

NATIONAL MILK DRUG RESIDUE DATABASE

FISCAL YEAR 2023 ANNUAL REPORT

October 1, 2022 - September 30, 2023

Submitted to:

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INTRODUCTION

The National Milk Drug Residue Data Base (NMDRD) is a reporting program to compile data regarding the antibiotic testing of milk by the dairy industry. Although the National Milk Drug Residue Data Base (NMDRD) is a voluntary industry reporting program, mandatory reporting is required by 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" as well as non-Grade "A", which is commonly known as manufacturing grade milk. Grade "A" milk represents approximately 99% of the milk supply in the United States and is regulated through the NCIMS by the 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 safe, 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, a competitively selected contract was awarded to GLH, Inc. as an independent third party to develop the NMDRD under contract to the FDA. The database 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 database was established to promote maximum voluntary participation by the dairy industry in reporting their testing results, without compromising any confidential data. The information submitted to the database is not specific to individual firms, or states, but instead consists of numbers of milk drug residue tests organized by categories including test kit method, drug family, and sample type. 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.

FY 2023 ACTIVITIES

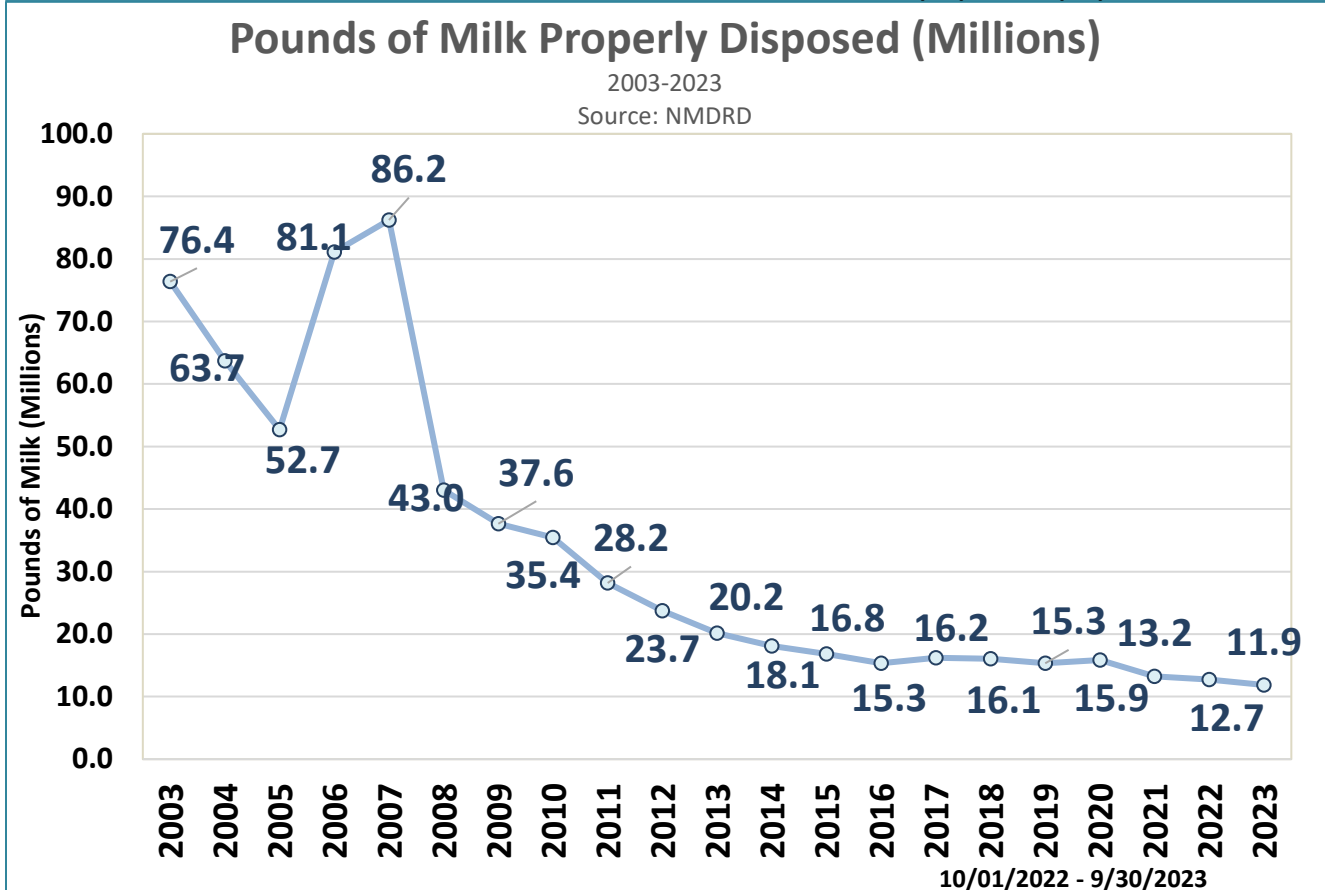
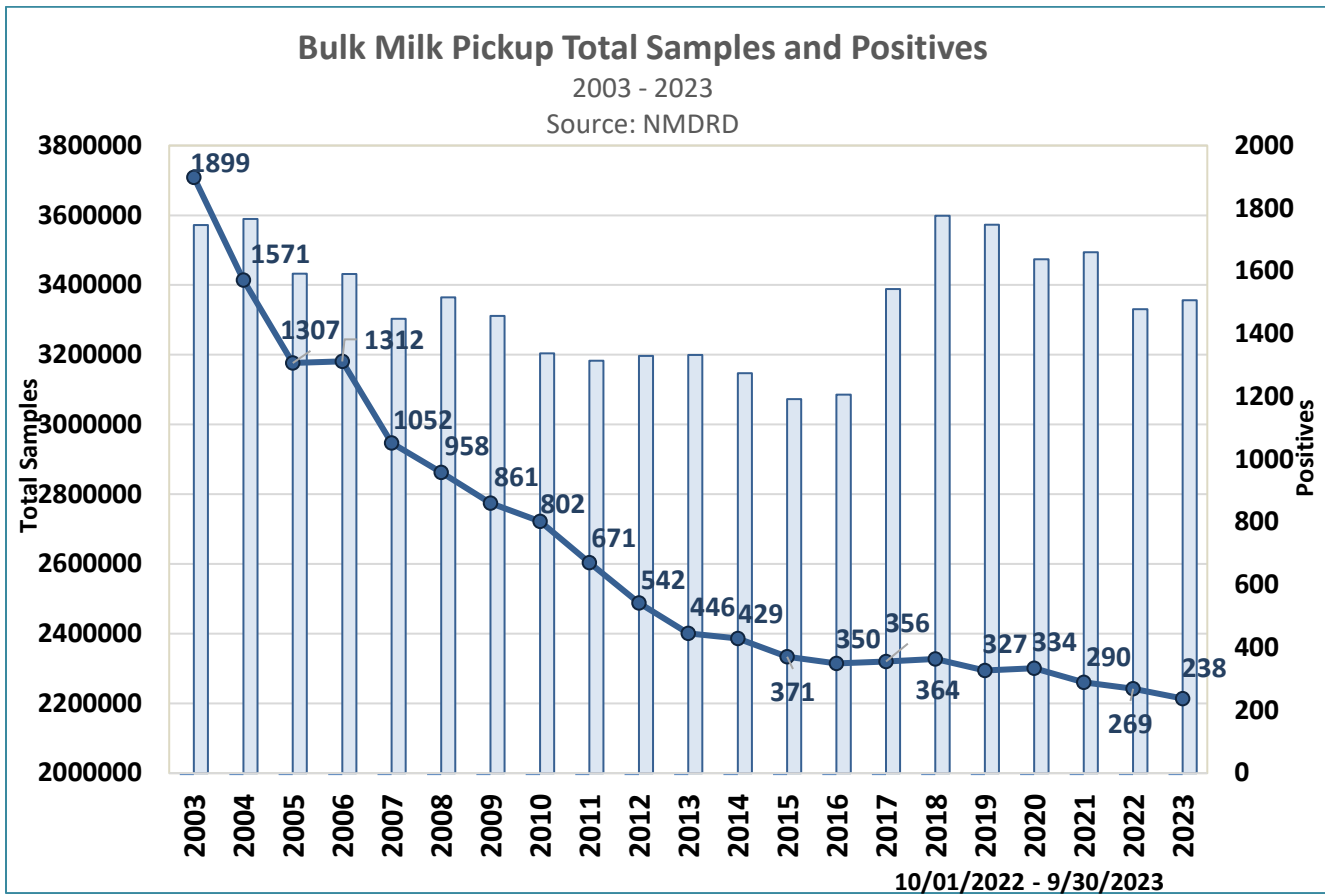
In advance of the NMDRD contract expiration on March 31, 2023, GLH, Inc. informed the FDA that it did not plan to bid on the prospective Request for Proposal (RFP) for continuing work on the NMDRD. During November 2022, the Food and Drug Administration requested GLH, Inc. to accept a six-month contract extension to provide additional time for issuing a RFP and naming a new NMDRD contract holder. GLH, Inc. agreed to this request and on February 6, 2023, Amendment P00007 was signed which provided a six-month contract extension to continue GLH, Inc. services during the period of April 1, 2023 through September 30, 2023. The Amendment specified that a special National Milk Drug Residue Database Fiscal Year 2023 Interim Report be prepared at the conclusion of the GLH, Inc. contract extension on September 30, 2023. This interim report and all previous annual reports are available on the NMDRD Website at <https://www.nmdrd.com>.

