



Milk Report

- Compliance of antibiotics/ veterinary drugs
- Pesticide residues
- Heavy metals

fssai

FOOD SAFETY AND
STANDARDS
AUTHORITY OF INDIA



Inspiring Trust, Assuring Safe & Nutritious Food
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EXECUTIVE SUMMARY

The outbreak of Lumpy Skin Disease (LSD) in cattle in India has emerged as a challenge for the dairy sector. This disease has caused a marked decrease in milk production and in some cases death of the infected cattle. Preventive measures such as vector control, bio-security measures and disinfection & cleaning measures has been taken using the insecticides, repellents and other chemical agents.¹ Further the supportive therapy for treatment of Lumpy Skin Disease (LSD) in affected animals includes measures to control secondary bacterial infections with antibiotics and veterinary drugs. The administration of Antibiotics/veterinary drugs & spraying insecticides in the sheds may result in contamination in milk with antibiotics and pesticides residues.

In light of the above, FSSAI conducted the Surveillance on Milk to assess the presence of antibiotics, pesticide residues & heavy metals as per the limits given in FSSR and to identify the hotspots to get the location wise data of milk containing antibiotics, pesticides & heavy metals in concentration more than the prescribed limit in FSSR. 133 locations across 12 States were selected for sampling which includes 10 States where the lumpy skin disease was prevalent: Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Maharashtra, Punjab, Rajasthan, Uttar Pradesh and Uttarakhand & 2 States Tamilnadu and Karnataka were treated as control where there was no reported outbreak of lumpy skin disease. National Commodities Management Services Limited (NCML) executed the survey on behalf of FSSAI on 27th & 28th October 2022 by involving 106 Food Safety Officers (FSOs) from 12 States and 76 NCML Samplers.

Out of 798 Milk samples; 654 samples were drawn from 10 States having prevalence of LSD and 144 samples were drawn from 2 States as control with no reported outbreak of LSD. 394 samples were of pasteurised packed samples and 404 unpasteurised (raw) loose samples were collected from the milk collection centre, chilling centre and point of sale.

The collected samples were analysed for the safety parameters laid in FSSR, 2011 (the 26 antibiotics that are specified for milk, 15 antibiotics that are permitted in food commodities other than milk and all 213 pesticide residues & 7 heavy metals). In addition, the packed samples which did not meet the Food Safety and Standards

(Labelling & Display) Regulations, 2020 were grouped as “misbranded”. Five laboratories were involved in the analysis of the samples.

The salient findings of the survey are reported below:

- The analysis revealed that out of the 798 samples (394 pasteurised samples and 404 unpasteurised samples), 2.6% (21/798) were found non-compliant. 0.4% (3/798) samples were found to be unsafe while 4.6% (18/394) packed samples were found to be misbranded.
- It is to be noted that all the 394 pasteurised samples were found to be safe w.r.t. metals, pesticides residues and antibiotics.
- All the 3 non-compliant samples which were found to be unsafe were loose unpasteurised milk samples due to the presence of antibiotics residues (Meloxicam in 02 samples and Sulfadimidine in 01 sample) in concentration more than the specified limit.
- Misbranding was observed in 4.6% (18/394) packed samples. Out of these lot/code/batch number was not mentioned in 88.9% (16/18) samples while lot/code/batch number and FSSAI logo was not available in 11.1% (2/18) samples.
- All the sample (654 samples - 322 pasteurised & 332 unpasteurised milk samples) collected from the 10 States having prevalence of LSD were found to be Safe.
- Out of the 144 samples (72 pasteurised & 72 unpasteurised samples) collected from 2 states (where no reported outbreak of LSD), 3 unpasteurised loose milk samples were found to be unsafe of which 2 samples were from Tamil Nadu and 1 from Karnataka due to the presence of antibiotic Meloxicam and Sulfadimidine in concentration more than the prescribed limit.
- None of the sample (pasteurised & unpasteurised) collected from the 133 locations had heavy metals & pesticide residues in concentration more than the prescribed limits.

1.0 INTRODUCTION & OBJECTIVES

India is the largest producer of milk in the world with about 210 million tonnes annually which accounts for 21% of global milk production. The milk production and supply chain in India is complex with small and marginal landholding farmers. The milk of domesticated animals is an important food source, either as a fresh fluid or processed into number of dairy products. India also has the largest headcount of cattle and buffalo in the world.

1.1 The rationale for Choosing Milk for Surveillance:

The outbreak of Lumpy skin disease in India has emerged as a challenge for the dairy sector. Reportedly, the virus has infected over 16 lakh cattle in 197 districts and has killed thousands of cattle in the country. The spread of the disease can lead to “substantial” and “severe” economic losses as milk production in the infected cattle gets affected. Further the risk of adulteration and unscrupulous activities is common during the festive season to meet the demand.

1.2 Survey Objective:

- To assess the unpasteurised (raw) & pasteurised milk in 10 selected States (where the lumpy viral disease is prevalent) for compliance with antibiotics/veterinary drugs, pesticide residues and heavy metals as given in FSSR
- To assess the raw & pasteurised milk in 2 States (where there was no reported outbreak of lumpy skin disease) for compliance of antibiotics/veterinary drugs, pesticide residues and heavy metals as given in FSSR
- To identify the hotspots & to get location wise data of milk containing antibiotics, pesticides & heavy metals used in concentration more than the prescribed limit given in FSSR.
- To devise corrective actions/ strategies based on the results of the study and suggest a way forward.

2.0 METHODOLOGY

2.1 Survey design

The Authority shared all the relevant details pertaining to Milk Surveillance to NCML. A mobile application was developed by NCML to capture all relevant data at various stages of Surveillance. Training was imparted to the FSOs & the samplers on the execution of Survey and the use of digital application. Laboratories were provided with SOP & templates to share the test results in the digital application.

2.2 Scope of the survey and coverage

This survey was carried across the selected districts from 12 States of India. The unpasteurised (raw) and pasteurised milk from the milk collection centre, chilling centre and milk sold in the market from the selected 133 districts in the 12 States (10 States where lumpy skin disease (LSD) is prevalent & in 2 States where the outbreak was not reported) were collected. The list of 12 States is given at Annexure I.

2.3 Categorisation of Districts/cities:

The locations selected for the surveillance includes 109 cities/districts from 10 states & 24 cities/districts from 2 States.

