

## **FSSAI Survey: Your Milk is Largely Safe**

*FSSAI Survey shows that while milk is largely safe, contamination due to Aflatoxin M1 and Antibiotic residues is more serious problem than adulteration and the quality concerns persist.*

**New Delhi, October 18 2019:** The Food Safety and Standards Authority of India (FSSAI) today released the full report of the 'National Milk Safety and Quality Survey 2018'. The survey results demolish the perception of large scale milk adulteration in the country.

The survey has shown that 12 out of 6,432 samples of milk were adulterated that render such milk unsafe for human consumption. Six samples were found adulterated with hydrogen peroxide, three with detergents, two with urea and one sample was found to have neutralizers. No samples were found with boric acid and nitrates, the other two possible adulterants. Out of 12 adulterated samples, nine were in Telangana, two from Madhya Pradesh and one from Kerala. While, there is concern, but this dispels wide spread perception that liquid milk in the country is largely adulterated.

A major finding in the survey was presence of Aflatoxin M1 residues beyond permissible limits in 368 (out of 6,432) samples, that is 5.7% of the samples. This is the first time that such a detailed survey of presence of Aflatoxin M1 in milk has been done in the country. Aflatoxin M1 comes in the milk through feed and fodder, which are currently not regulated in the country. Amongst the top three States with highest levels of Aflatoxin M1 residues are Tamil Nadu (88 out of 551 samples), Delhi (38 out of 262 samples) and Kerala 37 out of 187 samples). This problem is more dominant in processed milk rather raw milk.

The survey further showed that 77 (out of 6,432) samples, that 1.2 % of the samples had residues of antibiotics above the permissible limits. Amongst the top three States with highest levels of Antibiotics residues are Madhya Pradesh (23 out of 335 samples), Maharashtra (9 out of 678 samples) and UP (8 out of 729 samples). Only one raw milk sample in Kerala was found to contain pesticide residue above the permissible level.

This is the first time that a quantitative analysis of all samples that failed on account of adulterants and contaminants has been done. It is found that the level of adulterants and contaminants in failed samples is not high, therefore unlikely to pose serious threat to human health. FSSAI is however committed to zero tolerance for any adulteration and contamination of milk. The survey has helped in identification of hot spots, so that more intensified efforts for surveillance and enforcement could be taken up in such areas.

In a recent meeting of stakeholders, where this survey report was discussed and accepted, there was a unanimous view that incident of spurious milk as reported in the media are one-of incidents and are restricted to few areas and are seasonal occurring in festival times when there is large demand-supply gap. Such incidents can only be tackled by having strict vigil in such areas. FSSAI has written to the States on this.

The stakeholders' group further deliberated on the presence of ammonium sulphate in milk. After careful review of scientific opinion, the group reached a conclusion that ammonium sulphate is coming into the milk naturally and is absolutely safe and not a contaminant as earlier thought. It was noted that ammonium sulphate is allowed as an additive in certain foods in several countries,

Overall, above 93% of the samples that is 5976 (out of 6,432) samples were found to be absolutely safe for human consumption. This is undoubtedly good news for the Indian consumers. The survey however

shown that about 41% samples, though safe, fall short of one or another quality parameter. Both raw and processed samples were found non-compliant on account of low fat or low SNF (solid not fat) or both. Proportion of fat and solid non-fat (SNF) in milk varies widely by species and depends on breed as well

as quality of feed and fodder. Cattle must be properly fed and good farm practices must be adopted to improve the amount of fat and SNF in milk. Non-compliance on these parameters in raw milk could be for these reasons or due to dilution of milk with water. Non-compliance of fat and SNF in standardized/processed milk is however surprising.

Presence of Maltodextrin in 156 (out of 6432) samples and Sugar in 78 (out of 6432) samples is yet another surprise. This mainly confined to processed milk. Maltodextrin and sugar are not unsafe but added to raise the level of fat and SNF. While, these do not represent threat to human health, but stringent action is required to curb this wrong practice. The survey did not find any non-compliance on account of other parameters viz. Cellulose, Glucose, Starch and Vegetable oil was not found in the collected samples.

This Milk Survey was conducted from May, 2018 to October 2018 covering all States and UTs with the objective of monitoring safety and quality of liquid milk in the country. A total of 6,432 samples of milk were collected from 1,103 towns/cities with population above 50,000, representing both organized (retailers and processors) as well as non-organized (local dairy farms, milk vendors and milk mandis) sectors. Number of samples collected was linked to population at the sampling locations and covered different types of milk (raw and processed of various types).

