Canadian Food Inspection Agency | Agence canadienne d'inspection des aliments

Bacterial Pathogens and Indicators, and Parasites in Various Food Commodities - April 1, 2022, to March 31, 2026

Food microbiology - Targeted surveys - Interim Report



Canada

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Summary

From April 1, 2022, to March 31, 2026, a total of 5,217 food samples were tested in a suite of ongoing targeted surveys[1] to investigate the presence of bacterial pathogens and indicators, and parasites.

Of the samples tested, 99.7% were satisfactory, 0.2% were investigative, and 0.1% were unsatisfactory. The Canadian Food Inspection Agency (CFIA) conducted appropriate follow-up activities including the oversight of industry led voluntary food recalls.

Final reports, which will include a detailed analysis of the results, will be published over the next few years as the surveys are completed.

What an interim report is

An interim report provides preliminary results related to on-going targeted surveys[1] which can vary in duration from several months to several years depending on the objective of each survey.

Will final reports be published

Yes, upon conclusion of the surveys, final reports or scientific publications will be published.

What foods were tested

The presence of bacterial pathogens and indicators, and parasites was investigated in a variety of foods of the following commodities:

- raw dairy milk cheese
- fresh fruits and vegetables
- plant-based milk alternatives
- halva
- cream-filled pastries

Why these foods were tested

The selected foods are all commonly consumed by Canadians of all ages[2]. Unfortunately, most of these commodities have been associated with recalls and outbreaks of foodborne illnesses. Contamination with pathogens can occur at any step in the food supply chain such as during production, processing, packaging, distribution, and/or at retail. Given that most of the commodities covered by this report are consumed without further preparation, the presence of pathogens creates the potential for foodborne illness.

When the samples were collected

The samples were collected between April 1, 2022, to March 31, 2026. This report covers a period of 4 fiscal years (2022 to 2023, 2023 to 2024, 2024 to 2025, and 2025 to 2026) with a fiscal year being a 12-month period from April 1 to March 31 of the following year.

Where the samples were collected from

Samples were collected from national retail chains and local/regional grocery stores located in 11 major cities across Canada:

- Halifax
- Moncton
- Quebec City
- Montreal
- Toronto
- Ottawa
- Winnipeg
- Saskatoon
- Calgary
- Vancouver
- Victoria

A sample consisted of a single or multiple consumer-size packages from the same lot weighing at least 250g. The planned number of samples to be collected from each city was based on the population of the province in which the city was located relative to the total population of Canada.

Methods used to test the samples

Samples were analyzed using analytical methods published in Health Canada's *Compendium of Analytical Methods for the Microbiological Analysis of Foods*[3], CFIA internally developed methods, or methods from other organizations such as ISO or FDA BAM.

How the samples were assessed

The samples were assessed using criteria (tables 1, 2, 3) based on the principles of the following Health Canada documents: *Health Products and Food Branch (HPFB) Standards and Guidelines for Microbiological Safety of Food - An Interpretive Summary*[4], *Policy on Listeria monocytogenes in Ready-to-Eat Foods*[5,6], and the *Food and Drugs Act* (Section 4 (1))[7]. In the absence of Health Canada standards, policies, or guidelines, the assessment criteria are based on guidelines developed by international food safety authorities. Detailed information about the assessment criteria used for each

commodity will be provided in the final reports or scientific publications which will be published after the surveys have concluded.

Table 1 - Assessment criteria for indicator organisms

Analysis	Product(s)	Satisfactory assessment	Investigative assessment	Unsatisfactory assessment
Generic *E. coli*	Fresh fruits and vegetables	≤10^2 CFU/g or Most Probable Number (MPN)/g	>10^2 and ≤10^3 CFU/g or MPN/g	>10^3 CFU/g or MPN/g
Generic *E. coli*	Raw milk cheese	≤5x10^2 CFU/g or MPN/g	>5x10^2 and ≤2x10^3 CFU/g or MPN/g	>2x10^3 CFU/g or MPN/g
Generic *E. coli*	Frozen RTE cream-filled pastries	≤1.8 MPN/g	>1.8 and ≤10^3 MPN/g	>10^3 MPN/g

Table 2 - Assessment criteria for pathogenic bacteria

Analysis	Product(s)	Satisfactory assessment	Investigative assessment	Unsatisfactory assessment
E. coli O157	All products tested for *E. coli* O157	Not detected/25 g	N/A	Detected/25 g
Non-O157 Shiga-toxigenic *E. coli* (STEC)	All products tested for non-O157 STEC	Not detected/25 g	Detected/25 g	N/A
Listeria monocytogenes (*L. monocytogenes*)	Category 1 products[a]	Not detected/25 g	N/A	Detected/25 g
L. monocytogenes	Category 2A and 2B products[a]	Not detected/25 g	≤10^2 CFU/g	>10^2 CFU/g
Salmonella spp.	All products tested for *Salmonella* spp.	Not detected/25 g	N/A	Detected/25 g
Staphylococcus aureus (*S. aureus*)	Raw milk cheese	≤10^3 CFU/g	>10^3 and ≤ 10^4 CFU/g	>10^4 CFU/g
S. aureus	Frozen RTE cream-filled pastries	≤10^2 CFU/g	>10^2 and ≤ 10^4 CFU/g	>10^4 CFU/g

[a] Information such as storage condition (frozen or refrigerated), shelf life, and if applicable, pH and water activity were used to determine the product category.