S. No	District/City type	Number of districts/cities	Number of samples
1	District/ cities with LSD outbreak	109	654
2	Districts/ cities with no reported outbreak of LSD	24	144
Total samples		133	798

2.4 Types of Milk samples selected for Survey:

S. No	Product Variant	Total Number of Samples Planned	Total Number of Samples collected
1	Unpasteurised (Raw) Milk	399	404
2	Pasteurised Milk	399	394
Grand Total		798	798

Stage I-The first stage of the survey was planning and development. The survey activity was initiated after FSSAI provided complete details and the timeline to NCML. FSSAI conducted virtual training on 18.10.2022 for the selected Food Safety Officers and the samplers on the key features of the survey and guided them appropriately to execute the survey.

Stage II-The second stage was sample collection/Dispatch to the assigned laboratories

The Survey started with sample collection in selected 12 States/ UTs on 27th and 28th October 2022. Samples of mixed milk, standardised milk, toned milk, double toned milk, skimmed milk & full cream milk were collected by the FSOs and the trained samplers.

Both the unpasteurised (loose samples) and pasteurised milk samples (Packed) were collected. The raw milk from the vendor/ milk collection centre/chilling centre and pasteurised milk from milk processing centre/point of sale were collected. Each of the sample was allotted a unique field sample identification number using Mobile application. FSO(s) along with the sampler ensured that the Test Request Form (TRF) is filled, verified & signed to complete the sampling activity (**Annexure-II for Test Request Form**). The sampler dispatched the collected samples to the assigned laboratories. (**Annexure-III Details of region wise number of samples/variants collected**).

Region wise number of samples collected is illustrated in figure 1 below:

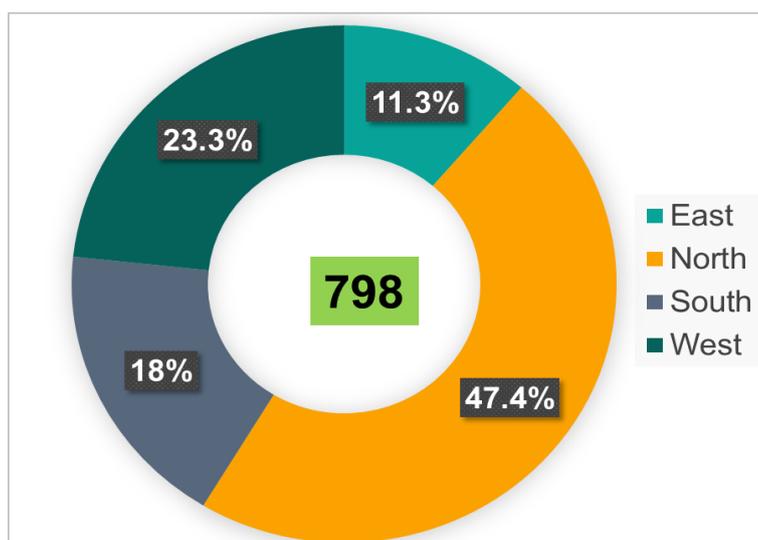


Figure 1

Region wise types of Milk samples collected is illustrated in figure 2

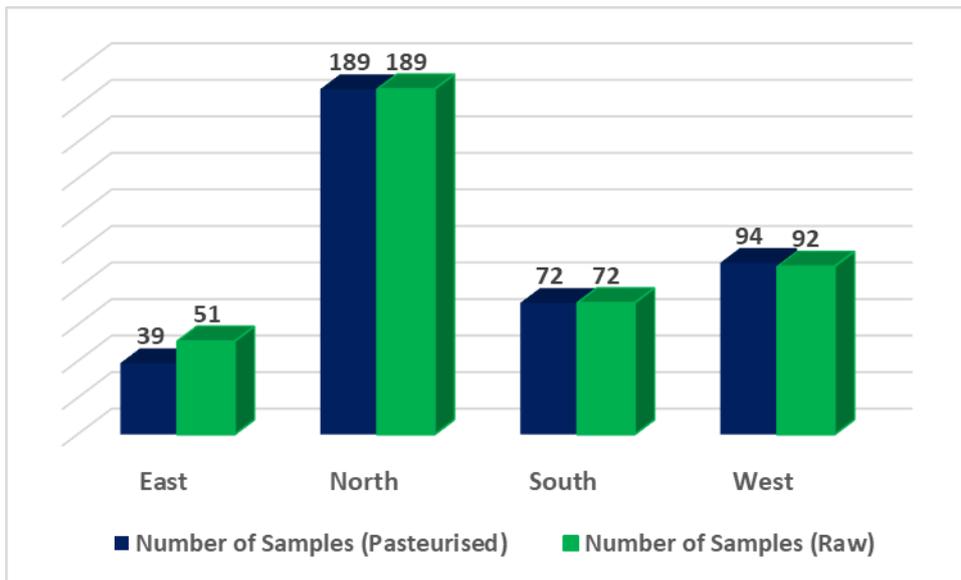


Figure 2

State/ UT wise number of samples collected is shown in Map (Figure 3)

