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

Children's Food Project - Annual report

2015

Canada

Summary

The Canadian Food Inspection Agency (CFIA) uses a number of different monitoring programs for chemical residues and contaminants in food to ensure that the food supply is safe and compliant with Canadian standards. The Children's Food Project (CFP) complements these activities by specifically collecting information on chemical residues and contaminants in manufactured foods frequently consumed by, and targeted to, infants and children. Because of their smaller body weight, their development and growth, and their consumption patterns this group may be at higher risk from exposure to these chemicals.

The main objectives of the 2015 CFP were to:

- collect data and assess the compliance of infant foods to Canadian standards for pesticide residues and metals/elements
- collect data on chemical hazards such as Bisphenol-A (BPA)/BPA alternatives in infant foods for use by Health Canada in health risk assessments of infant foods

In the 2015 CFP, a total of 487 pureed infant food, infant snacks and fruit juice were purchased in the Ottawa, Ontario and Gatineau, Quebec areas. Infant cereals, juices, toddler snacks (for example, teething biscuits, crackers, cookies, cereal bars), pureed fruits, pureed vegetables and pureed fruit and vegetable combinations were analyzed for pesticide residues, BPA and its alternatives, and toxic metals/elements.

Of the 487 samples tested for a variety of pesticides, there were 340 samples (69.8%) with no detectable pesticides and 147 samples with one or more pesticide residue detected. In this survey a subset of 209 samples of grain containing products were tested for glyphosate and phenoxy herbicides. Of these 209 samples tested, 65 samples (31.1%) did not have detectable levels of glyphosate. There were no samples with detectable levels of phenoxy herbicides. All pesticide residues detected were well below maximum residue limits (MRLs) established by Health Canada (HC). The overall compliance rate of the pureed infant food samples tested for pesticide was 100%.

BPA is not permitted for use in baby bottles in Canada, however, it can be used in food packaging though some manufacturers have voluntarily stopped using it. BPA alternatives such as bisphenol-F (BPF) and bisphenol-S (BPS) may be used instead. Only purees were tested for BPA as these products are packaged in plastic pouches or glass jars with metal lids that could contain BPA and BPA alternatives. Of the 262 samples tested for BPA and BPA alternatives, 107 samples did not contain detectable residues, 155 samples contained BPA (with levels ranging from 0.00091 to 0.709 ppm (parts per million), 3 samples contained BPF and one sample contained BPS.

None of the 11 juice samples tested for metals/elements had detectable levels of cadmium, mercury or arsenic. 10 samples of juice did not contain detectable levels of lead and 1 sample contained a compliant level of lead (0.015 ppm).

Data obtained from studies like the CFP are useful in the assessment of the dietary exposure of Canadian children to pesticide residues, veterinary drug residues and other contaminants. All data was sent to HC and they determined that none of the samples posed a risk to infants. The

2015 CFP represents a snapshot of the levels of pesticide, arsenic, lead, cadmium, mercury and BPA (and BPA alternative) in infant foods available on the Canadian market.

What is the children's food project

The CFP began in 2003 to look at levels of pesticide residues and metals/elements, in foods for infants and children. Because of their smaller body weight, their development and growth, and their consumption patterns, this group may be at higher risk from exposure to these chemicals.

The CFIA uses a number of different monitoring programs to ensure that the food supply is safe and compliant with Canadian standards. The CFP complements these activities by specifically collecting information on domestically produced and imported manufactured foods frequently consumed by and targeting children (for example, infant formula, cereal-based products, fruit juices and beverages). Together, the data from these programs help health authorities assess potential exposure to chemical residues and contaminants in a number of foods consumed by Canadian children.

The main objectives of the 2015 CFP were to:

- collect data and assess the compliance of infant foods to Canadian standards for pesticide residues, BPA/BPA alternatives and metals/elements
- collect baseline data on the levels of BPA/BPA alternatives in infant foods

What did we sample

In total, 487 samples of domestic and imported products were sampled from retail stores located in Ottawa, Ontario and Gatineau, Quebec in January, 2016. Samples were packaged in a variety of formats (for example, glass and plastic bottles, cans, boxes, and cartons) and were purchased from several national grocery chains and drugstores in the Ottawa, Ontario and Gatineau, Quebec areas. This survey was designed to provide a snapshot of the levels of pesticide, and BPA/alternatives to BPA in grain-, fruit- and vegetable-based infant foods and metals/elements in infant juices. See Table 1 for the products sampled.

