015 to September 30, 2016**

Source of Sample	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Total Percent Positive
GRADE "A"							
Bulk Milk Pickup Tanker	120,951	3	0	0	120,951	3	0.002%
Pasteurized Fluid Milk and Milk Products	0	0	0	0	0	0	0.000%
Producer	1,472	2	355	0	1,827	2	0.109%
Other	478	0	0	0	478	0	0.000%
NON-GRADE "A"							
Bulk Milk Pickup Tanker ¹	1,421	0	0	0	1,421	0	0.000%
Pasteurized Fluid Milk and Milk Products	0	0	0	0	0	0	0.000%
Producer	0	0	0	0	0	0	0.000%
Other	615	0	0	0	615	0	0.000%
TOTALS	124,937	5	355	0	125,292	5	*

¹ It is a common practice in some States, including two large milk production States, that bulk milk pickup tankers pickup milk from both Grade "A" and non-Grade "A" milk producers on the same tanker. Then, these loads are delivered to non-Grade "A" processing facilities. Because of this commingling of the two grades of milk, all data related to these loads are reported under non-Grade "A".

See Table 1 for explanation

Table 5 shows the number of tests conducted by the family of drugs and by individual drug. Tables 5A and 5B present these data by validated and non-validated tests.

TABLE 5 -- Number of Tests Conducted by Family/Drug October 1, 2015 to September 30, 2016		
Family/Drug	Total Tests	Total Positive
BETA lactams	3,523,005	612
CLOXACILLIN	96	0
SULFONAMIDES	74,621	6
SULFAMETHAZINE	1,640	0
TETRACYCLINES	61,701	1
TOTALS	3,661,063	619

TABLE 5A -- Number of Validated Tests Conducted by Family/Drug October 1, 2015 to September 30, 2016		
Family/Drug	Total Tests	Total Positive
BETA lactams	3,523,005	612
CLOXACILLIN	96	0
SULFONAMIDES	6,762	2
TETRACYCLINES	5,908	0
TOTALS	3,535,771	614

TABLE 5B -- Number of Non-Validated Tests Conducted by Family/Drug October 1, 2015 to September 30, 2016		
Family/Drug	Total Tests	Total Positive
SULFONAMIDES	67,859	4
SULFAMETHAZINE	1,640	0
TETRACYCLINES	55,793	1
TOTALS	125,292	5

Table 6 presents details on the tests used. The data in this table are comparable to Table 5, but the data are arranged by tests within each family/drug. Therefore, the Totals are the same in both tables. The testing methods with the largest use were: Charm SL - Beta lactams, which was used more than 2 million times, Charm 3 SL-3, which was used almost 790 thousand times, Delvotest P 5 Pack - Beta lactams, which was used more than 398 thousand times, and IDEXX New SNAP, which was used for more than 121 thousand tests. Table 6A shows a comparison of tests conducted using Validated and Non-Validated test methods for Sulfonamides and Tetracyclines.

TABLE 6 -- Number of Tests by Method by Family/Drug October 1, 2015 to September 30, 2016			
Tests Used by Family/Drug	Number of Tests	Number Positive	Percent Positive
BETA lactams			
Charm 3 SL-3	789,908	86	0.011%
Charm BSDA Tablet - Beta lactams ⁺⁺	30,826	16	0.052%
Charm II Tablet Competitive	42,140	6	0.014%
Charm II Tablet Quantitative	6	0	0.000%
Charm II Tablet Sequential	23,295	2	0.009%
Charm SL Beta lactams	2,069,576	238	0.011%
Charm SL-6	19,863	8	0.040%
Delvotest P 5 Pack - Beta lactams ⁺⁺	398,428	233	0.058%
Delvotest P/Delvotest P Mini ⁺⁺	27,258	1	0.004%
Delvotest SP/Delvotest SP Mini ⁺⁺	41	0	0.000%
IDEXX New SNAP	121,609	22	0.018%
Neogen BetaStar	55	0	0.000%
CLOXACILLIN			
Charm II Test for Cloxacillin	96	0	0.000%
SULFONAMIDES			
Charm II Tablet Competitive	6,762	2	0.030%
Charm II Tablet Sequential ^{**}	55	0	0.000%
Charm SL Sulfa Test ^{**}	67,804	4	0.006%
SULFAMETHAZINE			
IDEXX SNAP SULFA (SMZ) ^{**}	1,640	0	0.000%