On June 6, 2023, GLH, Inc. staff members participated in a conference call with FDA representatives and officials from the JIFSAN organization. During this meeting, FDA announced that JIFSAN was selected as the new NMDRD contractor. The previously provided NMDRD System Documentation was discussed along with transition planning and training requirements. Several training sessions were held in August and September 2023. GLH, Inc. transferred all current data, website and historical data from GLH, to JIFSAN. The process of entering the data through the website remain the same for all data reporters.

GLH, Inc. has supported the FDA and the NCIMS in the design, management, and operation of the NMDRD since the national database was approved by the delegates during the 1991 NCIMS. The dedicated work done by GLH, Inc. has been outstanding and much appreciated.

This third-party database has been very successful in documenting the hard work done by the dairy industry to prevent drug residues in our milk supply, thus helping to meet the NCIMS standard as “the Safest Possible Milk Supply for All the People.” The two charts that are included below represent data taken from NMDRD Annual Reports over the last 20 years. The reduction of Bulk Milk Pickup Tanker sample positives and the resulting reduction in test positive milk represent a commendable achievement by the dairy industry and that story is told through the NMDRD.

HISTORICAL DATA REPORTING TRENDS



SAMPLES AND TESTS REPORTED

This report presents summary data on samples and tests conducted during the Fiscal Year 2023 (October 1, 2022 to September 30, 2023). Fifty (50) States, Puerto Rico and two (2) Third Party Certifiers (TPC) authorized under the International Certification Program (ICP) submitted data for this report. The contractor appreciates the cooperation of all the data reporters who contributed to this fiscal year's report.

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

During October through September of FY 2023, **3,694,059** samples were analyzed for animal drug residues. Of these samples **345** were positive for a drug residue. A total of **3,897,863** tests were reported on the samples for three (3) different groups or families of drugs. Since some samples are analyzed for more than one (1) drug residue, the number of tests conducted is greater than the number of samples. During FY 2023, a total of **345** tests were reported as positive for a drug residue. Seventeen(17) testing methods were used to analyze the samples for drug residues. Key residue findings, by test method and sample source, can be found in Tables 8-1 to 8-8 of this report.

SAMPLE RESULTS

A SAMPLE is defined as representing a load or lot of milk sampled and analyzed. Samples may include, for example, milk collected from a bulk milk pickup tanker, a raw milk supply that has not been transported in a bulk milk pickup tanker, a producer's bulk milk tank, a milk transport tanker, a plant silo, or a pasteurized finished product. 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 dairy farm(s).
2. Pasteurized Fluid Milk and Milk Products - after pasteurization, finished product in package form or bulk. This term includes milk products such as milk and cream.
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 tanks/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 (refer to the latest version of M-I-96-10), 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

Sample	Total Samples	Source of Number Positive	Percent Positive	Disposition per PMO (Pounds)
Bulk Milk Pickup Tanker	3,356,214	238	0.007%	11,520,000
Pasteurized Fluid Milk and Milk Products	28,842	0	0.000%	0
Producer	265,339	104	0.039%	228,000
Other	43,664	3	0.007%	121,000
TOTALS	3,694,059	345	*	11,869,000

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 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 Regulatory Agencies.