Table 1. Breakdown of products sampled

Infant food	Number of samples	Percent of total
Infant cereal (for example, rice, wheat, mixed grains, cereals mixed with fruit)	82	17%
Juice (for example, apple, pear, peach)	11	2%
Purees (fruit, vegetable, fruit and vegetable, with grains, etc.)	271	56%
Toddler snacks (for example, biscuits, cereal bars, puffed rice, dried fruit, pudding)	123	25%
Total	**487**	**100%**

Sampling limitations

Due to the limited 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, which means the product was tested as is and not prepared according to package instructions.

How were samples analyzed and assessed

Analytical testing for the various types of analytes was performed by ISO/IEC 17025 accredited food testing laboratories under contract with the Government of Canada.

Pesticide analysis

Samples were tested for a wide array of pesticides, some of which are commonly used to control insects, weeds and other pests on fruits, vegetables and grains. Additionally, residues present in livestock feed and forage may be transferred to the meat or milk of animals. A summary of the pesticide residues analyzed in this survey can be found in Appendix B.

Metal/Elemental analysis

Many metals or elements are present in food due to their natural presence in the environment, but they could also be present due to the use of pesticides, agricultural chemicals, environmental contamination or processing. For this study, only juice samples were tested for a range of metals and elements. The focus of this report will be on 4 elements of primary concern to human health, which are:

- arsenic
- cadmium
- lead
- mercury

BPA analysis

BPA is not permitted for use in baby bottles in Canada, however, it can be used in food packaging though some manufacturers have voluntarily stopped using it. BPA alternatives such as bisphenol-F (BPF) and bisphenol-S (BPS) may be used instead. There are no regulatory limits for the content of BPA/BPA alternatives in food packaging. Only purees were tested for BPA as these products are packaged in plastic pouches or glass jars with metal lids that could contain BPA and BPA alternatives.

Assessment of results

All results from samples tested in the project were evaluated against Canadian standards established by HC. For pesticides, the MRL is the maximum amount of residues that is expected to remain in or on food products when a pesticide is used according to product label directions. For elements, the maximum level (ML) is the maximum level of a contaminant that could safely remain in food products.

Canadian pesticide MRLs are listed in the maximum residue limit database[1] published on the HC website. In the absence of an MRL, pesticide residues must comply with the general MRL of 0.1 ppm as stated in section B.15.002 (1) of the *Food and Drug Regulations*[2].

MLs for contaminants in food are found in the list of contaminants and other adulterating substances in foods[3]. The ML for lead in fruit juices is 0.2 ppm and 0.1 ppm for arsenic. Non-compliant results were assessed by HC. Results from this survey were assessed by HC and were not considered to be of concern to children or infants.

What were the results

Pesticides

Of the 487 samples tested for pesticides, there were 340 samples (69.8%) with no detectable levels and 147 samples with one or more pesticide residues detected. 209 of the samples which were grain based were tested for glyphosate and phenoxy herbicides. Of the 209 samples tested, 65 samples (31.1%) did not have detectable levels and 144 samples contained glyphosate. There were no samples with detectable levels of phenoxy herbicides. See Appendix A for the positive levels of pesticide residues found in samples.

There were 263 samples which were labelled as “organic”, there were no pesticide residues detected in approximately 71% of organic products tested. All pesticide residues detected were well below MRLs established by HC. All samples were compliant with Canadian food safety regulations.

Metals/Elements

A total of 11 juice samples were tested for metals/elements and 90.9% did not have detected levels for arsenic, cadmium, lead and mercury. Juices were tested because Canadian regulations exist for arsenic and lead. Only 1 sample of apple juice contained 0.015 ppm of lead which is compliant with the ML of 0.2 ppm for lead in beverages. Note that HC’s ML for lead in fruit juices was updated to 0.05 ppm in May, 2018. All metal/element results were sent to HC’s Bureau of Chemical Safety for review and samples were considered safe for children and infants.

Arsenic

Arsenic is an element that naturally occurs in the earth’s crust and can be found in 2 chemical forms: organic (contains carbon atoms) and inorganic. In general, inorganic arsenic is more toxic to humans than organic arsenic. Long-term exposure to high levels of inorganic arsenic is known to contribute to the risk of human cancer and can affect the gastrointestinal tract, kidneys, liver, lungs and skin[4]. For most Canadians, the primary source of exposure to arsenic is food, followed by drinking water, soil and air[5].

There were no detected levels of arsenic in any of the juice samples.

Cadmium

There are no Canadian MLs for cadmium levels in food and are assessed on a case-by-case basis. Cadmium can be present in water and soil through the use of phosphate fertilizers or

sewage sludge. Food grown in cadmium containing soils is the primary source of cadmium exposure in the general population[6]. Kidneys and bones are affected by cadmium toxicity[6].

There were no detected levels of cadmium in any of the juice samples.

