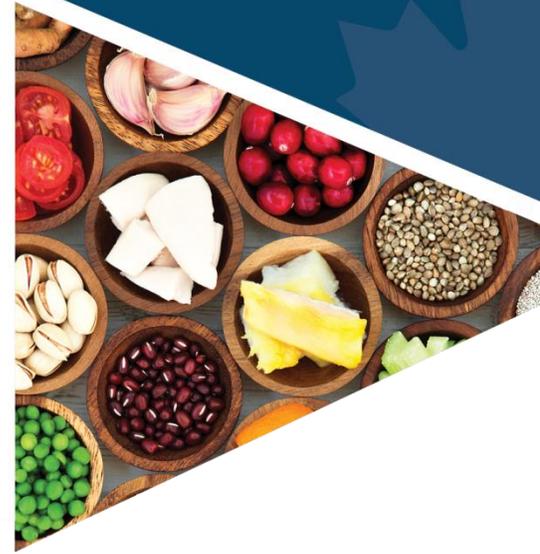




Canadian Food  
Inspection Agency

Agence canadienne  
d'inspection des aliments

# Safeguarding with Science: Glyphosate Testing in 2015-2016



## CFIA- Science Branch Survey Report

Food Safety Science Directorate  
Canadian Food Inspection Agency  
1400 Merivale Road  
Ottawa, Ontario Canada  
K1A 0Y9

## Introduction

Chemical hazards may occur in foods either from their deliberate use in food production (e.g. veterinary drugs, pesticides, food additives) or by accidental contamination from the environment, during processing, or due to the presence of natural toxins.

Regardless of the source of the hazard, food producers, manufacturers and importers must ensure their products are safe to eat and compliant with applicable Canadian standards. The Canadian Food Inspection Agency's (CFIA) priority is to protect consumers by safeguarding Canada's food supply. Testing foods for pesticides is one of the tools used by the CFIA to detect food safety risks and ensure that the food supply is safe.

## Glyphosate Testing

### Objective and Rationale

Glyphosate is an herbicide that is used to kill weeds and it can also be used to dry grains and legumes before harvesting. Health Canada has approved its use on a variety of crops and has set Maximum Residue Limits (MRL) for residues of glyphosate in foods which can be found in their [MRL Database](#). The MRL is the amount of pesticide residue that is expected to remain in or on a food product when a pesticide is used according to the label directions and which will not be a concern to human health.

These testing activities were designed to:

- generate information on the presence and levels of glyphosate residues in foods;
- verify the safety of the food supply and compliance with Canadian standards.

### Sample Collection

Testing for Glyphosate residues was added to the CFIA's food surveillance program in 2015. In 2015-2016, 3188 samples of domestic and imported food products were collected and tested for glyphosate residues in three programs:

- Testing of 482 samples of fresh and processed fruits and vegetables as part of the National Chemical Residue Monitoring Program (NCRMP);
- Retail survey of 2497 samples of grains (barley, buckwheat, and quinoa), beverages, bean, pea, lentil, chickpea and soy products;
- A survey of over 209 retail samples of infant foods as part of the 2015-2016 Children's Food Project.

## Limitations

Due to the low number of samples and products analyzed, care must be taken when interpreting these results. Regional differences, impact of product shelf-life, storage conditions, or cost of the commodity on the open market were not examined in this survey.

Samples were tested as sold; no inference can be made on the levels of glyphosate in foods as consumed.

## Assessment of Results

When residues of glyphosate were detected in foods, the results were compared to the MRLs set by Health Canada. If the level found in a food sample was higher than the MRL, the information was reviewed and the appropriate follow up was taken, this may have included notifying the manufacturer or importer, requesting corrective action, conducting further directed sampling, or product recall.

Samples were assessed based on the sum of glyphosate and the metabolite amino-methylphosphonic acid (AMPA) to following MRLs:

- Barley- 10 ppm
- Bean (including chickpea)- 4 ppm
- Lentil- 4 ppm
- Pea- 5 ppm
- Soybean- 20 ppm
- Wheat (including kamut and spelt)- 5 ppm
- Products not included above, general MRL (gMRL) 0.1 ppm

## Results

The overall compliance rate for these surveys, based on Canadian Maximum Residue Limits (MRL), was 98.7 %. No samples of fruits and vegetables, soy products, or infant foods were found to contain residues exceeding Canadian limits. Most samples found with levels of residues exceeding Canadian limits were predominantly associated with grain products.

The following table summarizes the results of glyphosate testing completed by the CFIA in 2015-2016:

<b>Program</b>	<b>Food Type</b>	<b># Samples Tested</b>	<b>% Samples with Glyphosate Residues Detected</b>	<b>% Samples with Glyphosate Residues above MRLs</b>
National Chemical Residue Monitoring Program	Fresh fruits and vegetables	317	7.3%	0%
	Processed fruits and vegetables	165	12.1%	0%
Targeted Surveys	Grain products	869	36.6%	3.9%
	Juice and other beverages	496	16.3%	0.2%
	Bean/pea/lentil products	869	47.4%	0.6%
	Soy products	263	11.0%	0%
Children's Food Project	Infant cereal	82	31.7%	0%
	Infant food	127	30.7%	0%
	<b>TOTAL</b>	<b>3,188</b>	<b>29.7%</b>	<b>1.3%</b>

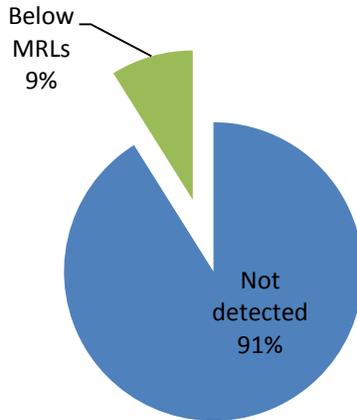
## Summary

In 2015-2016, the CFIA tested a total of 3,188 food samples for glyphosate. Glyphosate was found in 29.7% of samples. Glyphosate residues above MRLs were found in only 1.3% of samples. This data was evaluated by Health Canada and no human health concerns were identified.

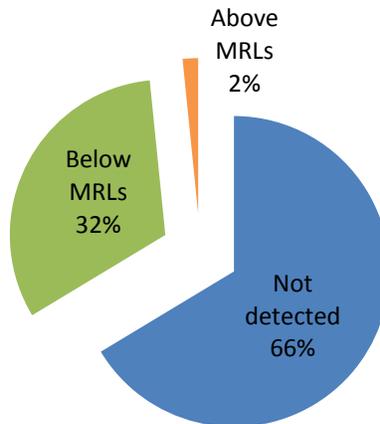


The charts below show the percentage of samples tested in each program with no glyphosate detected, glyphosate detected below the MRLs, and glyphosate detected above the MRLs.

**National Chemical Residue Monitoring Program**



**Targeted Surveys**



**Children's Food Project**