Table 2 -- Industry and Regulatory Samples

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	3,303,297	228	6,430	3	3,309,727	231	0.007%	11,233,000
Pasteurized Fluid Milk and Milk Products	1,782	0	26,464	0	28,246	0	0.000%	0
Producer	168,819	81	85,231	12	254,050	93	0.037%	228,000
Other	33,449	0	9,148	3	42,597	3	0.007%	121,000
NON-GRADE "A"								
Bulk Milk Pickup Tanker ¹	46,487	7	0	0	46,487	7	0.015%	287,000
Pasteurized Fluid Milk and Milk Products	377	0	219	0	596	0	0.000%	0
Producer	11,018	11	271	0	11,289	11	0.097%	0
Other	909	0	158	0	1,067	0	0.000%	0
TOTALS	3,566,138	327	127,921	18	3,694,059	345	*	11,869,000²

¹ It is a common practice in some states, including two large milk producing states, that bulk milk pickup tankers collect 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 0.004% of the total milk supply of the United States with an annual production of 226 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 (3,897,863) is greater than the number of samples (3,694,059). 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, 2022 to September 31, 2023. The term, "validated test," as used in this report, is a test used for the screening of 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 by Sample Sources

Source of Sample	Total Tests	Number of Positive Tests	Percent Positive
Bulk Milk Pickup Tanker	3,559,878	238	0.007%
Pasteurized Fluid Milk and Milk Products	28,915	0	0.000%
Producer	265,395	104	0.039%
Other	43,675	3	0.007%
TOTALS	3,897,863	345	*

* See Table 1 for explanation

Table 3A -- Validated Tests Conducted

Source of Sample	Total Tests	Number of Positive Tests	Percent Positive
Bulk Milk Pickup Tanker	3,559,488	238	0.007%
Pasteurized Fluid Milk and Milk Products	28,915	0	0.000%
Producer	265,291	104	0.039%
Other	43,675	3	0.007%
TOTALS	3,897,369	345	*

* See Table 1 for explanation

Table 3B -- Non-Validated Tests Conducted

Source of Sample	Total Tests	Number of Positive Tests	Percent Positive
Bulk Milk Pickup Tanker	390	0	0.000%
Pasteurized Fluid Milk and Milk Products	0	0	0.000%
Producer	104	0	0.000%
Other	0	0	0.000%
TOTALS	494	0	*

* See Table 1 for explanation

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

Table 4 -- Tests Conducted by Industry and Regulatory Agencies

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	3,506,868	228	6,430	3	3,513,298	231	0.007%
Pasteurized Fluid Milk and Milk Products	1,782	0	26,464	0	28,246	0	0.000%
Producer	168,869	81	85,237	12	254,106	93	0.037%
Other	33,449	0	9,158	3	42,607	3	0.007%
NON-GRADE "A"							
Bulk Milk Pickup Tanker ¹	46,580	7	0	0	46,580	7	0.015%
Pasteurized Fluid Milk and Milk Products	377	0	292	0	669	0	0.000%
Producer	11,018	11	271	0	11,289	11	0.097%
Other	909	0	159	0	1,068	0	0.000%
TOTALS	3,769,852	327	128,011	18	3,897,863	345	*

¹ It is a common practice in some states, including two large milk producing states, that bulk milk pickup tankers collect 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

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	3,506,478	228	6,430	3	3,512,908	231	0.007%
Pasteurized Fluid Milk and Milk Products	1,782	0	26,464	0	28,246	0	0.000%
Producer	168,765	81	85,237	12	254,002	93	0.037%
Other	33,449	0	9,158	3	42,607	3	0.007%
NON-GRADE "A"							
Bulk Milk Pickup Tanker ¹	46,580	7	0	0	46,580	7	0.015%
Pasteurized Fluid Milk and Milk Products	377	0	292	0	669	0	0.000%
Producer	11,018	11	271	0	11,289	11	0.097%
Other	909	0	159	0	1,068	0	0.000%
TOTALS	3,769,358	327	128,011	18	3,897,369	345	*

¹ It is a common practice in some states, including two large milk producing states, that bulk milk pickup tankers collect 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

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	390	0	0	0	390	0	0.000%
Pasteurized Fluid Milk and Milk Products	0	0	0	0	0	0	0.000%
Producer	104	0	0	0	104	0	0.000%
Other	0	0	0	0	0	0	0.000%
NON-GRADE "A"							
Bulk Milk Pickup Tanker ¹	0	0	0	0	0	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	0	0	0	0	0	0	0.000%
TOTALS	494	0	0	0	494	0	*

¹ It is a common practice in some states, including two large milk producing states, that bulk milk pickup tankers collect 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. Tables 5A and 5B present these data by validated and non-validated tests.