Lead

Lead exposure may occur from a number of environmental and food sources. Chronic exposure to low levels of lead can be harmful to human health. Lead occurs naturally in the environment and has many industrial uses, such as in mining, smelting and battery manufacturing[7]. The greatest sources of a child's environmental exposure to lead are oral exposure from food and water along with ingestion of house dust and soil contaminated with lead[7].

Only 1 sample of apple juice contained 0.015 ppm of lead. This is below the ML of 0.2 ppm which was in effect for the period of the survey.

Mercury

Mercury is released naturally from rocks, soils and volcanoes. Industrial activities have also increased the amount of mercury in the environment[8]. Mercury contamination is a concern because it is toxic, persists in the environment, and can bio-accumulate in the food chain. The health effects of mercury depend on its chemical form (elemental, inorganic, organic), the route and level of exposure. Methyl mercury is the more toxic organic form and is easily absorbed and can cross the blood-brain barrier. Children and the developing fetus are particularly susceptible to the harmful effects of methyl mercury.

There were no detected levels of mercury in any of the juice samples.

BPA

BPA is an industrial chemical used to make hard, clear plastic called polycarbonate. BPA can be found in products such as food packaging materials and plastic food storage containers, among others[9]. BPA is not permitted in baby bottles in Canada, however it can be used in food packaging though some manufacturers have voluntarily stopped using it[9]. BPA alternatives such as BPF and BPS may be used instead.

Only purees were tested for BPA as these products are packaged in plastic pouches or glass jars with metal lids that could contain BPA and BPA alternatives. Of the 262 samples tested for BPA and BPA alternatives, 107 samples did not contain detectable residues, 155 samples contained BPA (with levels ranging from 0.00091 to 0.709 ppm, 3 samples contained BPF and one sample contained BPS. There are no limits in Canada for BPA/BPA alternatives in food packaging. All results were reviewed by HC and were not considered to be a health risk.

Conclusion

The results of the CFP were shared with HC to determine risk and none of the samples tested posed a health risk to Canadian infants. There were no product actions or recalls resulting from this survey. The infant foods, whether domestically produced or imported, are safe for consumption.

CFIA is committed to ensuring a safe food supply for all Canadians, including the vulnerable populations such as infants and young children. In the coming year, pesticide residues, veterinary drug residues and aflatoxin M1 (in dairy-based samples) will be examined in infant formula, meat-based/dairy-based infant foods and infant snacks.

References

1. Maximum Residue Limits for Pesticides. (2012). Canada. Health Canada.

2. Food and Drug Regulations. (2021). Canada. Government of Canada.

3. List of contaminants and other adulterating substances in foods. (2020). Canada. Health Canada.

4. Arsenic. (2008). Canada. Health Canada.

5. Arsenic in Drinking Water. (2006). Canada. Health Canada.

6. Scientific Opinion of the Panel on Contaminants in the Food Chain on a Request from the European Commission on Cadmium in Food. (2009). The EFSA Journal, 980, pp. 1-139.

7. Final Human Health State of Science Report on Lead. (2013). Canada. Health Canada.

8. Mercury and Human Health. (2008). Canada. Health Canada.

9. Bisphenol A (BPA). (2020). Canada. Government of Canada.

Appendix A

Table A-1 Pesticide residues detected in samples

Residue	Number of samples tested	Number of samples with detected levels	% samples with detected levels	Number samples with violations	Minimum (ppm)	Maximum (ppm)
(Aminomethyl) Phosphonic Acid	209	11	5.3%	0	0.0063	0.0426
Acetamiprid	487	58	11.9%	0	0.005	0.0868
Azoxystrobin	487	3	0.6%	0	0.0055	0.0087
Bifenazate	487	1	0.2%	0	0.0054	0.0054
Bifenthrin	487	1	0.2%	0	0.011	0.011
Boscalid	487	9	1.8%	0	0.0145	0.0381
Captan	487	64	13.1%	0	0.0107	0.266
Carbaryl	487	2	0.4%	0	0.017	0.0234
Carbendazim/Thiophonate methyl	487	19	3.9%	0	0.011	0.0525
Chlorantraniliprole	487	6	1.2%	0	0.0051	0.013
Chlorpyrifos	487	4	0.8%	0	0.0053	0.0237
Chlorpyrifos-methyl	487	1	0.2%	0	0.0056	0.0056
Cyhalothrin-lambda	487	1	0.2%	0	0.0134	0.0134
Cypermethrin	487	1	0.2%	0	0.095	0.095
Cyprodinil	487	5	1.0%	0	0.0054	0.0302
Deltamethrin	487	2	0.4%	0	0.014	0.016
Dichlorvos	487	1	0.2%	0	0.014	0.014
Diphenylamine	487	17	3.5%	0	0.0065	0.0873
Diquat	209	1	0.5%	0	0.0052	0.0052
Fenhexamid	487	8	1.6%	0	0.013	0.078
Fenpropimorph	487	2	0.4%	0	0.0072	0.0315
Flonicamid	487	2	0.4%	0	0.0302	0.035
Flubendiamide	487	8	1.6%	0	0.01128	0.046
Fludioxonil	487	23	4.7%	0	0.007	0.4439
Glyphosate	209	65	31.1%	0	0.0061	2.48
Imazalil	487	1	0.2%	0	0.019	0.019
Imidacloprid	487	1	0.2%	0	0.012	0.012
Malathion	487	6	1.2%	0	0.0105	0.019
Myclobutanil	487	3	0.6%	0	0.0093	0.0109
Novaluron	487	1	0.2%	0	0.011	0.011
Permethrin (Total)	487	2	0.4%	0	0.0206	0.0221
Piperonyl butoxide	487	4	0.8%	0	0.0052	0.07
Pirimiphos-methyl	487	1	0.2%	0	0.0263	0.0263