**TABLE 6 -- Number of Tests by Method by Family/Drug
October 1, 2015 to September 30, 2016**

Tests Used by Family/Drug	Number of Tests	Number Positive	Percent Positive
TETRACYCLINES			
Charm II Tablet Competitive	5,908	0	0.000%
Charm SL - Tetracyclines**	51,135	1	0.002%
SNAP - Tetracycline**	4,658	0	0.000%
TOTALS	3,661,063	619	*

* See Table 1 for explanation

** Non-Validated Test Method

++ NCIMS evaluated these kits for detection of beta lactams; however, unless the kits are used with beta lactamase, they do not specifically identify the presence of beta lactams. The reporting of these tests does not make it possible to separate the use/nonuse of beta lactamase. A finding of "Not Found" would indicate the test did not detect any inhibitor for which it is sensitive, including, but not limited to, antibiotics or non-specific inhibitors such as sanitizers. See technical bulletin on the contractor's website at: www.kandc-sbcc.com/nmdrd/.

**TABLE 6A -- Comparison of Validated and Non-Validated
Tests for Sulfonamides and Tetracyclines
October 1, 2015 to September 30, 2016**

Tests By Method by Family/Drug	Number of Tests	Number Positive	Percent Positive
VALIDATED FOR SULFONAMIDES			
Charm II Tablet Competitive	6,762	2	0.030%
NON-VALIDATED FOR SULFONAMIDES			
Charm II Tablet Sequential**	55	0	0.000%
Charm SL Sulfa Test**	67,804	4	0.006%
NON-VALIDATED FOR SULFAMETHAZINE			
IDEXX SNAP SULFA (SMZ)**	1,640	0	0.000%
VALIDATED FOR TETRACYCLINES			
Charm II Tablet Competitive	5,908	0	0.000%
NON-VALIDATED FOR TETRACYCLINES			
Charm SL - Tetracyclines**	51,135	1	0.002%
SNAP - Tetracycline**	4,658	0	0.000%
TOTALS	137,962	7	*

* See Table 1 for explanation

** Non-Validated Test Method

Tables 7-1 to 7-8 present additional details of the testing conducted. These Tables show the testing by the family of drugs and by individual drugs and present results in terms of Grade “A” and Non-Grade “A” testing. Data on individual drugs listed in these Tables, e.g., Cloxacillin, Sulfamethazine, etc., are not included in the Totals for the family of drugs, e.g, Beta lactams, Sulfonamides, etc.

TABLE 7-1 -- Grade “A” Bulk Milk Pickup Tanker Testing October 1, 2015 to September 30, 2016						
Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests
BETA lactams	2,883,671	320	7,348	1	2,891,019	321
Cloxacillin	0	0	67	0	67	0
SULFONAMIDES	72,610	5	533	0	73,143	5
SULFAMETHAZINE	1,354	0	0	0	1,354	0
TETRACYCLINES	58,520	0	533	0	59,053	0
TOTALS	3,016,155	325	8,481	1	3,024,636	326

TABLE 7-2 -- Grade “A” Pasteurized Fluid Milk and Milk Products Testing October 1, 2015 to September 30, 2016						
Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests
BETA lactams	2,989	0	34,308	0	37,297	0
TOTALS	2,989	0	34,308	0	37,297	0

TABLE 7-3 – Grade “A” Producer Testing October 1, 2015 to September 30, 2016						
Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests
BETA lactams	305,877	200	78,707	35	384,584	235
SULFONAMIDES	822	1	187	0	1,009	1
TETRACYCLINES	650	1	193	0	843	1
TOTALS	307,349	202	79,087	35	386,436	237