While, all samples were tested on the spot for critical parameters of quality and safety, samples that failed on account of contaminants and adulterants were subjected to confirmatory analysis. This was done by proficient analysts in NABL-accredited and FSSAI-recognized laboratories using high-end equipment and employing established testing protocols. This survey has been carried out by an independent third party agency. It is first-of-its kind extensive well-designed, representative and most comprehensive survey to assess safety and quality of liquid milk so far.

The outcome of the survey is a myth buster. The survey results indicate clearly that milk being sold in India is largely safe for consumption. This is contrary to wide-spread perception of large scale milk adulteration in the country based on deceitful campaign and unsubstantiated reports. Further, the results of previous two experimental surveys by FSSAI have also been grossly misrepresented causing unnecessary scare in the minds of the consumers.

It is imperative that safety and quality of milk are maintained. FSSAI Survey has clearly shown that while milk is largely safe milk, contamination due to Aflatoxin M1 and Antibiotic residues is more serious problem than milk adulteration and the quality concerns persist. While combatting adulteration requires more vigilant citizens and enforcement machinery, contamination in milk requires systemic improvements through the supply chain. And that is being done.

Let the fears associated with consumption of milk vanish.

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## National milk Safety & Quality Survey 2018: DATA SHEETS

**Table 1: Summary of non-compliant (NC) samples with safety issues**

Criteria	Sample Numbers	Sector wise				Overall#, %
		Processed		Raw		
		Samples	%	Samples	%	
<b>Total Samples in the survey</b>	<b>6432</b>	<b>2607</b>	<b>40.5</b>	<b>3825</b>	<b>59.5</b>	<b>--</b>
<b>Samples with safety issues (non-compliant)</b>	<b>456@</b>	<b>271</b>	<b>10.4</b>	<b>185</b>	<b>4.8</b>	<b>7.1</b>
<b>(i)Contaminants</b>						
Aflatoxin-M <sub>1</sub>	368	227	8.7	141	3.7	5.7
Antibiotics	77	40	1.5	37	1.0	1.2
Pesticides	01	0	0.0	1	<0.1	<0.1
<b>(ii) Adulterants</b>	<b>12</b>	<b>5</b>	<b>0.19</b>	<b>7</b>	<b>0.18</b>	<b>0.18</b>
Urea	02	0	0.0	2	<0.1	<0.1
Detergents	03	1	<0.1	2	<0.1	<0.1
Hydrogen peroxide	06	3	0.1	3	0.1	0.1
Neutralizers	01	1	<0.1	0	<0.1	<0.1

(# : expressed as percentage of total number of samples in the survey i.e., 6432)

(@ : includes 134 samples that also failed for both quality as well as safety issues)

(The sum of individual failures will not match to total failures as some samples failed for more parameters)

**Table 2: Non-compliance for Aflatoxin M1 (State-wise)**

Sl.No.	State/UTs	Overall, Numbers		Sector wise			
				Processed, Numbers		Raw, Numbers	
		Total	NC	Total	NC	Total	NC
1.	Tamil Nadu	551	88	292	60	259	28
2.	NCT of Delhi	262	38	194	36	68	2
3.	Kerala	187	37	104	29	83	8
4.	Punjab	203	29	41	13	162	16
5.	Uttar Pradesh	729	27	182	13	547	14
6.	Maharashtra	678	20	234	9	444	11
7.	Odisha	192	20	106	10	86	10
8.	Rajasthan	314	13	76	6	238	7
9.	Telangana	238	13	91	8	147	5
10.	Haryana	161	13	34	4	127	9
11.	West Bengal	525	12	264	11	261	1
12.	Gujarat	456	12	113	3	343	9
13.	Madhya Pradesh	335	12	68	4	267	8
14.	Karnataka	386	8	220	5	166	3
15.	Uttarakhand	59	7	28	4	31	3
16.	Chhattisgarh	84	5	26	5	58	0
17.	Chandigarh	20	4	8	3	12	1
18.	Nagaland	12	4	6	2	6	2
19.	Bihar	275	2	108	1	167	1
20.	Himachal Pradesh	20	2	9	0	11	2
21.	Andhra Pradesh	344	1	199	1	145	0
22.	Mizoram	6	1	2	0	4	1

**Table 3: Non-compliance for Antibiotics (State-wise)**

Sl.No	State/UTs	Overall, Numbers		Sector wise			
				Processed, Numbers		Raw, Numbers	
		Total	NC	Total	NC	Total	NC
1	Madhya Pradesh	335	23	68	3	267	20
2	Maharashtra	678	9	234	4	444	5
3	Uttar Pradesh	729	8	182	7	547	1
4	Andhra Pradesh	344	7	199	4	145	3
5	Gujarat	456	6	113	3	343	3
6	Karnataka	386	5	220	5	166	0
7	Rajasthan	314	4	76	2	238	2
8	NCT of Delhi	262	4	194	3	68	1
9	Tamil Nadu	551	3	292	2	259	1
10	Odisha	192	3	106	3	86	0
11	Telangana	238	2	91	1	147	1
12	Bihar	275	1	108	1	167	0
13	Kerala	187	1	104	1	83	0
14	Chandigarh	20	1	8	1	12	0

