



Canadian Food  
Inspection Agency

Agence canadienne  
d'inspection des aliments

Canadian Food Inspection Agency

# Enhanced honey authenticity surveillance (2018 to 2019)



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## Introduction

In recent years, the Canadian Food Inspection Agency (CFIA) has become aware of the risk that the adulteration of honey with foreign sugars has increased, both in Canada and globally. Adulteration occurs when other ingredients are mixed into a food and yet the food is represented as being genuine honey. Honey that has been deliberately adulterated is considered food fraud, which deceives consumers about what they are buying and creates an unfair market for those selling authentic honey.

All foods in Canada, including honey, must be safe for consumption and truthfully represented. In order to best address and respond to the risk of honey adulteration in the Canadian market, in 2018 to 2019 CFIA undertook a targeted surveillance strategy. The objectives of this strategy were to better understand the prevalence of honey adulteration, take control and enforcement action on instances of non-compliance, and generate data and information to refine future compliance and enforcement activities.

## Surveillance overview

Honey sampling as part of the targeted surveillance strategy began in June 2018 and was carried out over a 14 week period ending in September 2018. Sampling was targeted based on risk intelligence, to focus on risk areas such as establishments with a history of non-compliance, gaps in preventive controls, or unusual trading patterns.

A total of 240 samples were collected across Canada. Samples included bulk honey intended for further processing and retail packaged honey intended for sale to consumers. Products represented as containing only honey or blends of honey from multiple sources were sampled. Multi-ingredient products with honey as an ingredient (e.g. granola bar containing honey) were outside of the scope of the sampling. Samples were taken from a variety of establishment types, including importers, brokers, distributors, blenders, graders, domestic processing facilities and retailers.

The samples were tested for adulteration with foreign sugars using two techniques. CFIA conducted analyses using Stable Isotope Ratio Analysis (SIRA) to detect adulteration with sugar cane and corn syrups (C4 sugars). Nuclear Magnetic Resonance (NMR) analyses were conducted by a contract laboratory to detect added foreign sugars from these as well as other sources such as C3 sugars. NMR analyses were conducted for the purposes of both detecting adulteration in the samples and informing CFIA as to effectiveness of this technique to complement SIRA testing.

## Authorities

CFIA inspection and enforcement activities were carried out as part of this surveillance strategy under the authorities of the:

- *Canada Agricultural Products Act and Honey Regulations* (replaced by the *Safe Food for Canadians Act and Safe Food for Canadians Regulations* on January 15, 2019)
- *Consumer Packaging and Labelling Act and Consumer Packaging and Labelling Regulations* (food provisions were replaced by the *Safe Food for Canadians Act and Safe Food for Canadians Regulations* on January 15, 2019)

- *Food and Drugs Act and Food and Drug Regulations*

## Results

The results for the 240 samples analyzed using both the SIRA and NMR techniques are as follows:

- 188 samples were satisfactory by both methods: 78.3% (188/240)
- 52 samples were unsatisfactory by one or both methods: 21.7% (52/240)

All domestic samples were satisfactory by both tests. All of the unsatisfactory results were for samples of imported product.

The detailed analytical results can be viewed on the [Open Government Portal](#).

Samples were assessed as unsatisfactory if either SIRA or NMR testing showed the presence of added sugars in the honey. The SIRA testing assessment is based on an internationally recognized Association of Official Analytical Chemists (AOAC) method and has a threshold limit for detection of adulteration of 7% calculated C4 sugars. The NMR testing assessment is based on the comparison of the sample to the profile of authentic honey, developed from the analysis of over 18,000 authentic honey samples and sugar syrups used for adulteration.

SIRA and NMR testing are complementary as each has advantages and limitations. SIRA testing can detect lower levels of foreign C4 sugars (such as from corn and cane sugar) but cannot detect C3 sugars (such as from rice syrup). NMR testing can detect adulteration with both C3 and C4 sugars. Due to these differences, the detailed analytical results indicate:

- 15 samples were unsatisfactory for SIRA testing: 6.3% (15/240)
- 44 samples were unsatisfactory for NMR testing: 18.3% (44/240)

Some samples were unsatisfactory for both tests while some were unsatisfactory for only one:

- SIRA testing found 7 (out of 15) samples unsatisfactory that were not found by NMR
- NMR testing found 34 (out of 44) samples unsatisfactory that were not found by SIRA

These differences were expected, given the abilities and limitations of each technique, and demonstrate the importance of analyzing the results together to assess compliance.

It is important to note that the sampling was targeted as opposed to random. As such, the levels of adulteration are not necessarily representative of the Canadian marketplace overall.

## Enforcement

As of January 3, 2019, CFIA had taken enforcement actions that prevented an estimated 12,762 kg of adulterated honey valued at \$76,758 CAD from entering the Canadian market.

Enforcement actions as of January 3, 2019 included disposal of product or removal from Canada. In some cases, enforcement activities are ongoing. Appropriate enforcement actions are considered on a case-by-case basis, taking into consideration the harm caused by the non-compliance, the compliance history of the regulated party, and whether there is intent to violate federal requirements. CFIA continues to follow up on all products found to be non-compliant.

Regulated parties have been [reminded of regulatory requirements and of their obligations](#) to have in place preventive control plans to mitigate risks and prevent re-occurrence.

CFIA publishes information regarding certain [compliance and enforcement activities](#) on a quarterly basis. These include reports of non-compliant and disposed of food products, which will continue to be updated following the publication of this report.

## Collaboration and engagement

CFIA engaged the Canada Border Services Agency (CBSA) on this project from the outset, and CFIA's laboratory results were shared with CBSA. Pure honey is duty-free whereas artificial honey (whether or not mixed with genuine honey) involves a rate of duty.

CFIA has also engaged in discussions with Canadian provinces and territories on activities to prevent and take actions against food fraud, and will continue to do so. International discussions to share intelligence and best practices are also underway.

CFIA recognizes the important role that industry plays in preventing food fraud through preventive controls, sourcing from trusted suppliers, and being able to demonstrate authenticity. CFIA will continue to engage industry associations to promote compliance and best practices.

## Next steps

CFIA will continue to monitor honey imported and for sale in Canada for compliance with federal requirements. CFIA intends to use the results of this surveillance to improve the targeting of future sampling and inspection activities, inform analytical needs, and refine program design. CFIA also plans to use lessons learned to plan similar strategies for other commodities at risk going forward.