**TABLE 7-4 -- Grade "A" Other Testing (Milk from milk plant tanks/silos, milk transport tankers, etc.)
October 1, 2015 to September 30, 2016**

Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests
BETA lactams	37,595	7	7,801	0	45,396	7
Cloxacillin	0	0	29	0	29	0
SULFONAMIDES	192	0	21	0	213	0
SULFAMETHAZINE	286	0	0	0	286	0
TETRACYCLINES	0	0	25	0	25	0
TOTALS	38,073	7	7,876	0	45,949	7

**TABLE 7-5 -- Non-Grade "A" Bulk Milk Pickup Tanker Testing
October 1, 2015 to September 30, 2016**

Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests
BETA lactams	138,196	25	110	0	138,306	25
SULFONAMIDES	256	0	0	0	256	0
TETRACYCLINES	1,165	0	0	0	1,165	0
TOTALS	139,617	25	110	0	139,727	25

**TABLE 7-6 -- Non-Grade "A" Pasteurized Fluid Milk and Milk Products Testing
October 1, 2015 to September 30, 2016**

Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests
BETA lactams	1,109	0	157	0	1,266	0
TOTALS	1,109	0	157	0	1,266	0

**TABLE 7-7 -- Non-Grade "A" Producer Testing
October 1, 2015 to September 30, 2016**

Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests
BETA lactams	21,004	24	291	0	21,295	24
TOTALS	21,004	24	291	0	21,295	24

**TABLE 7-8 -- Non-Grade "A" Other Testing (Milk from milk plant tanks/silos, milk transport tankers, etc.)
October 1, 2015 to September 30, 2016**

Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests
BETA lactams	3,212	0	630	0	3,842	0
TETRACYCLINES	615	0	0	0	615	0
TOTALS	3,827	0	630	0	4,457	0

Tables 8-1 to 8-8 present details on the number of tests conducted by industry and by State Regulatory Agencies. The data are arranged by test within each family/drug and present results in terms of sample type and Grade "A" and Non-Grade "A" testing.

**Table 8-1 -- Number of Tests by Method by Family/Drug
Grade "A" Bulk Milk Pickup Tanker
October 1, 2015 to September 30, 2016**

Tests Used by Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Percent Positive
BETA lactams							
Charm 3 SL-3	731,559	78	120	0	731,679	78	0.011%
Charm BSDA Tablet - Beta lactams**	20,696	2	0	0	20,696	2	0.010%
Charm II Tablet Competitive	41,444	6	0	0	41,444	6	0.014%
Charm II Tablet Quantitative	0	0	6	0	6	0	0.000%
Charm II Tablet Sequential	23,182	2	79	0	23,261	2	0.009%
Charm SL Beta lactams	1,935,327	208	1,380	1	1,936,707	209	0.011%
Charm SL-6	15,499	7	0	0	15,499	7	0.045%
Delvotest P 5 Pack - Beta lactams**	3,078	0	5,565	0	8,643	0	0.000%
Delvotest P/Delvotest P Mini**	2,646	0	111	0	2,757	0	0.000%
Delvotest SP/Delvotest SP Mini**	41	0	0	0	41	0	0.000%
IDEXX New SNAP	110,144	17	87	0	110,231	17	0.015%
Neogen BetaStar	55	0	0	0	55	0	0.000%
Cloxacillin							
Charm II Test for Cloxacillin	0	0	67	0	67	0	0.000%
Sulfonamides							
Charm II Tablet Competitive	6,183	2	533	0	6,716	2	0.030%
Charm SL Sulfa Test**	66,427	3	0	0	66,427	3	0.005%
SULFAMETHAZINE							
IDEXX SNAP SULFA (SMZ)**	1,354	0	0	0	1,354	0	0.000%

**Table 8-1 -- Number of Tests by Method by Family/Drug
Grade "A" Bulk Milk Pickup Tanker
October 1, 2015 to September 30, 2016**

