



Canadian Food
Inspection Agency

Agence canadienne
d'inspection des aliments

Children's Food Project - Annual report

2020



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 collecting information specifically 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 2020 CFP were to:

- collect data and assess the compliance of infant foods to Canadian standards for residues of pesticides, veterinary drugs and metals/elements
- collect data on aflatoxin M1 levels in yogurt/yogurt beverages and pudding

Previous years have analyzed pesticides, metals/elements, veterinary drug residues, aflatoxin M1 and environmental contaminants.

In the 2020 CFP, a total of 175 samples of children's foods were purchased in Halifax, Nova Scotia in October, 2020. These samples included:

- children's cereals
- yogurt/yogurt beverages
- pudding
- fruit snacks
- granola/cereal bars

All samples except for yogurt/yogurt beverages were analyzed for pesticide residues and metals/elements (as these were tested in the previous year for pesticide residues and metals/elements). Yogurt/yogurt beverage and pudding samples were tested for aflatoxin M1 and veterinary drug residues.

The overall compliance rate of the children's food samples tested for pesticides was 99.3%. 75 out of a total of 135 samples tested did not contain any detectable pesticide residues. 1 sample was not compliant with Canadian regulations and was evaluated by Health Canada (HC), but was not considered a safety risk.

Approximately 48.9% of the 135 samples tested did not contain detectable levels of metals/elements of concern (arsenic, cadmium, lead and mercury). At the time of this survey, there were no maximum levels (MLs) for metals/elements set by HC for the products tested. The levels of metals/elements were reviewed by HC and none of the levels were considered a safety risk.

There were no detectable levels of aflatoxin M1 in any of the 76 yogurt/yogurt beverage and pudding samples tested.

2 samples of yogurt had very low levels of veterinary drug residue out of the 76 samples tested. All samples had a 100% compliance rate for veterinary drug residues.

Data obtained from surveillance programs like the CFP are useful in the assessment of the dietary exposure of Canadian children to pesticide residues, veterinary drug residues, metals/elements, aflatoxin M1, and other chemical contaminants (for example, melamine) in infant foods. All data was reviewed by HC and no health risk was identified to Canadian infants and toddlers in any of the foods tested.

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 2020 CFP were to:

- collect data and assess the compliance of infant foods to Canadian standards for residues of pesticides, veterinary drugs and metals/elements
- collect data on aflatoxin M1 levels in yogurt/yogurt beverages and pudding

What did we sample

In total, 175 domestic and imported infant foods were sampled from retail stores located in Halifax, Nova Scotia in October, 2020. Of the 175 samples, 29 were labelled as organic. Both imported and domestically-produced foods were sampled with 53 products manufactured in Canada, 96 imported from other countries and 26 products from an unknown country of origin.

Table 1: Breakdown of products sampled in 2020

Infant food	Number of domestic samples	Number of import samples	Number of samples from unspecified origin ^a	Total number of samples
Cereal – children’s	5	40	5	50
Fruit snacks	1	15	4	20
Granola/cereal bar	15	6	8	29
Pudding	0	35	1	36
Yogurt/yogurt beverage	32	0	8	40
Total	53	96	26	175

^a Unspecified refers to those samples for which a country of origin could not be assigned from the product label or available sample information

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 an ISO/IEC 17025 accredited food testing laboratory under contract with the Government of Canada.

Pesticide analysis

All samples except for yogurt/yogurt beverages were analyzed for pesticides as these were tested in the previous year. Samples were tested for a range of pesticide residues which are commonly used in farming to control insects, fungus, and weeds. A [summary of the pesticide residues analyzed](#) can be found in Appendix A.

Metal/elemental analysis

All samples except for yogurt/yogurt beverages were analyzed for metals/elements as these were tested in the previous year. Many metals or elements are present in food due to their natural occurrence in the environment, but they could also be present due to the use of pesticides, agricultural chemicals, environmental contamination or processing. The focus of this report will be on 4 elements of primary concern to human health, which are:

- arsenic
- cadmium
- lead
- mercury

Veterinary drug analysis

Yogurt/yogurt beverage and pudding samples were tested for residues of a variety of veterinary drugs, which can be administered to food-producing animals. Some drugs are administered to individual animals to treat specific diseases, while others are administered to groups of animals, usually through medicated feed or water, to prevent or treat disease or to promote growth. The [veterinary drugs analyzed](#) in samples are listed in Appendix B.