Table 5 -- Number of Tests Conducted by Family/Drug

Family/Drug	Total Tests	Total Positive
AMINOGLYCOSIDES	390	0
BETA lactams	3,693,153	342
QUINOLONES	104	0
SULFONAMIDES	103,497	3
TETRACYCLINES	100,719	0
TOTALS	3,897,863	345

Table 5A -- Number of Validated Tests Conducted by Family/Drug

Family/Drug	Total Tests	Total Positive
BETA lactams	3,693,153	342
SULFONAMIDES	103,497	3
TETRACYCLINES	100,719	0
TOTALS	3,897,369	345

Table 5B -- Number of Non-Validated Tests Conducted by Family/Drug

Family/Drug	Total Tests	Total Positive
AMINOGLYCOSIDES	390	0
QUINOLONES	104	0
TOTALS	494	0

Table 6 presents details on the tests used, and the total test numbers are the same as shown in Table 5. The test numbers for each drug test method are arranged by test method within each drug family. Test methods with the largest use to detect drug residues were: Charm 3 SL-3, used for **1,818,045** tests; Charm SL Beta lactams, used for **1,285,145** tests; Delvotest P 5 Pack, used for **292,117** tests, Charm BL30SEC, used for **105,285** tests, Charm Trio, used for **94,389** tests. Please note that the Charm TRIO – Beta lactams, the Charm TRIO – Sulfonamides, and the Charm TRIO - Tetracyclines methods are highlighted in the following tables since they are approved for screening purposes only and not for confirmation.

Table 6 -- Number of Tests by Method by Family/Drug

Tests Used by Family/Drug	Number of Tests	Number Positive	Percent Positive
AMINOGLYCOSIDES			
Charm ROSA Gentamicin**	390	0	0.000%
BETA lactams			
Charm 3 SL-3	1,818,045	152	0.008%
Charm BL30SEC	105,285	12	0.011%
Charm BsDA**	9,937	4	0.040%
Charm SL Beta lactams	1,285,145	60	0.005%
Charm TRIO - Beta lactams	94,389	2	0.002%
Delvotest P 5 Pack**	292,117	91	0.031%
Delvotest P Mini - Beta lactams**	8,267	3	0.036%
IDEXX New SNAP Beta-Lactam	79,968	18	0.023%
QUINOLONES			
Charm ROSA Enrofloxacin**	104	0	0.000%
SULFONAMIDES			
Charm ROSA Sulfonamides	8,712	1	0.011%
Charm TRIO - Sulfonamides	94,389	2	0.002%
TLC Sulfonamide	396	0	0.000%
TETRACYCLINES			
Charm II Tablet Competitive	28	0	0.000%
Charm ROSA Tetracycline-SL(Dil. Conf.) Orange	5,264	0	0.000%
Charm TRIO - Tetracyclines	94,389	0	0.000%
IDEXX SNAP Tetracycline (Dil. Conf.)	1,038	0	0.000%
TOTALS	3,897,863	345	*

* 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: <https://www.nmdrd.com/>

Table 6A shows a comparison of tests conducted using Validated and Non-Validated test methods for Sulfonamides and Tetracyclines.

Table 6A -- Comparison of Validated and Non-Validated Tests for Sulfonamides and Tetracyclines

Tests By Method by Family/Drug	Number of Tests	Number Positive	Percent Positive
VALIDATED FOR SULFONAMIDES			
Charm ROSA Sulfonamides	8,712	1	0.011%
Charm TRIO - Sulfonamides	94,389	2	0.002%
TLC Sulfonamide	396	0	0.000%
VALIDATED FOR TETRACYCLINES			
Charm II Tablet Competitive	28	0	0.000%
Charm ROSA Tetracycline-SL(Dil. Conf.) Orange	5,264	0	0.000%
Charm TRIO - Tetracyclines	94,389	0	0.000%
IDEXX SNAP Tetracycline (Dil. Conf.)	1,038	0	0.000%
TOTALS	204,216	3	*

* See Table 1 for explanation

Tables 7-1 to 7-8 present additional details of the testing conducted. These tables show the testing by the family of drugs and present results in terms of Grade "A" and Non-Grade "A" testing.