Table 3 - Assessment criteria for parasites

Analysis	Product(s)	Satisfactory assessment	Investigative assessment	Unsatisfactory assessment
Cyclospora[b] *Cryptosporidium spp.*[b] *Toxoplasma gondii*[b]	All products tested for parasites	Not detected	Detected	N/A

Preliminary survey results

Details about each targeted survey and test results (as of March 31, 2026) can be found in table 4.

Table 4 - Survey results as of March 31, 2026

Fiscal year(s)	Product (sample plan ID)	Microorganisms tested	Number of samples tested	Satisfactory (S)	Investigative (I)	Unsatisfactory (U)	Comments
2025/2026	Imported whole leafy herbs (SB3242)	*E. coli* O157 STEC *Salmonella* spp. generic *E. coli*	190	189	1	0	I = STEC
2025/2026	Domestic whole leafy herbs (SB3246)	*E. coli* O157 STEC *Salmonella* spp. generic *E. coli*	77	77	0	0	All satisfactory
2024/2025	Imported herbs (SB3093)	*E. coli* O157 STEC *Salmonella* spp. generic *E. coli*	62	61	1	0	I = Generic *E. coli*
2024/2025	Domestic herbs (SB3092)	*E. coli* O157 STEC *Salmonella* spp. generic *E. coli*	36	35	1	0	I = Generic *E. coli*
2025/2026	Imported raw milk cheese (SB3245)	*E. coli* O157 *Salmonella* spp. *L. monocytogenes* *S. aureus* generic *E. coli*	19	17	2	0	I = S. aureus (1) I = Generic *E. coli* (1)

[b] The detection methods used cannot discriminate between potentially infectious and non-infectious parasites.

Fiscal year(s)	Product (sample plan ID)	Microorganisms tested	Number of samples tested	Satisfactory (S)	Investigative (I)	Unsatisfactory (U)	Comments
2025/2026	Halva (SB3247)	*Salmonella* spp.	54	53	0	1	U = *Salmonella* spp.
2025/2026	Refrigerated plant-based milk alternatives (SB3248)	*L. monocytogenes*	294	294	0	0	All satisfactory
2022/2023 2023/2024 2024/2025 2025/2026	Imported fresh leafy herbs (seasonal focus on basil and cilantro) (SB3081, SB3239)	*Cyclospora* *Cryptosporidium* spp. (2025-2026 only) *Toxoplasma gondii* (2025-2026 only)	1164	1159	5	N/A	I =*Cyclospora*
2022/2023 2023/2024 2024/2025 2025/2026	Imported fresh berries (SB341, SB3237)	*Cyclospora* *Cryptosporidium* spp. (2025-2026 only) *Toxoplasma gondii* (2025-2026 only)	1357	1356	1	N/A	I =*Cyclospora*
2024/2025 2025/2026	Domestic fresh leafy herbs (SB3232, SB3238)	*Cyclospora* *Cryptosporidium* spp. (2025-2026 only) *Toxoplasma gondii* (2025-2026 only)	141	141	0	N/A	All satisfactory
2024/2025 2025/2026	Domestic fresh berries (SB3231, SB3236)	*Cyclospora* *Cryptosporidium* spp. (2025-2026 only) *Toxoplasma gondii* (2025-2026 only)	175	175	0	N/A	All satisfactory
2025/2026	Imported fresh-cut leafy vegetables and vegetable salads (SB3240)	*Cyclospora* *Cryptosporidium* spp. *Toxoplasma gondii*	182	182	0	0	All satisfactory
2025/2026	Imported fresh whole leafy vegetables (SB3241)	*Cyclospora* *Cryptosporidium* spp. *Toxoplasma gondii*	143	142	1	0	I = *Cryptosporidium* spp.
2023/2024 2024/2025 2025/2026	RTE frozen cream-filled pastries (SB3127)	*L. monocytogenes* *Salmonella* spp. *S. aureus* Generic *E. coli*	423	421	1	1	I = Generic *E. coli* U = Generic *E. coli*

Fiscal year(s)	Product (sample plan ID)	Microorganisms tested	Number of samples tested	Satisfactory (S)	Investigative (I)	Unsatisfactory (U)	Comments
2024/2025 2025/2026	Imported fresh whole cantaloupes (SB3133)	*Salmonella* spp. *E. coli* O157	900	899	0	1	U = *Salmonella* spp.
Total (%)	**-**	**-**	**5,217**	**5,201 (99.7)**	**13 (0.2)**	**3 (0.1)**	**-**

What is done with the survey results

All results are used to:

- inform risk management decisions
- support program design and re-design

All investigative and unsatisfactory results triggered appropriate follow-up actions such as:

- on site visit of the manufacturer
- follow-up with the importer
- review of hygiene and sanitation procedures
- review of production and distribution records
- review of previous laboratory test results
- additional sampling and testing
- food recalls

Where to access the survey data

All of the results reported herein are considered preliminary, as the targeted surveys are still ongoing. Therefore, the data will only be accessible to the public on the Open Government portal following the publication of the final report or scientific publication.

References

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