Propiconazole	487	1	0.2%	0	0.01476	0.01476
Pyraclostrobin	487	1	0.2%	0	0.0067	0.0067
Pyrimethanil	487	29	6.0%	0	0.005	1.75
Pyroquilon	487	2	0.4%	0	0.0186	0.0542084
Spinosyn A+D	487	9	1.8%	0	0.005	0.019
Thiabendazole	487	33	6.8%	0	0.005	0.638
Thiacloprid	487	4	0.8%	0	0.0068	0.0195
Thiamethoxam	487	6	1.2%	0	0.0057	0.0123
Triphenyl phosphate	487	8	1.6%	0	0.0061	0.0228
Tris(chloropropyl) Phosphate	487	3	0.6%	0	0.0061	0.0232

Appendix B

Pesticide Residues

Pesticide residues tested in fresh fruits, vegetables and processed products

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

- 3-hydroxyCarbofuran
- 5-hydroxythiabendazole

A

- Abamectin
- Acephate
- Acetamiprid
- Acetochlor
- Acibenzolar-s-methyl
- Aclonifen
- Alachlor
- Aldicarb
- Aldicarb Sulfone
- Aldicarb sulfoxide
- Aldrin
- Allethrin-d-trans
- Allidochlor
- Ametryn
- Aminocarb
- Anilofos
- Aramite
- Aspon
- Atrazine
- Atrazine-desethyl
- Azaconazole
- Azinphos-ethyl
- Azinphos-methyl
- Azoxystrobin

B

- Benalaxyl
- Bendiocarb
- Benfluralin
- Benodanil
- Benomyl
- Benoxacor
- Bensulide
- Benzoylprop-ethyl
- BHC-alpha
- BHC-beta
- Bifenox
- Bifenthrin
- Biphenyl
- Bitertanol
- Boscalid
- Bromacil
- Bromophos
- Bromophos-ethyl
- Bromopropylate
- Bromuconazole
- Bufencarb
- Bupirimate
- Buprofezin
- Butachlor
- Butafenacil
- Butocarboxim
- Butocarboxim sulfoxide
- Butralin
- Butylate

C

- Cadusafos
- Captafol
- Captan
- Carbaryl
- Carbendazim
- Carbetamide
- Carbofenthion
- Carbofuran
- Carbosulfan
- Carboxin
- Carfentrazone-ethyl
- Chlorantraniliprole
- Chlorbenside
- Chlorbromuron
- Chlorbufam
- Chlordane
- Chlordimeform
- Chlorfenson
- Chlorfenvinphos (e+z)
- Chlorflurenol-methyl
- Chloridazon
- Chlorimuron-ethyl
- Chlormephos
- Chlorobenzilate
- Chloroneb
- Chloropropylate
- Chlorothalonil
- Chloroxuron
- Chlorpropham
- Chlorpyrifos
- Chlorpyrifos-methyl
- Chlorthal-dimethyl (Dacthal)
- Chlorthiamid
- Chlorthion
- Chlorthiophos
- Chlortoluron
- Chlozolinate
- Clodinafop-propargyl
- Clofentezine
- Clomazone
- Cloquintocet-mexyl
- Clothianidin
- Coumaphos
- Crotoxyphos
- Crufomate
- Cyanazine
- Cyanofenphos
- Cyanophos
- Cyazofamid
- Cycloate
- Cycloxydim
- Cycluron
- Cyfluthrin (I,II,III,IV)
- Cyhalothrin-lambda
- Cypermethrin
- Cyprazine
- Cyproconazole
- Cyprodinil
- Cyromazine