Aflatoxin M1 analysis

Aflatoxins are natural compounds released by *Aspergillus* molds. These molds thrive in hot, humid climates and are not typically detected in Canadian crops. Aflatoxin B1 has been classified by the International Agency for Research on Cancer (IARC) as causing cancer in humans¹. When dairy cows are fed aflatoxin-contaminated feed, aflatoxin B1 is converted to aflatoxin M1, which is transferred to the milk. Animal studies have shown that aflatoxin M1 causes cancer in the same way as aflatoxin B1^{1,2,3}. For this reason, dairy-based yogurt/yogurt beverages and pudding samples were analyzed for aflatoxin M1.

Assessment of results

All results from samples tested in this survey were evaluated against Canadian standards established by HC. Compliance is assessed against the established tolerances available when the survey was carried

out. For pesticides, the Maximum Residue Limit (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 metals/elements, the 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](#)⁴ 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](#)⁵.

MLs for metals/elements in food are found in the [list of contaminants and other adulterating substances in foods](#)⁶. At the time of this survey, HC did not have established MLs for arsenic, cadmium, mercury or lead for any of the products tested in this survey. HC reviews all metals results from the CFP to determine if there is any health risk to infants and children.

Canadian MRLs for veterinary drug residues in foods of animal origin (meat, milk, eggs and honey) are published in the [List of Maximum Residue Limits \(MRLs\) for Veterinary Drugs in Food](#) on HC's website⁷. In the absence of an MRL or proposed MRL for a veterinary drug, the CFIA deems any food product containing a residue at or above the Limit of Quantitation (LOQ) to be non-compliant.

What were the results

Pesticides

A total of 135 samples were tested for pesticides. No detectable levels of pesticide residues were found in 55.6% of the infant foods tested. The results from the remaining 60 samples were 98.3% compliant with Canadian regulations. Only 1 sample (children's cereal) was unsatisfactory for pesticides. Methoprene was found in 1 sample with a level of 0.151 ppm, which exceeds the general MRL of 0.1 ppm. It is commonly added to insecticide products because it is an insect growth regulator⁸. It prevents insects from reaching growth stages such as developing into adults and preventing egg growth⁸. The result was reviewed by HC and determined to be safe for children and infants.

In this study, 29 of the 175 samples were labelled as "organic". Of the 29 samples, 22 were tested for pesticides. There were no pesticide residues detected in 81.8% (18 samples) of organic products tested. All 4 remaining samples with detected levels of pesticide were below Canadian MRLs. All organic pesticide residue results were sent to the CFIA Organics office for review.

Metals/elements

A total of 135 samples were tested for metals/elements and 48.9% did not have detected levels for arsenic, cadmium, lead and mercury. All metal/element results were sent to HC's Bureau of Chemical Safety for review and samples were considered safe for children and infants.

A [summary of metal/element results](#) can be found in Appendix C.

Arsenic

Arsenic is an element that naturally occurs in the earth's crust and can be found as organic arsenic (compounds containing carbon atoms) and inorganic arsenic (free arsenic ions)⁹. 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 skin¹⁰. For most Canadians, the primary source of exposure to arsenic is food, followed by drinking water, soil and air¹⁰.

At the time of this survey, MLs for inorganic arsenic in polished (white) rice (0.2 ppm) and husked (brown) rice (0.35 ppm) were established in July, 2020⁶. HC will be adding a ML of 0.1 ppm for inorganic arsenic in rice-based foods intended for infants and young children as noted in the [notice of proposal](#)¹¹.

A total of 81.5% (110 samples) of samples did not contain detected levels of total arsenic (includes both organic and inorganic forms). Results from positive samples ranged from 0-0.308 ppm with highest levels in rice-based cereals.

Cadmium

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 population¹². Kidneys and bones are affected by cadmium toxicity¹².

A total of 62.2% (84 samples) of samples did not contain detected levels of cadmium.

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 manufacturing¹³. 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 lead¹³.

A total of 96.3% (130 samples) of samples did not contain detected levels of lead.

Mercury

Mercury is released naturally from rocks, soils and volcanoes. Industrial activities have also increased the amount of mercury in the environment¹⁴. 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 exposure¹⁴. Methylmercury is the more toxic organic form is easily absorbed and can cross the blood-brain barrier¹⁴. Children and the developing fetus are particularly susceptible to the harmful effects of methylmercury.