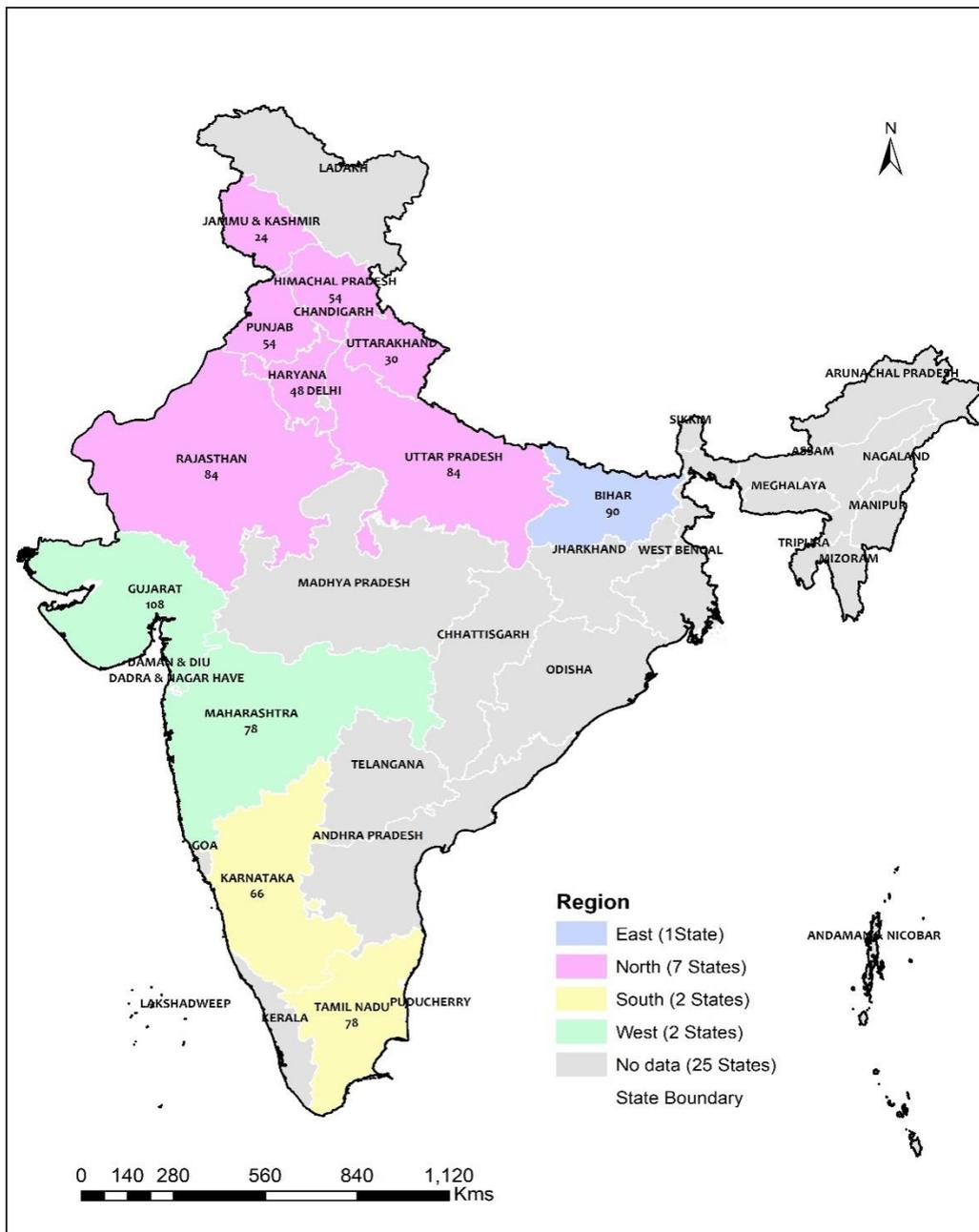


Figure 3

Refer Annexure-IV Table 1. for Number of Samples/Variants collected in Districts/Cities

Refer Table 2. for State wise number of Samples/Variants collected.

Refer Table 3. for District/City wise number of Samples/Variants collected.

Stage III-The third stage was testing/analysis of the samples. Five FSSAI notified laboratories participated in this survey. (**Annexure-V - List of Laboratories Participated in the Survey & Annexure VI Region wise laboratories mapped to each state**).

The laboratory thoroughly checked the integrity of the samples. After assigning unique codes to the samples, they were taken up for testing of Antibiotic/veterinary drugs, Pesticide residue and Heavy metals as per FSSAI test methods. (**Annexure VII details of test parameters**)

Stage IV-The fourth stage of the project was compilation of results and preparation of draft report.

3.0 RESULTS AND DISCUSSION

A total of 798 samples of Milk were tested for the Safety parameters as given in Annexure VII (Antibiotic/veterinary drugs, Pesticide residue, Heavy metals) as per Food Safety and Standards Regulations, 2011.

On completion of the analysis, the data were compiled to evaluate the compliance of the samples collected from 12 States with respect to safety parameters and misbranding. Out of the total 798 samples analysed, in which 394 samples were pasteurised & 404 were unpasteurised samples, 99.6% (795/798) were found compliant for safety parameters. All the 394 pasteurised samples were found safe and only 0.7% (3/404) unpasteurised milk samples were found unsafe. Misbranding was observed in 4.5% (18/394) pasteurised milk samples. Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Maharashtra, Punjab, Rajasthan, Uttar Pradesh and Uttarakhand showed 100% compliance. None of the 10 states having prevalence of LSD showed non-compliance on safety parameters.

The non-compliance for safety parameter (only 2 antibiotic residues prescribed for milk was found in concentration higher than the prescribed limit) was found in 2 states with no reported outbreak of LSD were Tamil Nadu (2.6%) followed by Karnataka (1.5%).

Refer Annexure-VIII for State Wise Compliance Status and ranking as per percent Compliance

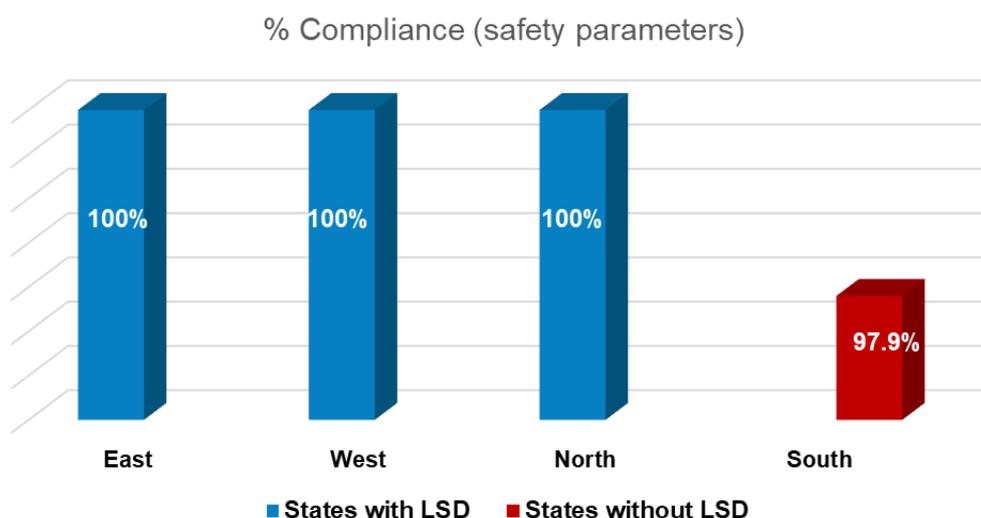


Figure 4. Region wise Compliance Status (Safety Parameter)

The raw & pasteurised milk collected from the 10 states with prevalence of LSD from 3 regions (East, North & Western region) showed 100% compliance on safety parameters, while in the Southern region from which 2 states with no reported outbreak of LSD were found to have 97.9% compliance. The non-compliance in the 2 States was found only in 3 pasteurised milk samples.

Refer Annexure IX for compliance status overall and product variant.