Tests Used by Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Percent Positive
Tetracyclines							
Charm II Tablet Competitive	5,350	0	533	0	5,883	0	0.000%
Charm SL - Tetracyclines **	50,091	0	0	0	50,091	0	0.000%
SNAP - Tetracycline **	3,079	0	0	0	3,079	0	0.000%
TOTALS	3,016,155	325	8,481	1	3,024,636	326	0.011%

** Non-Validated Test Method

++ NCIMS evaluated these kits for detection of beta lactams; however, unless the kits are used with beta lactamase, they do not specifically identify the presence of beta lactams. The reporting of these tests does not make it possible to separate the use/nonuse of beta lactamase. A finding of "Not Found" would indicate the test did not detect any inhibitor for which it is sensitive, including, but not limited to, antibiotics or non-specific inhibitors such as sanitizers. See technical bulletin on the contractor's website at: www.kandc-sbcc.com/nmdrd/.

**Table 8-2 -- Number of Tests by Method by Family/Drug
Grade "A" Pasteurized Fluid Milk and Milk Products
October 1, 2015 to September 30, 2016**

Tests Used by Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Percent Positive
BETA lactams							
Charm 3 SL-3	0	0	58	0	58	0	0.000%
Charm BSDA Tablet - Beta lactams ⁺⁺	18	0	1,470	0	1,488	0	0.000%
Charm II Tablet Competitive	0	0	6	0	6	0	0.000%
Charm SL Beta lactams	0	0	1,556	0	1,556	0	0.000%
Charm SL-6	1,401	0	15	0	1,416	0	0.000%
Delvotest P 5 Pack - Beta lactams ⁺⁺	1,570	0	27,328	0	28,898	0	0.000%
Delvotest P/Delvotest P Mini ⁺⁺	0	0	3,299	0	3,299	0	0.000%
IDEXX New SNAP	0	0	576	0	576	0	0.000%
TOTALS	2,989	0	34,308	0	37,297	0	0.000%

⁺⁺ NCIMS evaluated these kits for detection of beta lactams; however, unless the kits are used with beta lactamase, they do not specifically identify the presence of beta lactams. The reporting of these tests does not make it possible to separate the use/nonuse of beta lactamase. A finding of "Not Found" would indicate the test did not detect any inhibitor for which it is sensitive, including, but not limited to, antibiotics or non-specific inhibitors such as sanitizers. See technical bulletin on the contractor's website at: www.kandc-sbcc.com/nmdrd/.

**Table 8-3 -- Number of Tests by Method by Family/Drug
Grade "A" Producer Testing
October 1, 2015 to September 30, 2016**

Tests Used by Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Percent Positive
BETA lactams							
Charm 3 SL-3	18,350	3	533	1	18,883	4	0.021%
Charm BSDA Tablet - Beta lactams ⁺⁺	5,680	13	1,949	0	7,629	13	0.170%
Charm II Tablet Competitive	386	0	0	0	386	0	0.000%
Charm SL Beta lactams	7,688	7	2,858	0	10,546	7	0.066%
Charm SL-6	2,050	1	0	0	2,050	1	0.049%
Delvotest P 5 Pack - Beta lactams ⁺⁺	260,995	173	59,649	33	320,644	206	0.064%
Delvotest P/Delvotest P Mini ⁺⁺	5,176	0	13,308	1	18,484	1	0.005%
IDEXX New SNAP	5,552	3	410	0	5,962	3	0.050%
Sulfonamides							
Charm II Tablet Competitive	0	0	25	0	25	0	0.000%
Charm SL Sulfa Test ^{**}	822	1	162	0	984	1	0.102%
Tetracyclines							
Charm SL - Tetracyclines ^{**}	650	1	193	0	843	1	0.119%
TOTALS	307,349	202	79,087	35	386,436	237	0.061%

^{**} Non-Validated Test Method

⁺⁺ NCIMS evaluated these kits for detection of beta lactams; however, unless the kits are used with beta lactamase, they do not specifically identify the presence of beta lactams. The reporting of these tests does not make it possible to separate the use/nonuse of beta lactamase. A finding of "Not Found" would indicate the test did not detect any inhibitor for which it is sensitive, including, but not limited to, antibiotics or non-specific inhibitors such as sanitizers. See technical bulletin on the contractor's website at: www.kandc-sbcc.com/nmdrd/.