A total of 78.5% (106 samples) of samples did not contain detected levels of mercury.

Veterinary drugs

Yogurt/yogurt beverages and pudding samples were tested for veterinary drug residues (76 samples). No residues were detected in 97.4% of the samples. 2 yogurt samples contained meloxicam at very low levels (0.00011 ppm and 0.00044 ppm), but these results were below the LOQ and deemed compliant. Meloxicam is a non-steroidal anti-inflammatory drug used for lactating dairy cattle for pain management¹⁵. It is also used to relieve symptoms of arthritis in humans¹⁶.

Aflatoxin M1

A total of 76 samples of yogurt/yogurt beverage and pudding samples were tested for aflatoxin M1. None of the samples contained detectable levels of aflatoxin M1. Canada does not have an established ML for aflatoxin M1 in milk or milk-based products.

Conclusion

The results of the CFP were shared with HC and they determined that none of the samples tested posed a health risk to Canadian infants or children. Organic sample results were shared with the CFIA Organics office. There were no product actions or recalls resulting from this sampling and testing on the basis of health risk. The infant foods tested in this survey, 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, toxic metals/elements (arsenic, cadmium, mercury and lead), veterinary drug residues and aflatoxin M1 will be examined in samples of cereals, infant/toddler snacks, fruit snacks, yogurts and puddings.

References

1. Chemical Agents and Related Occupations – A Review of Human Carcinogens, in IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. IARC Monographs. (2012). International Agency for Research on Cancer, 100, pp. 1-599.
2. Galvano, F., et al., Survey of the Occurrence of Aflatoxin M1 in Dairy Products Marketed in Italy: Second Year of Observation. Food Additives & Contaminants. (2001). 18(7), pp. 644-646.
3. Rastogi, S., et al., Detection of Aflatoxin M1 Contamination in Milk and Infant Milk Products From Indian Markets by ELISA. Food Control. (2004). 14(4), p. 287-290.
4. [Maximum Residue Limits for Pesticides](#). 2012. Canada. Health Canada.
5. [Food and Drug Regulations](#). 2021. Canada. Justice Laws.
6. [List of contaminants and other adulterating substances in foods](#). 2020. Canada. Health Canada.
7. [List of Maximum Residue Limits \(MRLs\) for Veterinary Drugs in Foods](#). 2021. Canada. Government of Canada.
8. [Methoprene General Fact Sheet](#). 2012. United States. National Pesticide Information Center.
9. [Arsenic in Drinking Water](#). 2006. Canada. Health Canada.
10. [Arsenic](#). 2008. Canada. Health Canada.
11. [Health Canada's Proposal to Add a Maximum Level for Inorganic Arsenic in Rice-based Foods Intended Specifically for Infants and Young Children](#). 2021. Canada. Health Canada.
12. 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.
13. [Final Human Health State of Science Report on Lead](#). 2013. Canada. Health Canada.
14. [Mercury and Human Health](#). 2008. Canada. Health Canada.
15. Warner R., Ydstie J.A., Wulf L.W., Gehring R., Coetzee J.F., Mochel J.P. and Gorden P.J. (2020) Comparative Pharmacokinetics of Meloxicam Between Healthy Post-partum vs. Mid-lactation Dairy Cattle. Front. Vet. Sci. 7:548.
16. [Meloxicam](#). 2021. United States. American Society of Health-System Pharmacists, Inc.

Appendix A: List of pesticides

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-naphthol
- 2,3,5,6-Tetrachloroaniline
- 2,4-D
- 2,6-diisopropyl-naphthalene
- 3-hydroxyCarbofuran
- 5-hydroxythiabendazole

A

- Abamectin
- Acephate
- Acetamiprid
- Acetochlor
- Acibenzolar-s-methyl
- Aclonifen
- Acrinathrin
- Alachlor
- Aldicarb
- Aldicarb sulfone
- Aldicarb sulfoxide
- Aldrin
- Allethrin-d-trans
- Allidochlor
- Ametryn
- Aminocarb (Aminomethyl) phosphonic acid
- 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
- Bifenazate
- 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/Thiophanate Methyl
- Carbetamide
- Carbofenthion
- Carbofuran
- Carbosulfan
- Carboxin
- Carfentrazone-ethyl