D

- Deltamethrin
- Demeton-O
- Demeton-S
- Demeton-S-methyl
- Demeton-s-methyl sulfone
- Demeton-s-methyl sulfoxide
- Desmedipham
- Desmetryn
- Di-allate
- Dialofos
- Diazinon
- Diazinon o analogue
- Dichlobenil
- Dichlofenthion
- Dichlofluanid
- Dichlormid
- Dichlorvos
- Diclobutrazole
- Diclocymet
- Diclofop-methyl
- Dicloran
- Dicofol
- Dicrotophos
- Dieldrin
- Diethatyl-ethyl
- Diethofencarb
- Difenoconazole
- Diflubenzuron
- Dimethachlor
- Dimethametryn
- Dimethoate
- Dimethomorph
- Dimetilan
- Dimoxystrobin
- Diniconazole
- Dinitramine
- Dinotefuran
- Dioxacarb
- Dioxathion
- Diphenamid
- Diphenylamine
- Dipropetryn
- Diquat/paraquat
- Disulfoton
- Disulfoton sulfone
- Diuron
- Dodemorph
- Dodine

E

- Edifenphos
- Emamectin B1a
- Endosulfan sulfate
- Endosulfan-alpha
- Endosulfan-beta
- Endrin
- EPN
- Epoxiconazole
- EPTC
- Erbon
- Esfenvalerate
- Etaconazole
- Ethalfluralin
- Ethiofencarb
- Ethiofencarb sulfone
- Ethiofencarb sulfoxide
- Ethion
- Ethiprole
- Ethirimol
- Ethofumesate

- Ethoprop
- Ethylan
- Etofenprox
- Etoxazole
- Etridiazole
- Etrimfos

F

- Fenamidone
- Fenamiphos
- Fenamiphos sulfone
- Fenamiphos sulfoxide
- Fenarimol
- Fenazaquin
- Fenbuconazole
- Fenchlorphos (Ronnel)
- Fenfuram
- Fenhexamid
- Fenitrothion
- Fenoxanil
- Fenoxycarb
- Fenpropathrin
- Fenpropidin
- Fenpropimorph
- Fenpyroximate
- Fenson
- Fensulfothion
- Fenthion
- Fentrazamide
- Fenvalerate
- Flamprop-isopropyl
- Flamprop-methyl
- Fluazifop-butyl
- Flubendiamide
- Flucarbazone-sodium
- Fluchloralin
- Flucythrinate
- Fludioxonil
- Flufenacet
- Flumetralin
- Fluorochloridone
- Fluorodifen
- Fluoxastrobin
- Flusilazole
- Flutolanil
- Flutriafol
- Fluvalinate
- Folpet
- Fonofos
- Forchlorfenuron
- Formetanate
- Fosthiazate
- Fuberidazole
- Furathiocarb

G

- Griseofulvin

H

- Haloxyfop
- HCH-delta (delta-lindane)
- Heptachlor
- Heptachlor epoxide endo
- Heptachlor epoxide exo
- Heptenophos
- Hexachlorobenzene
- Hexaconazole
- Hexazinone

I

- Imazalil
- Imazamethabenz-methyl
- Imazethapyr
- Imidacloprid
- Indoxacarb
- Iodofenphos
- Ipconazole
- Iprobenfos
- Iprodione
- Iprovalicarb
- Isazophos
- Isocarbamide
- Isofenphos
- Isoprocarb
- Isopropalin
- Isoprothiolane
- Isoproturon
- Isoxadifen-ethyl
- Isoxathion

K

- Kresoxim-methyl

L

- Leptophos
- Lindane (gamma-BHC)
- Linuron

M

- Malaoxon
- Malathion
- Mandipropamid
- Mecarbam
- Mepanipyrim
- Mephosfolan
- Metalaxyl
- Metazachlor
- Methabenzthiazuron
- Methamidophos
- Methidathion

- Methiocarb
- Methiocarb sulfone
- Methiocarb Sulfoxide
- Methomyl
- Methoprotryne
- Methoxychlor
- Methoxyfenozide
- Methyl Pentachlorophenyl sulphide
- Methyl trithion
- Metobromuron
- Metolachlor
- Metolcarb
- Metosulam
- Metoxuron
- Metribuzin
- Mevinphos-cis
- Mevinphos-trans
- Mexacarbate
- Mirex
- Molinate
- Monocrotophos
- Monolinuron
- Myclobutanil

N

- Naled
- Napropamide
- Naptalam
- Neburon
- Nitralin
- Nitrapyrin
- Nitrofen
- Nitrothal-isopropyl
- Norflurazon
- Novaluron
- Nuarimol