**Table 4: Non-compliance for Adulterants(State-wise)**

Sl.No.	State/UTs	Overall, Numbers		Sector wise			
				Processed, Numbers		Raw, Numbers	
		Total	NC	Total	NC	Total	NC
1	Telangana	238	9	91	5	147	4
2	Madhya Pradesh	335	2	68	0	267	2
3	Kerala	187	1	104	0	83	1

**Table 5: Summary of Non-compliance with Quality Issues**

Criteria	Sample Numbers	Sector wise				Overall#, %
		Processed		Raw		
		Samples	%	Samples	%	
<b>Total Samples in the survey</b>	<b>6432</b>	<b>2607</b>	<b>40.5</b>	<b>3825</b>	<b>59.5</b>	<b>--</b>
<b>Samples with quality (non-compliant)</b>	<b>2647@</b>	<b>982</b>	<b>37.7</b>	<b>1799</b>	<b>47.0</b>	<b>41.1</b>
• Fat	1255	346	13.3	909	23.8	19.5
• SNF	2167	731	28.0	1436	37.5	33.7
• Maltodextrin	156	148	5.7	8	0.2	2.4
• Sugar	78	55	2.1	23	0.6	1.2

(# : expressed as percentage of total number of samples in the survey i.e., 6432)

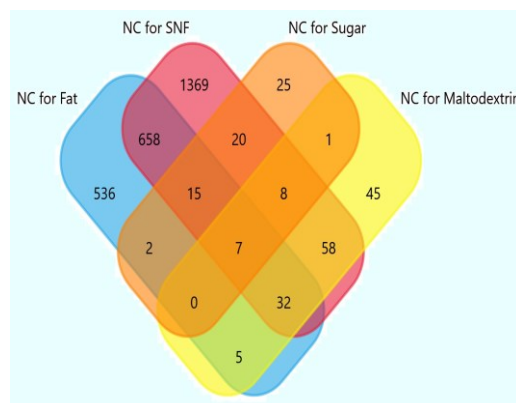
(@ : excludes 134 samples that also failed for safety issues)

(The sum of individual failures will not match to total failures as some samples failed for more parameters)

### Figure1: Summary of non-compliant samples with multiple quality issues

From all the non-compliant samples with quality issues (i.e., not complying to set limits in the standard for milk) -

- 1369 samples did not comply to the set limits SNF, while 536 did not comply for limits of fat, 45 for set limits of maltodextrin and 25 set limits for sugar.
- 658 samples did not comply for both fat and SNF contents; 20 samples for SNF and sugar; 1 sample did not comply for sugar and maltodextrin; 58 samples did not comply for SNF and maltodextrin; 2 samples did not comply for fat and sugar; 5 samples did not comply for fat and maltodextrin.
- 32 samples did not comply for fat, SNF and maltodextrin; 8 samples did not comply for SNF, maltodextrin and sugar; 15 samples did not comply for fat, SNF and sugar.
- 7 samples did not comply for fat, SNF, maltodextrin and sugar.

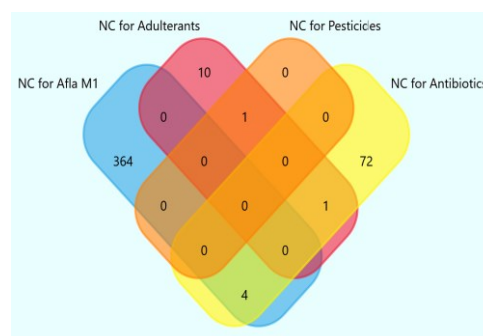


*(The sum of individual failures will not match to total failures as some samples failed for more parameters)*

### Figure 2: Summary of non-compliant samples with multiple safety issues

From all the non-compliant samples with safety issues (i.e., not complying due to limits / absence of adulterants and/or contaminants, as per standard) -

- 364 samples did not comply to set limits of aflatoxin M1; 72 samples for limits/absence of adulterants; and, 10 samples did not comply with limits for antibiotics.
- 4 samples did not comply for limits of both aflatoxin M1 and antibiotics; 1 sample did not comply for limits of antibiotics and adulterants; 1 sample did not comply for limits of pesticides and adulterants.
- No sample failed for all the safety parameters tested.



*(Adulterants include detergents, hydrogen peroxide, urea, neutralizers)*

*(The sum of individual failures will not match to total failures as some samples failed for more parameters)*