- Chlorantraniliprole
- Chlorbenside
- Chlorbromuron
- Chlorbufam
- Chlordane-cis
- Chlordane-trans
- Chlordimeform
- Chlorfenapyr
- Chlorfenson
- Chlorfenvinphos (e+z)
- Chlorfluazuron
- Chlorflurenol-methyl
- Chloridazon
- Chlorimuron-ethyl
- Chlormephos
- Chlorobenzilate
- Chloroneb

- Chloropropylate
- Chlorothalonil
- Chloroxuron
- Chlorpropham
- Chlorpyrifos
- Chlorpyrifos-methyl
- Chlorthal-dimethyl (Dacthal)
- Chlorthiamid
- Chlorthion
- Chlorthiophos
- Chlortoluron
- Chlozolate
- 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

- DDT plus metabolites
- Deltamethrin / Tralomethrin (Total)
- Demeton-O
- Demeton-S
- Demeton-s Methyl (total)
- Demeton-s-methyl sulfone
- Demeton-s-methyl sulfoxide
- Desmedipham
- Desmetryn
- Di-allate
- Dialofos
- Diazinon
- Diazinon o analogue
- Dichlobenil

- Dichlofenthion
- Dichlofluanid
- Dichlormid
- Dichlorvos
- Diclobutrazole
- Diclocymet
- Dicrofop-methyl
- Dicloran
- Dicofol
- Dicrotophos
- Dieldrin
- Diethyl-ethyl
- Diethofencarb
- Difenconazole
- Diflubenzuron
- Dimethachlor
- Dimethametryn
- Dimethoate

- Dimethomorph
- Dimetilan
- Dimoxystrobin
- Diniconazole
- Dinitramine
- Dinotefuran
- Dioxacarb
- Dioxathion
- Diphenamid
- Diphenylamine
- Dipropetryn
- Diquat
- Disulfoton
- Disulfoton sulfone
- Diuron
- Dodemorph
- Dodine

E

- Edifenphos

- Emamectin (Total)

- Endosulfan sulfate

- Endosulfan-alpha
- Endosulfan-beta
- Endrin
- EPN
- Epoxiconazole
- EPTC
- Erbon
- Etaconazole
- Ethalfluralin

F

- Famoxadone
- Fenamidone
- Fenamiphos
- Fenamiphos sulfone
- Fenamiphos sulfoxide
- Fenarimol
- Fenazaquin
- Fenbuconazole
- Fenchlorphos (Rannel)
- Fenfuram
- Fenhexamid
- Fenitrothion
- Fenobucarb
- Fenoxanil
- Fenoxycarb
- Fenpropathrin
- Fenpropidin
- Fenpropimorph

G

- Glyphosate

H

- Haloxyfop
- Heptachlor
- Heptachlor epoxide endo

- Ethiofencarb
- Ethiofencarb sulfone
- Ethiofencarb sulfoxide
- Ethiolate
- Ethion
- Ethiprole
- Ethirimol
- Ethofumesate

- Fenpyroximate
- Fenson
- Fensulfothion
- Fenthion
- Fentrazamide
- Fenvalerate & Esfenvalerate
- Fipronil
- Fipronil sulfone
- Flamprop-isopropyl
- Flamprop-methyl
- Flonicamid
- Fluazifop-butyl
- Flubendiamide
- Flucarbazone-sodium
- Fluchloralin
- Flucythrinate
- Fludioxonil
- Flufenacet
- Flumetralin

- Griseofulvin

- Heptachlor epoxide exo
- Heptenophos
- Hexachlorobenzene

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

- Flumioxazin
- Fluopicolide
- Fluorochloridone
- Fluorodifen
- Fluoxastrobin
- Fluquinconazole
- Fluridone
- Flusilazole
- Flutolanil
- Flutriafol
- Fluvalinate
- Fluxapyroxad
- Folpet
- Fonofos
- Forchlorfenuron
- Formetanate
- Fosthiazate
- Fuberidazole
- Furathiocarb