Non-compliance- Unsafe & Misbranded

The milk samples were analysed for the compliance of Safety parameters such as Antibiotic/veterinary drugs, Pesticide residue, Heavy metals and Labelling aspects. The samples which showed non-compliance with the specified limits for safety aspects was grouped as “Unsafe”, and those which did not meet the Food Safety and Standards (Labelling & Display) Regulations 2020, were grouped as “Misbranded” samples. (Table 2A and Table 2B for State/UT-wise Unsafe and Misbranded)

Table 2A State/ UT wise Non-compliance unsafe samples

State/UT	Number of Samples Tested	No of Unsafe Samples	% of Unsafe
10 States/UT with LSD			
Bihar	90	0	0.0%
Gujarat	108	0	0.0%
Haryana	48	0	0.0%
Himachal Pradesh	54	0	0.0%
Jammu & Kashmir	24	0	0.0%
Maharashtra	78	0	0.0%
Punjab	54	0	0.0%
Rajasthan	84	0	0.0%
Uttar Pradesh	84	0	0.0%
Uttarakhand	30	0	0.0%
2 states with no reported outbreak of LSD			
Karnataka	66	1	1.5%
Tamil Nadu	78	2	2.6%
Grand Total	798	3	0.4%

Table 2B State/ UT wise Non-compliance misbranded samples

State/UT	Number of Samples Tested	Packed Samples	Misbranded	Misbranded %
10 States/UT with LSD				
Bihar	90	39	0	0.0%
Gujarat	108	54	1	1.9%
Haryana	48	24	0	0.0%
Himachal Pradesh	54	27	0	0.0%
Jammu & Kashmir	24	12	0	0.0%
Maharashtra	78	40	3	7.5%
Punjab	54	27	1	3.7%
Rajasthan	84	42	9	21.4%
Uttar Pradesh	84	42	0	0.0%
Uttarakhand	30	15	0	0.0%
2 states with no reported outbreak of LSD				
Karnataka	66	33	1	3.0%
Tamil Nadu	78	39	3	7.7%
Grand Total	798	394	18	4.6%

Refer Annexure-X for Over all Non-compliant samples (Unsafe, Substandard & Misbranded)

Misbranding was observed in 4.6% (18/394) samples. Out of these lot/code/batch number was not mentioned in 88.9% (16/18) samples while lot/code/batch number and FSSAI logo was absent in 11.1% (2/18) samples.

Refer Annexure XI for details of district wise compliance status and ranking as per percent compliance

Compliance Status in States/UTs with prevalence of Lumpy Skin Disease (LSD)

All the 10 states, i.e. Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Maharashtra, Punjab, Rajasthan, Uttar Pradesh and Uttarakhand showed 100% compliance on safety parameters (antibiotic, pesticide residues and heavy metal). Bihar, Haryana, Himachal Pradesh, Jammu & Kashmir, Uttar Pradesh and Uttarakhand showed 100% compliance on labelling aspects as well. Misbranding was

found in Rajasthan (21.4%) followed by Maharashtra (7.5%), Punjab (3.7%) and Gujarat (1.9%).

Compliance Status in States with no reported outbreak Lumpy Skin Disease (LSD)

The compliance in two States with no reported outbreak of LSD was 95.1%. Karnataka (97.0%) showed higher compliance than Tamil Nadu (93.6%). The unsafe samples were reported in Tamil Nadu at 2.6% (2/78) followed by Karnataka 1.5% (1/66). 7.7% Misbranding was found in Tamil Nadu followed by Karnataka (3%).

Refer Annexure XII for details of State wise number of Non-compliant samples.

Pasteurised Milk Samples

Out of the 798 samples, 394 were pasteurised samples and 404 were unpasteurised samples. All the pasteurised milk samples were found safe. Misbranding was observed in 4.6% (18/394) packed samples. Out of these lot/code/batch number was not mentioned in 88.9% (16/18) samples while lot/code/batch number and FSSAI logo was absent in 11.1% (2/18) samples.

Unpasteurised (Raw) Milk Samples

In 404 raw milk samples, 0.7% (3/404) were found unsafe due to presence of antibiotics residues (namely Meloxicam in 02 samples & Sulfadimidine in 01 sample). The 3 raw milk samples lifted from the 2 states with no reported outbreak of LSD were found to be unsafe. None of the raw milk samples from 10 states having prevalence of LSD were found unsafe.

Refer Annexure XIII for Details of Region Wise Non-Compliance

3.1 Parameter Wise - Non-Compliant Samples

3.1.1 Heavy Metals

Seven heavy metals (Arsenic, Cadmium, Copper, Lead, Mercury, Methyl Mercury, and Tin) were analysed and none of the samples were found to have heavy metals more than the prescribed limit.

3.1.2 Pesticides Residues

Milk samples were tested for 213 pesticides residues (55 pesticides for which MRL has been specified for milk in FSSR & tolerance limit of 0.01 mg/kg for remaining pesticides for which MRL has not been fixed) and none of the samples were found to have pesticide residues above the maximum specified limit.

3.1.3 Antibiotics/ veterinary drug Residues

The milk samples were tested for all the 26 antibiotics specified in FSSR for milk & 15 as specified for Food Commodities other than Milk. Only 0.4% (3/798) raw milk samples lifted from the 2 States (2 samples from Tamil Nadu and 1 sample from Karnataka) were reported to contain antibiotics specified for milk namely Sulfadimidine in 01 sample and Meloxicam in 02 samples more than the prescribed limit.

Refer Annexure XIV Safety Parameter Wise State/UT wise Contribution to Non-Compliance

4.0 KEY FINDINGS

- ❖ All the samples (unpasteurised & pasteurised) collected from the selected ten states with prevalence of Lumpy Skin disease (LSD) were found to be safe.
- ❖ Only 2.1% (3/144) samples of unpasteurised milk collected from two states with no reported outbreak of LSD were found unsafe due to the presence of 2 antibiotics specified for milk more than the prescribed limit.
- ❖ None of the sample collected from the 12 States had heavy metal & Pesticide residues in concentration more than the prescribed limits.

5.0 CONCLUSION

- ❖ The findings revealed that there was no residual contamination of antibiotics, pesticides & heavy metals found in milk samples collected from the 10 states with prevalence of LSD. With the current preventive controls in place the prevalence of LSD does not have any significant impact on safety of milk samples.

6.0 WAY FORWARD

- ❖ FSSAI shall continue to create awareness on the compliance & quality control measures across the dairy supply chain.
- ❖ Department of Animal Husbandry, Dairying and Fisheries may launch awareness campaign on the rational use of veterinary drugs and educate the dairy farms about the same.
- ❖ Each State/UT must utilize the Food Safety on Wheels (FSW) provided to them to check the quality and safety of milk across the State/UT at regular intervals especially during the outbreak of such disease.
- ❖ Food Safety Commissioners of States/UTs where the misbranded samples were found should conduct strict enforcement drives for labelling compliance.

7.0 CITED REFERENCES

1. Guidelines for prevention of LSD (Lumpy Skin Disease) issued by Department of Animal Husbandry & Dairying, K-11053/69/2019-LH.
2. Food Safety and Standards (Food Products Standards and Food Additives) Regulation, 2011.
3. Food Safety and Standards (Contaminants, Toxins and Residues) Regulation, 2011.
4. Food Safety and Standards (Packaging and Labelling) Regulation, 2011.