Table 7-1 -- Grade "A" Bulk Milk Pickup Tanker Testing

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
AMINOGLYCOSIDES	390	0	0	0	390	0
BETA lactams	3,302,371	225	6,430	3	3,308,801	228
SULFONAMIDES	103,497	3	0	0	103,497	3
TETRACYCLINES	100,610	0	0	0	100,610	0
TOTALS	3,506,868	228	6,430	3	3,513,298	231

Table 7-2 -- Grade "A" Pasteurized Fluid Milk and Milk Products Testing

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	1,782	0	26,464	0	28,246	0
TOTALS	1,782	0	26,464	0	28,246	0

Table 7-3 -- Grade "A" Producer Testing

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	168,749	81	85,237	12	253,986	93
QUINOLONES	104	0	0	0	104	0
TETRACYCLINES	16	0	0	0	16	0
TOTALS	168,869	81	85,237	12	254,106	93

Table 7-4 -- Grade "A" Other Testing (Milk from Milk plant tanks/silos, milk transport tankers, etc.)

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	33,449	0	9,158	3	42,607	3
TOTALS	33,449	0	9,158	3	42,607	3

Table 7-5 -- Non-Grade "A" Bulk Milk Pickup Tanker Testing

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	46,487	7	0	0	46,487	7
TETRACYCLINES	93	0	0	0	93	0
TOTALS	46,580	7	0	0	46,580	7

Table 7-6 -- Non-Grade "A" Pasteurized Fluid Milk and Milk Products Testing

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	377	0	292	0	669	0
TOTALS	377	0	292	0	669	0

Table 7-7 -- Non-Grade "A" Producer Testing

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	11,018	11	271	0	11,289	11
TOTALS	11,018	11	271	0	11,289	11

Table 7-8 -- Non-Grade "A" Other Testing (Milk from Milk plant tanks/silos, milk transport tankers, etc.)

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	909	0	159	0	1,068	0
TOTALS	909	0	159	0	1,068	0

Tables 8-1 to 8-8 present details on the number of tests conducted by industry and by 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. Please reference the latest revision of M-a-98 for tests that are approved/validated or acceptable for testing milk and milk products for regulatory purposes.

Table 8-1 -- Number of Tests by Method by Family/Drug Grade "A" Bulk Milk Pickup Tanker

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
Aminoglycosides							
Charm ROSA Gentamicin**	390	0	0	0	390	0	0.000%
BETA lactams							
Charm 3 SL-3	1,773,652	144	491	1	1,774,143	145	0.008%
Charm BL30SEC	105,220	12	0	0	105,220	12	0.011%
Charm BsDA**	3,655	1	17	0	3,672	1	0.027%
Charm SL Beta lactams	1,236,579	53	2,115	1	1,238,694	54	0.004%
Charm TRIO - Beta lactams	94,389	2	0	0	94,389	2	0.002%
Delvotest P 5 Pack**	13,148	0	3,633	1	16,781	1	0.006%
Delvotest P Mini - Beta lactams**	3,303	0	130	0	3,433	0	0.000%
IDEXX New SNAP Beta-Lactam	72,425	13	44	0	72,469	13	0.018%
Sulfonamides							
Charm ROSA Sulfonamides	8,712	1	0	0	8,712	1	0.011%
Charm TRIO - Sulfonamides	94,389	2	0	0	94,389	2	0.002%
TLC Sulfonamide	396	0	0	0	396	0	0.000%
Tetracyclines							
Charm II Tablet Competitive	28	0	0	0	28	0	0.000%
Charm ROSA Tetracycline-SL(Dil. Conf.) Orange	5,264	0	0	0	5,264	0	0.000%
Charm TRIO - Tetracyclines	94,389	0	0	0	94,389	0	0.000%
IDEXX SNAP Tetracycline (Dil. Conf.)	929	0	0	0	929	0	0.000%
TOTALS	3,506,868	228	6,430	3	3,513,298	231	0.007%

** 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: <https://www.nmdrd.com/>

Table 8-2 -- Number of Tests by Method by Family/Drug Grade "A" Pasteurized Fluid Milk and Milk Products

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 ³	1,100	0	50	0	1,150	0	0.000%
Charm BsDA ⁺⁺	0	0	940	0	940	0	0.000%
Charm SL Beta lactams ³	32	0	12	0	44	0	0.000%
Delvotest P 5 Pack ⁺⁺	650	0	24,937	0	25,587	0	0.000%
Delvotest P Mini - Beta lactams ⁺⁺	0	0	72	0	72	0	0.000%
IDEXX New SNAP Beta-Lactam ³	0	0	453	0	453	0	0.000%
TOTALS	1,782	0	26,464	0	28,246	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: <https://www.nmdrd.com/>

³ This test is not approved for official NCIMS Regulatory Testing of Pasteurized Milk and Milk Products, see M-a-98.