- Hexaconazole
- Hexazinone
- Hexythiazox



I

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

K

- Kresoxim-methyl

L

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

M

- Malaaxon
- Malathion
- Mandipropamid
- MCPD
- Mecarbam
- Mepanipyrim
- Mephosfolan
- Metaconazole
- Metalaxyl
- Metazachlor
- Methabenzthiazuron
- Methamidophos
- Methidathion
- Methiocarb
- Methiocarb sulfone
- Methiocarb Sulfoxide
- Methomyl
- Methoprene
- Methoprotryne
- Methoxychlor
- Methoxyfenozide
- Methyl Pentachlorophenyl sulphide
- Methyl trithion
- Metobromuron
- Metolachlor
- Metolcarb
- Metosulam
- Metoxuron
- Metribuzin
- Mevinphos (Total)
- Mexacarbate
- Mirex
- Molinate
- Monocrotophos
- Monolinuron
- Myclobutanil

N

- Naled
- Napropamide
- Naptalam
- Neburon
- Nicotine
- Nitralin
- Nitrapyrin
- Nitrofen
- Nitrothal-isopropyl
- Nonachlor-cis
- 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

- Pesticide Screen
- Phenoxly Herbicides Screen
- p,p'-DDD (p,p'-TDE)
- p,p'-DDE
- p,p'-DDT
- Paclobutrazol
- Paraoxon
- Paraquat
- Parathion
- Parathion-methyl
- Pebulate
- Penconazole
- Pencycuron
- Pendimethalin
- Penoxsulam
- Pentachloroaniline
- Pentachlorobenzene
- Pentachlorobenzonitrile
- Permethrin (Total)
- Phenmedipham
- Phenthoate
- Phorate
- Phorate sulfone
- Phorate sulfoxide
- Phosalone
- Phosmet
- Phosphamidon
- Picolinafen
- Picoxystrobin
- Pinoxaden
- Piperonyl butoxide
- Piperophos
- Pirimicarb
- Pirimiphos-ethyl
- Pirimiphos-methyl
- Prallethrin
- Pretilachlor
- Primisulfuron-methyl
- Prochloraz
- Procymidone
- Prodiamine
- Profenofos
- Profluralin
- Promecarb
- 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
- Quinomethionate
- Quinoxifen
- Quintozene
- Quizalofop
- Quizalofop-ethyl

R

- Resmethrin

S

- Schradan
- Secbumeton
- Sethoxydim
- Simazine
- Simeconazole
- Simetryn
- Spinetoram
- Spinosyn A+D
- Spirodiclofen
- Spiromesifen
- Spirotetramat
- Spiroxamine
- Sulfallate
- Sulfentrazone
- Sulfotep
- Sulfoxaflor
- Sulprophos

T

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

V

- Vernolate
- Vinclozolin

Z

- Zengxiaoan
- Zinophos
- Zoxamide

Appendix B: List of veterinary drug residues

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

- 19-Nortestosterone
- 1-Aminohydantoin hydrochloride (Nitrofurantoin)
- 2,3,4,5 TetraChlorophenol
- 2,3,4,6 TetraChlorophenol

- 2,3,5,6 TetraChlorophenol
- 20-Dihydroprednisolone
- 20-Dihydroprednisone

- 2-aminosulfone albendazole
- 3 Amino-2-oxazolidinone (AOZ) (Furazolidone)
- 5-hydroxythiabendazole

A

- Abamectin
- Albendazole
- Albendazole Sulfone

- Albendazole Sulfoxide
- Amikacin
- Amoxicillin

- AMOZ (Furaltadone Metabolite)
- Ampicillin
- Apramycin

B

- Beclomethasone
- Betamethasone

- Boldenone
- Brombuterol

C

- Cambendazole
- Carbendazim
- Carprofen
- Ceftiofur (as DCA)
- Chloramphenicol

- Chlortetracycline
- Chlortetracycline-epi
- Cimaterol
- Ciprofloxacin

- Clenbuterol
- Clenbuterol-Methyl-OH
- Clenpenterol
- Clenproperol

- Clindamycin
- Cloxacillin

- CP 60,300 (as Tulathromycin equivalents)

- Cyfluthrin (I,II,III,IV)
- Cyhalothrin-lambda
- Cypermethrin

D

- Danofloxacin
- Dapsone
- Decoquinat
- Deltamethrin
- Desethylenciprofloxacin
- Desmycosin

- Dexamethasone
- Dianabol
- Diclofenac
- Dicloxacillin
- Difloxacin
- Dihydrostreptomycin