O

- o,p'-DDD (o,p'-TDE)
- o,p'-DDE
- o,p'-DDT
- Octhilinone
- Ofurace
- Omethoate
- Ortho-phenylphenol
- Oxadiazon
- Oxadixyl
- Oxamyl
- Oxamyl-oxime
- Oxycarboxin
- Oxychlordane
- Oxyfluorfen

P

- p,p'-DDD (p,p'-TDE)
- p,p'-DDE
- p,p'-DDT
- Paclobutrazol
- Paraoxon
- Parathion
- Parathion-methyl
- Pebulate
- Penconazole
- Pencycuron
- Pendimethalin
- Penoxsulam
- Pentachloroaniline
- Permethrin (Total)
- Phenmedipham
- Phenthoate
- Phorate
- Phorate sulfone
- Phosalone
- Phosmet
- Phosphamidon
- Picolinafen
- Picoxystrobin
- Piperonyl butoxide
- Piperophos
- Pirimicarb
- Pirimiphos-ethyl
- Pirimiphos-methyl
- Prallethrin
- Pretilachlor
- Primisulfuron-methyl
- Prochloraz
- Procymidone
- Prodiamine
- Profenofos
- Profluralin
- Promecarb
- Prometon
- Prometryne
- Pronamide
- Propachlor
- Propamocarb
- Propanil
- Propargite
- Propazine
- Propetamphos
- Propham
- Propiconazole
- Propoxur
- Prothiophos
- Pymetrozine
- Pyracarbolid
- Pyraclostrobin
- Pyraflufen-ethyl
- Pyrazophos
- Pyridaben
- Pyridalyl
- Pyridaphenthion
- Pyridate
- Pyrifenox
- Pyrimethanil
- Pyriproxyfen
- Pyroquilon
- Pyroxsulam

Q

- Quinalphos
- Quinomethionate
- Quinoxyfen
- Quintozene
- Quizalofop
- Quizalofop-ethyl

S

- Schradan
- Secbumeton
- Sethoxydim

- Simazine
- Simeconazole
- Simetryn
- Spinetoram
- Spinosyn A
- Spinosyn D
- Spirodiclofen
- Spiromesifen
- Spiromesifen
- Spirotetramat
- Spiroxamine
- Sulfallate
- Sulfentrazone
- Sulfotep
- Sulprophos

T

- TCMTB
- Tebuconazole
- Tebufenozide
- Tebufenpyrad
- Tebupirimfos
- Tecnazene
- Tepraloxydim
- Terbacil
- Terbufos
- Terbumeton
- Terbutryne
- Terbutylazine
- Tetrachlorvinphos
- Tetraconazole
- Tetradifon
- Tetraiodoethylene
- Tetramethrin
- Tetrasul
- Thiabendazole
- Thiacloprid
- Thiamethoxam
- Thiazopyr
- Thiobencarb
- Thiodicarb
- Thiofanox
- Thiofanox sulfone
- Thiofanox sulfoxide
- Thiophanate-methyl
- Tolclofos-methyl
- Tolfenpyrad
- Tolyfluanid
- Tralkoxydim
- Triadimefon
- Triadimenol
- Tri-allate
- Triazophos
- Tribufos
- Trichlorfon
- Tricyclazole
- Trietazine
- Trifloxystrobin
- Triflumizole
- Trifluralin
- Triforine
- Trimethacarb

V

- Vernolate
- Vinclozolin

Z

- Zinophos
- Zoxamide

Pesticide residues tested in processed products containing grains

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

- 1-napthol
- 2,3,5,6-Tetrachloroaniline
- 3-hydroxyCarbofuran
- 5-hydroxythiabendazole

A

- Abamectin
- Acephate
- Acetamiprid
- Acetochlor
- Acibenzolar-s-methyl
- Aclonifen
- Acrinathrin
- Aldicarb
- Aldicarb Sulfone
- Aldicarb sulfoxide
- Aldrin
- Allethrin-d-trans
- Allidochlor
- Ametryn
- Aminocarb
- Anilofos
- Aramite
- Aspon
- Atrazine
- Atrazine-desethyl
- Azaconazole
- Azinphos-ethyl
- Azinphos-methyl
- Azoxystrobin

B

- Benalaxyl
- Bendiocarb
- Benfluralin
- Benodanil
- Benoxacor
- Bensulide

- Benzoylprop-ethyl
- BHC-alpha
- BHC-beta
- Bifenazate
- Bifenthrin
- Biphenyl
- Bitertanol
- Boscalid
- Bromacil
- Bromophos
- Bromophos-ethyl
- Bromopropylate
- Bromuconazole
- Bufencarb
- Bupirimate
- Buprofezin
- Butachlor
- Butafenacil
- Butocarboxim sulfoxide
- Butralin
- Butylate