8.0 ANNEXURES

ANNEXURE-I: LIST OF STATES COVERED IN SURVEY

S No.	States/ UTs
	10 States with prevalence of LSD
1	Bihar
2	Gujarat
3	Haryana
4	Himachal Pradesh
5	Jammu & Kashmir
6	Maharashtra
7	Punjab
8	Rajasthan
9	Uttar Pradesh
10	Uttarakhand
	2 states with no reported outbreak of LSD
1	Karnataka
2	Tamil Nadu

ANNEXURE-II: TEST REQUEST FORM SHARED WITH THE STATE OFFICIALS

Test Request Form

(To be attached with each sample)

Sample Code:

Date of Sample Collection:

Location of sampling with address:

Name of Sample:

Brand Name (please indicate if it is loose):

Batch No. (In case of packed sample):

Manufacture Date (MM/DD/YYYY):

Best Before Date (MM/DD/YYYY):

Name of the Lab to which dispatched:

Date of dispatch to the State Food Testing Lab/FSSAI selected Lab:

Name and Signature of Food Safety Officer (FSO) with stamp

ANNEXURE-III REGION WISE NUMBER OF SAMPLES / VARIANTS TAKEN

Number of Samples Tested		
Product Name	Milk Pasteurized (Packed)	Milk Raw (Loose)
East	39	51
North	189	189
South	72	72
West	94	92
Grand Total	394	404

ANNEXURE-IV

TABLE 1 TOTAL NUMBER OF SAMPLES TAKEN VARIANT WISE DISTRICT/CITY CATEGORY WISE

Type of City/District	No of Cities/Districts	No of samples
10 states with prevalent LSD	109	654
Pasteurised Milk		322
Raw Milk		332
2 States with no reported LSD outbreak	24	144
Pasteurised Milk		72
Raw Milk		72
Total	133	798

TABLE 2 STATE WISE NUMBER OF SAMPLES / VARIANTS TAKEN

States/ UTs	Number of Samples Tested		
Product Name	Milk Pasteurized (Packed)	Milk Raw (Loose)	Grand Total
Selected 10 states with LSD	322	332	654
Bihar	39	51	90
Gujarat	54	54	108
Haryana	24	24	48
Himachal Pradesh	27	27	54
Jammu & Kashmir	12	12	24
Maharashtra	40	38	78
Punjab	27	27	54
Rajasthan	42	42	84
Uttar Pradesh	42	42	84
Uttarakhand	15	15	30
Selected 2 states with no LSD	72	72	144
Karnataka	33	33	66
Tamil Nadu	39	39	78
Grand Total	394	404	798

TABLE 3 DISTRICT/CITY WISE NUMBER OF SAMPLES / VARIANTS TAKEN

States/ UTs/Districts	Milk Pasteurized (Packed)	Milk Raw (Loose)	Grand Total
Bihar	39	51	90
Darbhanga	3	3	6

Katihar	3	3	6
Saharsa	3	3	6
Bhojpur	3	3	6
Gopalganj	3	3	6
Purnea	3	3	6
Araria	3	3	6
Kishanganj	3	3	6
Madhepura	3	3	6
Supaul	3	3	6
Jamui	0	6	6
Rohtas	3	3	6
Muzaffarpur	3	3	6
Nawada	0	6	6
Aurangabad.	3	3	6
Gujarat	54	54	108
Ahmedabad	3	3	6
Amreli	3	3	6
Aravalli	3	3	6
Botad	3	3	6
Junagadh	3	3	6
Kheda	3	3	6
Rajkot	3	3	6
Surat	3	3	6
Panchmahal	3	3	6
Banaskantha	3	3	6
Mahesana	3	3	6
Morbi	3	3	6
Surendranagar	3	3	6
Porbandar	3	3	6
Sabarkantha	3	3	6
Kutch	3	3	6
Jamnagar	3	3	6
DevbhumiDwarka	3	3	6
Haryana	24	24	48
Ambala	3	3	6
Hisar	3	3	6
Yamunanagar	3	3	6
Bhiwani	3	3	6
Fatehabad	3	3	6
CharkhiDadri	3	3	6
Karnal	3	3	6
Kurukshetra	3	3	6
Himachal Pradesh	27	27	54

Kangra	3	3	6
Kullu	3	3	6
Una	3	3	6
Shimla	3	3	6
Mandi	3	3	6
Chamba	3	3	6
Solan	3	3	6
Sirmaur	3	3	6
Bilaspur	3	3	6
Jammu & Kashmir	12	12	24
Jammu	3	3	6
Sri nagar	3	3	6
Kathua	3	3	6
Baramulla	3	3	6
Karnataka	33	33	66
Bangalore	3	3	6
Belgaum	3	3	6
Bellary	3	3	6
Chamarajanagar	3	3	6
Mandya	3	3	6
Gadag	3	3	6
Dakshina Kannada	3	3	6
Vijayanagara	3	3	6
B.B.M.P East	3	3	6
Udupi	3	3	6
Raichur	3	3	6
Maharashtra	40	38	78
Akola	3	3	6
Aurangabad	3	3	6
Nagpur	3	3	6
Pune	3	3	6
Washim	3	3	6
Nandurbar	3	3	6
Jalna	3	3	6
Amravati	3	3	6
Buldhana	3	3	6
Parbhani	3	3	6
Dhule	3	3	6
Jalgaon	3	3	6
Ahmednagar	4	2	6
Punjab	27	27	54
Barnala	3	3	6
Moga	3	3	6

Faridkot	3	3	6
Bathinda	3	3	6
Muktsar	3	3	6
Jalandhar	3	3	6
Tarn Taran	3	3	6
Pathankot	3	3	6
Kharar	3	3	6
Rajasthan	42	42	84
Bikaner	3	3	6
Dausa	3	3	6
Jaipur	3	3	6
Jodhpur	3	3	6
Pratapgarh	3	3	6
Barmer	3	3	6
Jaisalmer	3	3	6
Alwar	3	3	6
Jalore	3	3	6
Hanumangarh	3	3	6
Jhunjhunu	3	3	6
Ajmer	3	3	6
Karauli	3	3	6
Udaipur	3	3	6
Tamil Nadu	39	39	78
Coimbatore	3	3	6
Madurai	3	3	6
Sivaganga	3	3	6
The Nilgiris	3	3	6
Viluppuram	3	3	6
Ramanathapuram	3	3	6
Theni	3	3	6
Pudukkottai	3	3	6
Nagapattinam	3	3	6
Kancheepuram	3	3	6
Erode	3	3	6
Dindigul	3	3	6
Ariyalur	3	3	6
Uttar Pradesh	42	42	84
Agra	3	3	6
Etah	3	3	6
Firozabad	3	3	6
Ghaziabad	3	3	6
Gonda	3	3	6
Meerut	3	3	6