Table 8-3 -- Number of Tests by Method by Family/Drug Grade "A" Producer Testing

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	3,516	0	574	1	4,090	1	0.024%
Charm BsDA ⁺⁺	3,577	3	75	0	3,652	3	0.082%
Charm SL Beta lactams	5,163	3	3,987	0	9,150	3	0.033%
Delvotest P 5 Pack ⁺⁺	152,236	69	79,339	10	231,575	79	0.034%
Delvotest P Mini - Beta lactams ⁺⁺	1,723	1	1,253	1	2,976	2	0.067%
IDEXX New SNAP Beta-Lactam	2,534	5	9	0	2,543	5	0.197%
Quinolones							
Charm ROSA Enrofloxacin ^{**}	104	0	0	0	104	0	0.000%
Tetracyclines							
IDEXX SNAP Tetracycline (Dil. Conf.)	16	0	0	0	16	0	0.000%
TOTALS	168,869	81	85,237	12	254,106	93	0.037%

^{**} 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: <https://www.nmdrd.com/>

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.)

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	18,705	0	292	3	18,997	3	0.016%
Charm BsDA**	13	0	88	0	101	0	0.000%
Charm SL Beta lactams	12,076	0	1,849	0	13,925	0	0.000%
Delvotest P 5 Pack**	424	0	5,626	0	6,050	0	0.000%
Delvotest P Mini - Beta lactams**	12	0	872	0	884	0	0.000%
IDEXX New SNAP Beta-Lactam	2,219	0	431	0	2,650	0	0.000%
TOTALS	33,449	0	9,158	3	42,607	3	0.007%

** 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: <https://www.nmrd.com/>

Table 8-5 -- Number of Tests by Method by Family/Drug Non-Grade "A" Bulk Milk Pickup Tanker

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	19,664	3	0	0	19,664	3	0.015%
Charm BL30SEC	65	0	0	0	65	0	0.000%
Charm BsDA**	1,098	0	0	0	1,098	0	0.000%
Charm SL Beta lactams	23,165	3	0	0	23,165	3	0.013%
Delvotest P 5 Pack**	16	0	0	0	16	0	0.000%
Delvotest P Mini - Beta lactams**	819	1	0	0	819	1	0.122%
IDEXX New SNAP Beta-Lactam	1,660	0	0	0	1,660	0	0.000%
Tetracyclines							
IDEXX SNAP Tetracycline (Dil. Conf.)	93	0	0	0	93	0	0.000%
TOTALS	46,580	7	0	0	46,580	7	0.015%

** 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: <https://www.nmrd.com/>

Table 8-6 -- Number of Tests by Method by Family/Drug Non-Grade "A" Pasteurized Fluid Milk and Milk Products

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 ⁺⁺	0	0	2	0	2	0	0.000%
Delvotest P 5 Pack ⁺⁺	377	0	290	0	667	0	0.000%
TOTALS	377	0	292	0	669	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: <https://www.nmdrd.com/>

Table 8-7 -- Number of Tests by Method by Family/Drug Non-Grade "A" Producer Testing

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 ⁺⁺	472	0	0	0	472	0	0.000%
Charm SL Beta lactams	0	0	1	0	1	0	0.000%
Delvotest P 5 Pack ⁺⁺	10,304	11	240	0	10,544	11	0.104%
Delvotest P Mini - Beta lactams ⁺⁺	53	0	30	0	83	0	0.000%
IDEXX New SNAP Beta-Lactam	189	0	0	0	189	0	0.000%
TOTALS	11,018	11	271	0	11,289	11	0.097%

⁺⁺ 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: <https://www.nmdrd.com/>

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.)

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	1	0	1	0	0.000%
Charm SL Beta lactams	50	0	116	0	166	0	0.000%
Delvotest P 5 Pack ⁺⁺	859	0	38	0	897	0	0.000%
IDEXX New SNAP Beta-Lactam	0	0	4	0	4	0	0.000%
TOTALS	909	0	159	0	1,068	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: <https://www.nmdrd.com/>