**Table 8-4 -- Number of Tests by Method by Family/Drug
Grade "A" Other Testing (Milk from milk plant tanks/silos, milk transport tankers,
etc.)
October 1, 2015 to September 30, 2016**

Tests Used by Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Percent Positive
BETA lactams							
Charm 3 SL-3	4,181	1	106	0	4,287	1	0.023%
Charm BSDA Tablet - Beta lactams ⁺⁺	0	0	167	0	167	0	0.000%
Charm II Tablet Competitive	304	0	0	0	304	0	0.000%
Charm II Tablet Sequential	0	0	29	0	29	0	0.000%
Charm SL Beta lactams	31,086	5	1,036	0	32,122	5	0.016%
Charm SL-6	898	0	0	0	898	0	0.000%
Delvotest P 5 Pack - Beta lactams ⁺⁺	315	1	4,867	0	5,182	1	0.019%
Delvotest P/Delvotest P Mini ⁺⁺	101	0	1,470	0	1,571	0	0.000%
IDEXX New SNAP	710	0	126	0	836	0	0.000%
Cloxacillin							
Charm II Test for Cloxacillin	0	0	29	0	29	0	0.000%
Sulfonamides							
Charm II Tablet Competitive	0	0	21	0	21	0	0.000%
Charm SL Sulfa Test ^{**}	192	0	0	0	192	0	0.000%
SULFAMETHAZINE							
IDEXX SNAP SULFA (SMZ) ^{**}	286	0	0	0	286	0	0.000%
Tetracyclines							
Charm II Tablet Competitive	0	0	25	0	25	0	0.000%
TOTALS	38,073	7	7,876	0	45,949	7	0.015%

** Non-Validated Test Method

⁺⁺ NCIMS evaluated these kits for detection of beta lactams; however, unless the kits are used with beta lactamase, they do not specifically identify the presence of beta lactams. The reporting of these tests does not make it possible to separate the use/nonuse of beta lactamase. A finding of "Not Found" would indicate the test did not detect any inhibitor for which it is sensitive, including, but not limited to, antibiotics or non-specific inhibitors such as sanitizers. See technical bulletin on the contractor's website at: www.kandc-sbcc.com/nmdrd/.

**Table 8-5 -- Number of Tests by Method by Family/Drug
Non-Grade "A" Bulk Milk Pickup Tanker
October 1, 2015 to September 30, 2016**

Tests Used by Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Percent Positive
BETA lactams							
Charm 3 SL-3	35,001	3	0	0	35,001	3	0.009%
Charm II Tablet Sequential	0	0	5	0	5	0	0.000%
Charm SL Beta lactams	87,440	17	2	0	87,442	17	0.019%
Delvotest P 5 Pack - Beta lactams ⁺⁺	10,871	4	0	0	10,871	4	0.037%
Delvotest P/Delvotest P Mini ⁺⁺	1,086	0	0	0	1,086	0	0.000%
IDEXX New SNAP	3,798	1	103	0	3,901	1	0.026%
Sulfonamides							
Charm II Tablet Sequential ^{**}	55	0	0	0	55	0	0.000%
Charm SL Sulfa Test ^{**}	201	0	0	0	201	0	0.000%
Tetracyclines							
Charm SL - Tetracyclines ^{**}	201	0	0	0	201	0	0.000%
SNAP - Tetracycline ^{**}	964	0	0	0	964	0	0.000%
TOTALS	139,617	25	110	0	139,727	25	0.018%

** Non-Validated Test Method

⁺⁺ NCIMS evaluated these kits for detection of beta lactams; however, unless the kits are used with beta lactamase, they do not specifically identify the presence of beta lactams. The reporting of these tests does not make it possible to separate the use/nonuse of beta lactamase. A finding of "Not Found" would indicate the test did not detect any inhibitor for which it is sensitive, including, but not limited to, antibiotics or non-specific inhibitors such as sanitizers. See technical bulletin on the contractor's website at: www.kandc-sbcc.com/nmdrd/.