Bijnore	3	3	6
Ambedkarnagar	3	3	6
Kasganj	3	3	6
Bareilly	3	3	6
Moradabad	3	3	6
Jhansi	3	3	6
Aligarh	3	3	6
Saharanpur	3	3	6
Uttarakhand	15	15	30
Pauri	3	3	6
Dehradun	3	3	6
Haridwar	3	3	6
Bhageshwar	3	3	6
Almora	3	3	6
Grand Total	394	404	798

ANNEXURE V: LIST OF LABORATORIES PARTICIPATED IN THIS SURVEY

S.No.	Name of the Labs		Location
	Northern Region		
1	Haryana	National Commodities Management services Limited	Gurgaon
2	Delhi	Delhi Test House	Delhi
3	Uttar Pradesh	Eko Pro Engineers Pvt Ltd	Ghaziabad
	Southern Region		
4	Telangana	National Commodities Management services Limited Hyderabad, Telangana,	Hyderabad

ANNEXURE-VI REGION WISE LABS MAPPED TO EACH STATE AND % OF SAMPLES

Region/Lab	No of Samples	% of Samples
East	90	11.28%
LAB-41-NCML	90	11.28%
Bihar	90	11.28%
North	378	47.37%
LAB-41-NCML	132	16.54%
Himachal Pradesh	54	6.77%

Jammu & Kashmir	24	3.01%
Punjab	54	6.77%
LAB-42-NCML	84	10.53%
Rajasthan	84	10.53%
LAB-44-NCML	162	20.30%
Haryana	48	6.02%
Uttar Pradesh	84	10.53%
Uttarakhand	30	3.76%
South	144	18.05%
LAB-45-NCML	144	18.05%
Karnataka	66	8.27%
Tamil Nadu	78	9.77%
West	186	23.31%
LAB-45-NCML	78	9.77%
Maharashtra	78	9.77%
LAB-46-NCML	108	13.53%
Gujarat	108	13.53%
Grand Total	798	100.00%

ANNEXURE-VII

TABLE 1 DETAILS OF TEST PARAMETERS

A. Pesticides: Milk and Milk products

SI No.	Residues	MRL in mg/kg
1	2,4-Dichlorophenoxy Acetic Acid	0.05
2	Acephate (expressed as mixture of Methamidophos and acephate).	0.02
3	Acetamiprid	0.02
4	Azoxystrobin	0.01
5	Sum of benomyl and carbendazim expressed as carbendazim	0.1 (F)
6	Bifenthrin	0.2
7	Bitertanol	0.05
8	Buprofezin	0.01
9	Carbaryl	0.05
10	Carbendazim	0.1 (F)
11	Carbofuran (sum of carbofuran and 3-hydroxy carbofuran expressed as carbofuran)	0.05 (fat basis)
12	Chlorantraniliprole	0.05
13	Chlorothalonil	0.07
14	Chlorpyrifos	0.02

15	Chlothianidin (Chlothianidin and its metabolites Thiazolymethylguanidine (TMG), Thiazolymethylurea (TZMU), Methylnitroguanidine (MNG) TMG)	0.02
16	Cypermethrin (sum of isomers) (Fat soluble residue)	0.05
17	Deltamethrin (Decamethrin)	0.05
18	Dichlorvos (DDVP) (content of di- chloroacetaldehyde (D.C.A.) be reported where possible)	0.01
19	Difenoconazole	0.02
20	Dimethoate	0.05
21	Dinotefuran	0.1
22	Mancozeb	0.05
23	Metiram as CS2	0.05
24	Edifenphos	0.01(F)
25	Emamectin Benzoate	0.01*
26	Ethion(Residues to be determined as ethion and its oxygen analogue and expressed as ethion)	0.5 (F)
27	Ethofenprox (Etofenprox)	0.02
28	Fenpropathrin	0.1
29	Fenvalerate (Fat soluble residue)	0.01 (F)
30	Fipronil	0.02
31	Flubendiamide	0.1
32	Flusilazole	0.05
33	Glufosinate Ammonium	0.02
34	Imidacloprid	0.1
35	Indoxacarb	0.1
36	Kresoxim Methyl	0.01
37	Methomyl	0.02
38	Methyl Chlorophenoxy Acetic Acid (MCPA)	0.04
39	Metolachlor	0.01*
40	Monocrotophos	0.02
41	Oxydemeton-Methyl	0.01
42	Paraquat dichloride (Determined as Paraquatcations)	0.01
43	Penconazole	0.01
44	Phenthoate	0.01 (F)
45	Phorate (sum of Phorate, its oxygen analogue and their sulphoxides and sulphones, expressed as phorate)	0.05 (F)
46	Pirimiphos-methyl	0.05 (F)
47	Propiconazole	0.01
48	Pyraclostrobin	0.03
49	Tebuconazole	0.01

50	Thiacloprid	0.05
51	Thiamethoxam	0.05
52	Thiophanate-Methyl	0.05
53	Trichlorfon	0.05
54	Triaccontanol	0.01
55	Triadimefon	0.01*
Tolerance limit of 0.01 mg/kg shall apply in cases of pesticides for which MRL have not been fixed		

B. Antibiotics specified for Milk:

S. No.	Food	Name of the antibiotics and veterinary drugs	Tolerance limit (mg/Kg)
1	Milk	Ampicillin	0.01
2		Cefphactril	0.01
3		Meloxicam	0.01
4		Oxyclozanide	0.01
5		Parbendazole	0.01
6		Praziquantel	0.01
7		Sulfadiazine	0.01
8		Sulfanilamide	0.01
9		Sulfaquinoxaline	0.01
10		SulfaChloropyrazine	0.01
11		Trimethoprim	0.01
12		Virginiamycin	0.01
13	Species not specified - Milk	Albendzole	0.1
14	Cattle - Milk	Chlortetracycline/Oxytetracycline/Tetracycline	0.1
15	Cattle - Milk	Ceftiofur	0.1 mg/l
16	Cattle - Milk	Doramectin	0.015
17	Cattle - Milk	Diminazene	0.15
18	Cattle - Milk	Febantel/Fenbendazole/Oxyfendazole	0.1
19	Cattle - Milk	Ivermectin	0.1
20	Cattle - Milk	Lincomycin	0.15
21	Cattle - Milk	Monensin	0.002
22	Cattle - Milk	Neomycin	1.5