C

- Cadusafos
- Carbaryl
- Carbendazim
- Carbetamide
- Carbofenthion
- Carbofuran
- Carboxin
- Carfentrazone-ethyl
- Chlorantraniliprole
- Chlorbenside
- Chlorbufam
- Chlordane
- Chlorfenson
- Chlorfenvinphos (e+z)
- Chlorflurenol-methyl
- Chloridazon
- Chlorimuron-ethyl
- Chlormephos
- Chlorobenzilate
- Chloroneb
- Chloropropylate
- Chlorothalonil
- Chloroxuron
- Chlorpropham
- Chlorpyrifos
- Chlorpyrifos-methyl
- Chlorthal-dimethyl (Dacthal)
- Chlorthiamid
- Chlorthion
- Chlorthiophos
- Chlortoluron
- Chlozolinate
- Clodinafop-propargyl
- Clomazone
- Cloquintocet-mexyl
- Clothianidin
- Coumaphos
- Crotoxyphos
- Crufomate
- Cyanofenphos
- Cyanophos
- Cyazofamid
- Cycloate
- Cycloxydim
- Cycluron
- Cyfluthrin (I,II,III,IV)
- Cyhalothrin-lambda
- Cypermethrin
- Cyprazine
- Cyproconazole
- Cyprodinil
- Cyromazine

D

- Deltamethrin
- Demeton-O
- Demeton-S
- Demeton-S-methyl
- Demeton-s-methyl sulfone
- Demeton-s-methyl sulfoxide
- Desmedipham
- Desmetryn
- Di-allate
- Dialofos
- Diazinon
- Diazinon o analogue
- Dichlobenil
- Dichlofenthion
- Dichlorvos
- Diclobutrazole
- Diclocymet
- Diclofop-methyl
- Dicofol
- Dicrotophos
- Dieldrin
- Diethatyl-ethyl
- Diethofencarb
- Difenoconazole
- Diflubenzuron
- Dimethachlor
- Dimethametryn
- Dimethoate
- Dimethomorph
- Dimetilan
- Dimoxystrobin
- Diniconazole
- Dinotefuran
- Dioxacarb
- Dioxathion
- Diphenamid
- Diphenylamine
- Dipropetryn
- Disulfoton
- Disulfoton sulfone
- Diuron

E

- Edifenphos
- Endosulfan sulfate
- Endosulfan-alpha
- Endosulfan-beta
- Endrin
- EPN
- Epoxiconazole
- EPTC
- Erbon
- Esfenvalerate
- Etaconazole
- Ethalfluralin

- Ethiofencarb
- Ethiofencarb sulfone
- Ethiofencarb sulfoxide
- Ethiolate
- Ethion
- Ethiprole
- Ethirimol
- Ethofumesate
- Ethoprop
- Ethylan
- Etofenprox
- Etoxazole
- Etridiazole
- Etrimfos

F

- Famoxadone
- Fenamidone
- Fenamiphos
- Fenarimol
- Fenazaquin
- Fenbuconazole
- Fenchlorphos (Ronnel)
- Fenfuram
- Fenhexamid
- Fenitrothion
- Fenobucarb
- Fenoxanil
- Fenoxycarb
- Fenpropathrin
- Fenpropidin
- Fenpyroximate
- Fenson
- Fensulfothion
- Fenthion
- Fentrazamide
- Fenvalerate
- Fipronil
- Fipronil Sulfone
- Flamprop-isopropyl
- Flamprop-methyl
- Flonicamid
- Fluazifop-butyl
- Flubendiamide
- Fluchloralin
- Flucythrinate
- Fludioxonil
- Flufenacet
- Flumioxazin
- Fluopicolide
- Fluorochloridone
- Fluorodifen
- Fluoxastrobin
- Fluquinconazole
- Fluridone
- Flusilazole
- Flutolanil
- Flutriafol
- Fluvalinate
- Folpet
- Fonofos
- Forchlorfenuron
- Formetanate
- Fosthiazate
- Fuberidazole
- Furathiocarb

G

- Griseofulvin
- Glyphosate

H

- HCH-delta (delta-lindane)
- Heptachlor
- Heptachlor epoxide endo
- Heptachlor epoxide exo
- Heptenophos
- Hexachlorobenzene
- Hexaconazole
- Hexazinone

I

- Imazalil
- Imazamethabenz-methyl
- Imidacloprid
- Indoxacarb
- Iodofenphos
- Ipconazole
- Iprobenfos
- Iprodione
- Iprovalicarb
- Isazophos
- Isocarbamide
- Isocarbophos
- Isofenphos
- Isoprocarb
- Isopropalin
- Isoprothiolane
- Isoproturon
- Isoxadifen-ethyl
- Isoxathion