- Dimetridazole
- Dimetridazole-hydroxy
- Doramectin
- Doxycycline

E

- Emamectin B1a
- Enoxacin
- Enrofloxacin

- Epi-19-nortestosterone
- Eprinomectin

- Erythromycin
- Etodolac

F

- Fenbendazole
- Fenbendazole Sulfone
- Fenoterol
- Fenvalerate
- Florfenicol

- Florfenicol amine
- Flubendazole
- Flucythrinate
- Flumequine
- Flumethasone
- Flunixin

- Fluvalinate
- Formoterol
- Free Ractopamine
- Free Zilpaterol

G

- Gamithromycin

- Gentamicin

H

- Hygromycin

I

- Ipronidazole

- Ipronidazole-hydroxy

- Isoxsuprine
- Ivermectin

J

- Josamycin

K

- Kanamycin
- Ketoprofen

L

- Lasalocid
- Levamisole
- Lincomycin

M

- Mabuterol
- Maduramicin
- Mapenterol
- Marbofloxacin
- Mebendazole
- Mefenamic Acid
- Meloxicam
- Methylprednisolone
- Metronidazole
- Metronidazole-hydroxy
- Monensin
- Moxidectin

N

- Nafcillin
- Nalidixic Acid
- Naproxen
- Narasin
- Neomycin
- Neospiramycin
- Nicarbazin
- Niflumic Acid
- Norfloxacin

O

- Ofloxacin
- Oleandomycin
- Orbifloxacin
- Ormetoprim
- Oxacillin
- Oxfendazole
- Oxibendazole
- Oxolinic Acid
- Oxytetracycline
- Oxytetracycline-epi

P

- Penicillin G
- Penicillin V
- Pentachlorophenol
- Permethrin-cis
- Permethrin-trans
- Phenylbutazone
- Pipemidic acid
- Pirlimycin
- Prednisolone
- Prednisone

R

- Ritodrine
- Ronidazole

S

- Salbutamol
- Salinomycin
- Sarafloxacin
- Semicarbazide (Nitrofurazone)
- Sparfloxacin
- Spectinomycin
- Spiramycin
- Sulfabenzamide
- Sulfacetamide
- Sulfachloropyridazine
- Sulfadiazine
- Sulfadimethoxine
- Sulfadoxine
- Sulfaethoxypyridazine
- Sulfaguanidine
- Sulfamerazine
- Sulfameter
- Sulfamethazine
- Sulfamethizole
- Sulfamethoxazole
- Sulfamethoxy-pyridazine
- Sulfamonomethoxine
- Sulfamoxole
- Sulfanilamide
- Sulfaphenazole
- Sulfapyridine
- Sulfaquinoxaline
- Sulfathiazole
- Sulfisomidine
- Sulfisoxazole

T

- Terbutaline
- Testosterone
- Testosterone-epi
- Tetracycline
- Tetracycline-epi
- Thiabendazole
- Thiamphenicol
- Tildipirosin
- Tilmicosin
- Tinidazole
- Tobramycin
- Tolfenamic Acid
- Trenbolone-alpha
- Trenbolone-beta
- Triamcinolone Acetonide
- Trimethoprim
- Tulathromycin
- Tulobuterol
- Tylosin
- Tylvalosin