23	Cattle - Milk	Spectinomycin	0.2 mg/l
24	Cattle - Milk	Sulfadimidine	0.025
25	Cattle - Milk	Thiabendazole	0.1
26	Cattle - Milk	Tylosin	0.1
27	Sheep - Milk	Chlortetracycline/Oxytetracycline/Tetracycline	0.1
28	Sheep - Milk	Febantel/Fenbendazole/Oxyfendazole	0.1
29	Goat - Milk	Thiabendazole	0.1

C. Antibiotics & Veterinary Drugs specified for Food Commodities other than Milk:

S. No.	Name of the antibiotics and veterinary drugs
1	Amprolium
2	Cloxacillin
3	Cephapirine
4	Clopidol
5	Closantel
6	Danofloxacin
7	Erythromycin
8	Flumequine
9	Levamisole
10	Moxidectin
11	Nicarbazin
12	Oxybendazole
13	Triclabendazole
14	Xylazine
15	Zinc Bacitracin (minimum 60IU/mg dried substance)

ANNEXURE-VIII STATE WISE COMPLIANCE STATUS AND RANKING AS PER PERCENT COMPLIANCE

States/ UTs	Number of Samples	Compliance Samples	Compliance %	Non-Compliance %	Rank for Compliance
Bihar	90	90	100.0%	0.0%	1
Gujarat	108	107	99.1%	0.9%	2

Haryana	48	48	100.0%	0.0%	1
Himachal Pradesh	54	54	100.0%	0.0%	1
Jammu & Kashmir	24	24	100.0%	0.0%	1
Karnataka	66	64	97.0%	3.0%	4
Maharashtra	78	75	96.2%	3.8%	5
Punjab	54	53	98.1%	1.9%	3
Rajasthan	84	75	89.3%	10.7%	7
Tamil Nadu	78	73	93.6%	6.4%	6
Uttar Pradesh	84	84	100.0%	0.0%	1
Uttarakhand	30	30	100.0%	0.0%	1
Grand Total	798	777	97.4%	2.6%	

ANNEXURE-IX COMPLIANCE STATUS, OVERALL AND PRODUCT VARIANT WISE

S No.	Product Variant	Total No of samples tested	Compliant samples	% Compliance	Total non-compliant samples		% Non-compliant samples	
					Unsafe	Misbranded	% Unsafe	% Misbranded
1	Pasteurised Milk	394	376	95.4	0	18	0	4.5
2	Raw Milk	404	401	99.3	3	0	0.7	0
	Grand Total	798	777	97.4	3	18	0.7%	4.5%

ANNEXURE-X OVER ALL NON-COMPLIANT SAMPLES

Non-compliance	No of Non-Compliant samples	% Non-Compliant
Mis-Branded	18	85.71%
Unsafe	3	14.29%
Grand Total	21	100.00%

ANNEXURE-XI: DISTRICT WISE COMPLIANCE STATUS AND RANKING AS PER PERCENT COMPLIANCE

State/UT	Number of Samples	Compliance	Compliance %	Non-Compliance	Non-Compliance %	Rank for Compliance
Bihar	90	90	100.0%	0	0.0%	
Darbhanga	6	6	100.0%	0	0.0%	1
Katihar	6	6	100.0%	0	0.0%	1
Saharsa	6	6	100.0%	0	0.0%	1
Bhojpur	6	6	100.0%	0	0.0%	1
Gopalganj	6	6	100.0%	0	0.0%	1
Purnea	6	6	100.0%	0	0.0%	1
Araria	6	6	100.0%	0	0.0%	1
Kishanganj	6	6	100.0%	0	0.0%	1
Madhepura	6	6	100.0%	0	0.0%	1
Supaul	6	6	100.0%	0	0.0%	1
Jamui	6	6	100.0%	0	0.0%	1
Rohtas	6	6	100.0%	0	0.0%	1
Muzaffarpur	6	6	100.0%	0	0.0%	1
Nawada	6	6	100.0%	0	0.0%	1
Aurangabad.	6	6	100.0%	0	0.0%	1
Gujarat	108	107	99.1%	1	0.9%	
Ahmedabad	6	6	100.0%	0	0.0%	1
Amreli	6	6	100.0%	0	0.0%	1
Aravalli	6	6	100.0%	0	0.0%	1
Botad	6	6	100.0%	0	0.0%	1
Junagadh	6	6	100.0%	0	0.0%	1
Kheda	6	6	100.0%	0	0.0%	1
Rajkot	6	6	100.0%	0	0.0%	1
Surat	6	6	100.0%	0	0.0%	1
Panchmahal	6	6	100.0%	0	0.0%	1
Banaskantha	6	5	83.3%	1	16.7%	2
Mahesana	6	6	100.0%	0	0.0%	1
Morbi	6	6	100.0%	0	0.0%	1
Surendranagar	6	6	100.0%	0	0.0%	1
Porbandar	6	6	100.0%	0	0.0%	1
Sabarkantha	6	6	100.0%	0	0.0%	1
Kutch	6	6	100.0%	0	0.0%	1
Jamnagar	6	6	100.0%	0	0.0%	1
DevbhumiDwarka	6	6	100.0%	0	0.0%	1
Haryana	48	48	100.0%	0	0.0%	

Ambala	6	6	100.0%	0	0.0%	1
Hisar	6	6	100.0%	0	0.0%	1
Yamunanagar	6	6	100.0%	0	0.0%	1
Bhiwani	6	6	100.0%	0	0.0%	1
Fatehabad	6	6	100.0%	0	0.0%	1
CharkhiDadri	6	6	100.0%	0	0.0%	1
Karnal	6	6	100.0%	0	0.0%	1
Kurukshetra	6	6	100.0%	0	0.0%	1
Himachal Pradesh	54	54	100.0%	0	0.0%	
Kangra	6	6	100.0%	0	0.0%	1
Kullu	6	6	100.0%	0	0.0%	1
Una	6	6	100.0%	0	0.0%	1
Shimla	6	6	100.0%	0	0.0%	1
Mandi	6	6	100.0%	0	0.0%	1
Chamba	6	6	100.0%	0	0.0%	1
Solan	6	6	100.0%	0	0.0%	1
Sirmaur	6	6	100.0%	0	0.0%	1
Bilaspur	6	6	100.0%	0	0.0%	1
Jammu & Kashmir	24	24	100.0%	0	0.0%	
Jammu	6	6	100.0%	0	0.0%	1
Sri nagar	6	6	100.0%	0	0.0%	1
Kathua	6	6	100.0%	0	0.0%	1
Baramulla	6	6	100.0%	0	0.0%	1
Karnataka	66	64	97.0%	2	3.0%	
Bangalore	6	5	83.3%	1	16.7%	2
Belgaum	6	6	100.0%	0	0.0%	1
Bellary	6	6	100.0%	0	0.0%	1
Chamarajanagar	6	6	100.0%	0	0.0%	1
Mandya	6	6	100.0%	0	0.0%	1
Gadag	6	5	83.3%	1	16.7%	2
Dakshina Kannada	6	6	100.0%	0	0.0%	1
Vijayanagara	6	6	100.0%	0	0.0%	1
B.B.M.P East	6	6	100.0%	0	0.0%	1
Udupi	6	6	100.0%	0	0.0%	1
Raichur	6	6	100.0%	0	0.0%	1
Maharashtra	78	75	96.2%	3	3.8%	
Akola	6	6	100.0%	0	0.0%	1
Aurangabad	6	6	100.0%	0	0.0%	1
Nagpur	6	6	100.0%	0	0.0%	1
Pune	6	6	100.0%	0	0.0%	1
Washim	6	4	66.7%	2	33.3%	3
Nandurbar	6	6	100.0%	0	0.0%	1
Jalna	6	6	100.0%	0	0.0%	1
Amravati	6	6	100.0%	0	0.0%	1