**Table 8-6 -- Number of Tests by Method by Family/Drug
Non-Grade "A" Pasteurized Fluid Milk and Milk Products
October 1, 2015 to September 30, 2016**

Tests Used by Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Percent Positive
BETA lactams							
Delvotest P 5 Pack - Beta lactams ⁺⁺	1,109	0	157	0	1,266	0	0.000%
TOTALS	1,109	0	157	0	1,266	0	0.000%

⁺⁺ NCIMS evaluated these kits for detection of beta lactams; however, unless the kits are used with beta lactamase, they do not specifically identify the presence of beta lactams. The reporting of these tests does not make it possible to separate the use/nonuse of beta lactamase. A finding of "Not Found" would indicate the test did not detect any inhibitor for which it is sensitive, including, but not limited to, antibiotics or non-specific inhibitors such as sanitizers. See technical bulletin on the contractor's website at: www.kandc-sbcc.com/nmdrd/.

**Table 8-7 -- Number of Tests by Method by Family/Drug
Non-Grade "A" Producer Testing
October 1, 2015 to September 30, 2016**

Tests Used by Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Percent Positive
BETA lactams							
Charm BSDA Tablet - Beta lactams ⁺⁺	846	1	0	0	846	1	0.118%
Charm SL Beta lactams	0	0	123	0	123	0	0.000%
Delvotest P 5 Pack - Beta lactams ⁺⁺	20,058	22	104	0	20,162	22	0.109%
Delvotest P/Delvotest P Mini ⁺⁺	0	0	61	0	61	0	0.000%
IDEXX New SNAP	100	1	3	0	103	1	0.971%
TOTALS	21,004	24	291	0	21,295	24	0.113%

⁺⁺ NCIMS evaluated these kits for detection of beta lactams; however, unless the kits are used with beta lactamase, they do not specifically identify the presence of beta lactams. The reporting of these tests does not make it possible to separate the use/nonuse of beta lactamase. A finding of "Not Found" would indicate the test did not detect any inhibitor for which it is sensitive, including, but not limited to, antibiotics or non-specific inhibitors such as sanitizers. See technical bulletin on the contractor's website at: www.kandc-sbcc.com/nmdrd/.

**Table 8-8 -- Number of Tests by Method by Family/Drug
Non-Grade "A" Other Testing (Milk from milk plant tanks/silos, milk transport
tankers, etc.)
October 1, 2015 to September 30, 2016**

Tests Used by Family/Drug	Number of Industry Tests	Number of Positive Industry Tests	Number of Regulatory Tests	Number of Positive Regulatory Tests	Total Tests	Total Positive Tests	Percent Positive
BETA lactams							
Charm SL Beta lactams	1,080	0	0	0	1,080	0	0.000%
Delvotest P 5 Pack - Beta lactams ⁺⁺	2,132	0	630	0	2,762	0	0.000%
Tetracyclines							
SNAP - Tetracycline ^{**}	615	0	0	0	615	0	0.000%
TOTALS	3,827	0	630	0	4,457	0	0.000%

^{**} Non-Validated Test Method

⁺⁺ NCIMS evaluated these kits for detection of beta lactams; however, unless the kits are used with beta lactamase, they do not specifically identify the presence of beta lactams. The reporting of these tests does not make it possible to separate the use/nonuse of beta lactamase. A finding of "Not Found" would indicate the test did not detect any inhibitor for which it is sensitive, including, but not limited to, antibiotics or non-specific inhibitors such as sanitizers. See technical bulletin on the contractor's website at: www.kandc-sbcc.com/nmdrd/.