K

- Kresoxim-methyl

L

- Leptophos
- Lindane (gamma-BHC)
- Linuron
- Lufenuron

M

- Malathion
- Mandipropamid
- Mecarbam
- Mepanipyrim
- Mephosfolan
- Metalaxyl
- Metazachlor
- Metconazole
- Methabenzthiazuron
- Methamidophos
- Methidathion
- Methiocarb
- Methiocarb sulfone
- Methiocarb Sulfoxide
- Methomyl
- Methoprotryne
- Methoxychlor
- Methoxyfenozide
- Methyl trithion
- Metobromuron
- Metolachlor
- Metolcarb
- Metosulam
- Metoxuron
- Metribuzin
- Mevinphos-cis
- Mexacarbate
- Mirex
- Molinate
- Monocrotophos
- Monolinuron
- Myclobutanil

N

- Naled
- Napropamide
- Neburon
- Nitralin
- Nitrapyrin
- Nitrofen
- Nitrothal-isopropyl
- Nonachlor-trans
- Norflurazon
- Norflurazon desmethyl
- Novaluron
- Nuarimol

O

- o,p'-DDD (o,p'-TDE)
- o,p'-DDE
- o,p'-DDT
- Octhilinone
- Ofurace
- Omethoate
- Ortho-phenylphenol
- Oxadiazon
- Oxadixyl
- Oxamyl
- Oxamyl-oxime
- Oxycarboxin
- Oxychlordane
- Oxyfluorfen

P

- p,p'-DDD (p,p'-TDE)
- p,p'-DDE
- p,p'-DDT
- Paclobutrazol
- Paraoxon
- Parathion
- Parathion-methyl
- Pebulate
- Penconazole
- Pencycuron
- Pendimethalin
- Pentachloroaniline
- Pentachlorobenzene
- Pentachlorobenzonitrile
- Pentachlorothioanisole
- Permethrin (Total)
- Phenmedipham
- Phenoxy herbicides
- Phenthoate
- Phorate
- Phorate sulfone
- Phorate sulfoxide
- Phosalone
- Phosmet
- Phosphamidon
- Phthalimide
- Picolinafen
- Picoxystrobin
- Piperonyl butoxide
- Piperophos
- Pirimicarb
- Pirimiphos-ethyl
- Pirimiphos-methyl
- Pretilachlor
- Primisulfuron-methyl
- Prochloraz
- Procymidone
- Prodiamine
- Profenofos
- Profluralin
- Prometon
- Prometryne
- Pronamide
- Propachlor
- Propanil
- Propargite
- Propazine
- Propetamphos
- Propham
- Propiconazole
- Propoxur
- Prothiophos
- Pymetrozine
- Pyracarbolid
- Pyraclostrobin
- Pyraflufen-ethyl
- Pyrazophos
- Pyridaben
- Pyridalyl
- Pyridaphenthion
- Pyridate
- Pyrifenox
- Pyrimethanil

- Pyriproxyfen
- Pyroquilon
- Pyroxsulam

Q

- Quinalphos
- Quinoxyfen
- Quintozene
- Quizalofop-ethyl

R

- Resmethrin

S

- Schradan
- Secbumeton
- Sethoxydim
- Simazine
- Simeconazole
- Simetryn
- Spirodiclofen
- Spiromesifen
- Spirotetramat
- Sulfallate
- Sulfentrazone
- Sulfotep
- Sulprophos

T

- Tebuconazole
- Tebufenozide
- Tebufenpyrad
- Tebupirimfos
- Tecnazene
- Tepraloxydim
- Terbacil
- Terbufos
- Terbumeton
- Terbutryne
- Tetrachlorvinphos
- Tetraconazole
- Tetradifon
- Tetramethrin
- Tetrasul
- Thiabendazole
- Thiacloprid
- Thiamethoxam
- Thiazopyr
- Thiobencarb
- Thiodicarb
- Thiofanox
- Thiofanox sulfone
- Thiofanox sulfoxide
- Tolclofos-methyl
- Tolfenpyrad
- Tolyfluanid
- Tralkoxydim
- Triadimefon
- Triadimenol
- Tri-allate
- Triazophos
- Tribufos
- Trichlorfon
- Triclosan
- Tricyclazole
- Trietazine
- Trifloxystrobin
- Trifloxysulfuron
- Triflumizole
- Trifluralin
- Triforine
- Trimethacarb
- Triphenyl phosphate
- Tris (1,3-Dichloroisopropyl) Phosphate
- Tris(2-chloroethyl) Phosphate
- Tris(chloropropyl) Phosphate

V

- Vernolate
- Vinclozolin

Z

- Zengxiaoan
- Zinophos
- Zoxamide