Buldhana	6	6	100.0%	0	0.0%	1
Parbhani	6	6	100.0%	0	0.0%	1
Dhule	6	6	100.0%	0	0.0%	1
Jalgaon	6	6	100.0%	0	0.0%	1
Ahmednagar	6	5	83.3%	1	16.7%	2
Punjab	54	53	98.1%	1	1.9%	
Barnala	6	6	100.0%	0	0.0%	1
Moga	6	6	100.0%	0	0.0%	1
Faridkot	6	6	100.0%	0	0.0%	1
Bathinda	6	6	100.0%	0	0.0%	1
Muktsar	6	6	100.0%	0	0.0%	1
Jalandhar	6	6	100.0%	0	0.0%	1
Tarn Taran	6	6	100.0%	0	0.0%	1
Pathankot	6	5	83.3%	1	16.7%	2
Kharar	6	6	100.0%	0	0.0%	1
Rajasthan	84	75	89.3%	9	10.7%	
Bikaner	6	3	50.0%	3	50.0%	4
Dausa	6	6	100.0%	0	0.0%	1
Jaipur	6	6	100.0%	0	0.0%	1
Jodhpur	6	6	100.0%	0	0.0%	1
Pratapgarh	6	6	100.0%	0	0.0%	1
Barmer	6	4	66.7%	2	33.3%	3
Jaisalmer	6	5	83.3%	1	16.7%	2
Alwar	6	6	100.0%	0	0.0%	1
Jalore	6	4	66.7%	2	33.3%	3
Hanumangarh	6	6	100.0%	0	0.0%	1
Jhunjhunu	6	6	100.0%	0	0.0%	1
Ajmer	6	5	83.3%	1	16.7%	2
Karauli	6	6	100.0%	0	0.0%	1
Udaipur	6	6	100.0%	0	0.0%	1
Tamil Nadu	78	73	93.6%	5	6.4%	
Coimbatore	6	6	100.0%	0	0.0%	1
Madurai	6	6	100.0%	0	0.0%	1
Sivaganga	6	6	100.0%	0	0.0%	1
The Nilgiris	6	6	100.0%	0	0.0%	1
Viluppuram	6	6	100.0%	0	0.0%	1
Ramanathapuram	6	4	66.7%	2	33.3%	3
Theni	6	6	100.0%	0	0.0%	1
Pudukkottai	6	4	66.7%	2	33.3%	3
Nagapattinam	6	6	100.0%	0	0.0%	1
Kancheepuram	6	6	100.0%	0	0.0%	1
Erode	6	6	100.0%	0	0.0%	1
Dindigul	6	5	83.3%	1	16.7%	2
Ariyalur	6	6	100.0%	0	0.0%	1

Uttar Pradesh	84	84	100.0%	0	0.0%	
Agra	6	6	100.0%	0	0.0%	1
Etah	6	6	100.0%	0	0.0%	1
Firozabad	6	6	100.0%	0	0.0%	1
Ghaziabad	6	6	100.0%	0	0.0%	1
Gonda	6	6	100.0%	0	0.0%	1
Meerut	6	6	100.0%	0	0.0%	1
Bijnore	6	6	100.0%	0	0.0%	1
Ambedkarnagar	6	6	100.0%	0	0.0%	1
Kasganj	6	6	100.0%	0	0.0%	1
Bareilly	6	6	100.0%	0	0.0%	1
Moradabad	6	6	100.0%	0	0.0%	1
Jhansi	6	6	100.0%	0	0.0%	1
Aligarh	6	6	100.0%	0	0.0%	1
Saharanpur	6	6	100.0%	0	0.0%	1
Uttarakhand	30	30	100.0%	0	0.0%	
Pauri	6	6	100.0%	0	0.0%	1
Dehradun	6	6	100.0%	0	0.0%	1
Haridwar	6	6	100.0%	0	0.0%	1
Bhageshwar	6	6	100.0%	0	0.0%	1
Almora	6	6	100.0%	0	0.0%	1
Grand Total	798	777	97.4%	21	2.6%	

ANNEXURE-XII STATE WISE NUMBER OF NON-COMPLIANT SAMPLES

States/ UTs	Mis-Branded	Unsafe	Grand Total
Gujarat	1	0	1
Karnataka	1	1	2
Maharashtra	3	0	3
Punjab	1	0	1
Rajasthan	9	0	9
Tamil Nadu	3	2	5
Grand Total	18	3	21

ANNEXURE-XIII REGION WISE NUMBER OF NON-COMPLIANT SAMPLES

Region	Mis-Branded	Unsafe	Grand Total
North	10	0	10
South	4	3	7
West	4	0	4
Grand Total	18	3	21

ANNEXURE-XIV SAFETY PARAMETER WISE STATE/UT WISE CONTRIBUTION TO NON-COMPLIANCE

Antibiotics			
States/ UTs	No of Samples	Non-Compliant	% of Non-Compliant
Bihar	180	0	0.0%
Gujarat	216	0	0.0%
Haryana	96	0	0.0%
Himachal Pradesh	108	0	0.0%
Jammu & Kashmir	48	0	0.0%
Karnataka	132	1	0.8%
Maharashtra	156	0	0.0%
Punjab	108	0	0.0%
Rajasthan	168	0	0.0%
Tamil Nadu	156	2	1.3%
Uttar Pradesh	168	0	0.0%
Uttarakhand	60	0	0.0%
Grand Total	1596	3	0.2%