V

- Vedaprofen

Appendix C: Metals results found in infant foods

Metal analyte	Product type	Total number of samples	Total number negative	Total number positive	Minimum (ppm)	Maximum (ppm)	Mean (ppm)
Aluminum	Cereal – children’s	50	2	48	0	16.80	2.62
Aluminum	Fruit snack	20	1	19	0	9.39	2.74
Aluminum	Granola/cereal bar	29	5	24	0	13.60	3.09
Aluminum	Pudding	36	22	14	0	14.90	1.44
Antimony	Cereal – children’s	50	50	0	0	0	0
Antimony	Fruit snack	20	20	0	0	0	0
Antimony	Granola/cereal bar	29	29	0	0	0	0
Antimony	Pudding	36	36	0	0	0	0
Arsenic	Cereal – children’s	50	32	18	0	0.31	0.04
Arsenic	Fruit snack	20	18	2	0	0.09	0.008
Arsenic	Granola/cereal bar	29	24	5	0	0.07	0.006
Arsenic	Pudding	36	36	0	0	0	0
Beryllium	Cereal – children’s	50	50	0	0	0	0
Beryllium	Fruit snack	20	20	0	0	0	0
Beryllium	Granola/cereal bar	29	29	0	0	0	0
Beryllium	Pudding	36	36	0	0	0	0
Boron	Cereal – children’s	50	1	49	0	5.90	1.52
Boron	Fruit snack	20	2	18	0	24.90	8.28
Boron	Granola/cereal bar	29	5	24	0	18.10	3.72
Boron	Pudding	36	19	17	0	1.80	0.33
Cadmium	Cereal - children	50	18	32	0	0.16	0.02
Cadmium	Fruit snack	20	20	0	0	0	0
Cadmium	Granola/cereal bar	29	12	17	0	0.06	0.01
Cadmium	Pudding	36	34	2	0	0.02	0.001
Chromium	Cereal – children’s	50	35	15	0	0.34	0.05
Chromium	Fruit snack	20	19	1	0	0.26	0.01
Chromium	Granola/cereal bar	29	27	2	0	0.30	0.02
Chromium	Pudding	36	26	10	0	0.58	0.07
Copper	Cereal – children’s	50	4	46	0	5.80	2.69
Copper	Fruit snack	20	12	8	0	4.10	0.96
Copper	Granola/cereal bar	29	5	24	0	7.80	2.45
Copper	Pudding	36	32	4	0	1.30	0.13
Iron	Cereal – children’s	50	1	49	0	336.00	118.69
Iron	Fruit snack	20	7	13	0	19.80	5.17

Iron	Granola/cereal bar	29	4	25	0	42.40	23.04
Iron	Pudding	36	25	11	0	21.80	3.77
Lead	Cereal – children’s	50	47	3	0	0.10	0.003
Lead	Fruit snack	20	19	1	0	0.03	0.001
Lead	Granola/cereal bar	29	28	1	0	0.03	0.001
Lead	Pudding	36	36	0	0	0	0
Magnesium	Cereal – children’s	50	1	49	0.000	1630.00	915.10
Magnesium	Fruit snack	20	0	20	0.390	693.00	183.12
Magnesium	Granola/cereal bar	29	3	26	0.000	1890.00	699.39
Magnesium	Pudding	36	0	36	9.960	240.00	97.01
Manganese	Cereal – children’s	50	1	49	0	40.80	18.90
Manganese	Fruit snack	20	4	16	0	9.32	1.50
Manganese	Granola/cereal bar	29	4	25	0	36.60	13.64
Manganese	Pudding	36	18	18	0	1.63	0.49
Mercury	Cereal – children’s	50	35	15	0	0.003	0.0004
Mercury	Fruit snack	20	15	5	0	0.002	0.0003
Mercury	Granola/cereal bar	29	20	9	0	0.002	0.0003
Mercury	Pudding	36	36	0	0	0	0
Molybdenum	Cereal – children’s	50	2	48	0	1.80	0.69
Molybdenum	Fruit snack	20	19	1	0	0.17	0.009
Molybdenum	Granola/cereal bar	29	6	23	0	1.51	0.39
Molybdenum	Pudding	36	36	0	0	0	0
Nickel	Cereal – children’s	50	2	48	0	2.46	0.68
Nickel	Fruit snack	20	14	6	0	0.20	0.04
Nickel	Granola/cereal bar	29	5	24	0	2.01	0.71
Nickel	Pudding	36	20	16	0	0.43	0.10
Selenium	Cereal – children’s	50	21	29	0	1.29	0.12
Selenium	Fruit snack	20	20	0	0	0	0
Selenium	Granola/cereal bar	29	16	13	0	0.29	0.06
Selenium	Pudding	36	36	0	0	0	0
Tin	Cereal – children’s	50	50	0	0	0	0
Tin	Fruit snack	20	20	0	0	0	0
Tin	Granola/cereal bar	29	29	0	0	0	0
Tin	Pudding	36	36	0	0	0	0
Titanium	Cereal – children’s	50	16	34	0	0.99	0.25
Titanium	Fruit snack	20	15	5	0	8.70	0.55
Titanium	Granola/cereal bar	29	15	14	0	0.54	0.15
Titanium	Pudding	36	20	16	0	10.10	0.96
Zinc	Cereal – children’s	50	1	49	0	86.20	25.87
Zinc	Fruit snack	20	9	11	0	3.83	0.82

Zinc	Granola/cereal bar	29	5	24	0	25.40	11.32
Zinc	Pudding	36	6	30	0	4.72	2.33