Health Canada

Pesticide Regulatory Directorate

Pest Control Products Sales Report

2024

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Foreword

In November 2006, the Pest Control Products Sales Information Reporting Regulations came into force, making the reporting of sales information by registrants to Health Canada mandatory under the *Pest Control Products Act*.

These regulations require registrants to annually submit the total volume of all their products registered with Health Canada and made available for sale to users (referred to as "sold" in the remainder of this report) to Health Canada. These data are reported by calendar year (1 January to 31 December) and must be submitted by 1 June of the following year. The purpose of the sales information reporting program is to collect sales data that are used by Health Canada to better understand potential pesticide use in Canada.

Sales data provides additional context in risk assessments of pesticides, in policy development, and in identifying trends in pesticide use. For example, sales data are used in the re-evaluation and special review of pesticides to help understand the presence and value of the pesticide in the Canadian marketplace, as well as to predict the potential impacts if changes are made to the registration status of the pesticide. Sales data are also used to inform the Pesticide Incident Reporting Program on the market share of particular pesticides to help identify potential risks that may require attention. Sales data can also be used as an additional input in market and economic trend analyses and in the development of policies and regulatory updates.

Introduction

This 17th Pest Control Products Sales Report provides an overview of pesticides sold in Canada for the 2024 calendar year, and briefly discusses changes in pesticide sales over the last five years of reporting. Data are considered confidential business information and are combined and presented in various ways to ensure confidentiality.

Overall Canadian pesticide sales data

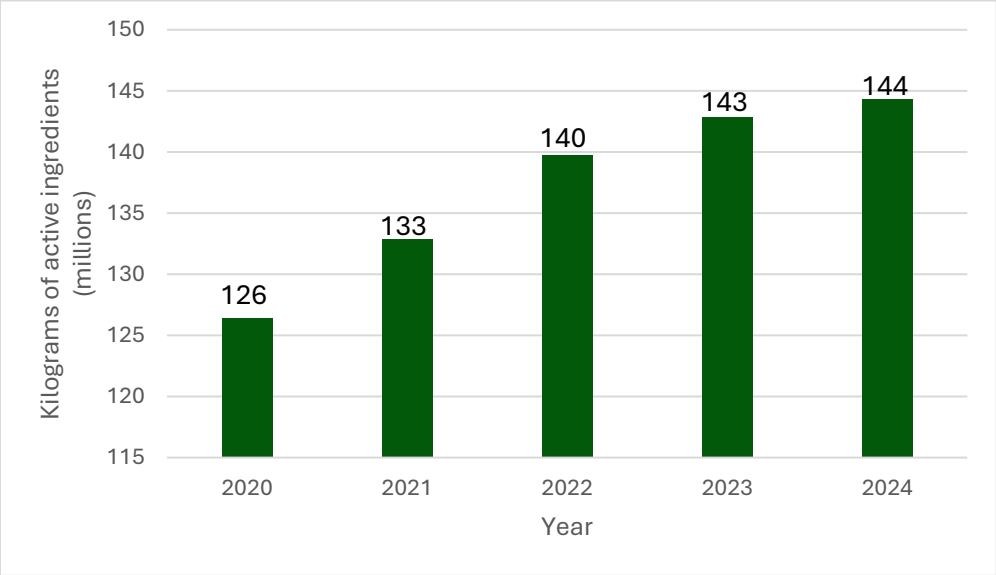
Overview

There were 7798 products registered with Health Canada for use in Canada in the 2024 calendar year. Registrants submitted sales data in different units depending on the product (for example, kilograms, litres). To standardize across varying products, the data have been converted into kilograms of active ingredient (kg a.i.).

All technical grade active ingredient and manufacturing concentrate product information was excluded from calculation as the quantity is reported in the end-use products. Also, products where the data could not be converted to kg a.i., due to the reported units of measure, were excluded from calculation. This includes products that had unusual units, such as colony forming units. The majority of these products are biopesticides which are discussed separately in this document.

Of the remaining 2775 products reported as sold, the overall pesticide sales in Canada in 2024 were 144 301 218 kg a.i., which is a 1% increase from the 142 829 854 kg a.i. sold in 2023 (Figure 1). Pesticide sales have been steadily increasing over the last 5 years. Changes in overall pesticide sales is driven by changes in agricultural herbicide sales.

Figure 1. Quantity of pesticides sold in Canada (2020-2024)



In 2024, the 50 products with the greatest sales accounted for 65.2% of the total kg a.i. sold in Canada (94 047 551 kg a.i.). This was a decrease in the overall quantity from 2023, where the top 50 products accounted for 67.7% (97 022 263 kg a.i.) of total sales. The top 10 active ingredients sold, presented in decreasing order of quantity in Table 1, made up 67.5% of total sales (97 468 645 kg a.i.). A comprehensive list with the rankings for all active ingredients sold in Canada in 2024 is provided in Appendix I. Seven active ingredients have remained on the top 10 list over the past five years (since 2020): glyphosate, available chlorine (present as sodium hypochlorite), borates, creosote, 2,4-D, surfactant blend, and glufosinate-ammonium.

Table 1 Top 10 active ingredients sold in Canada in 2024

Active ingredient	Product type
Glyphosate	Herbicide
Available chlorine (present as sodium hypochlorite)	Antimicrobial
Creosote	Antimicrobial
Surfactant blend	Other
Triallate	Herbicide
Glufosinate-ammonium	Herbicide
Borates	Insecticide/Fungicide/Antimicrobial
Ethalfluralin	Herbicide
2,4-D	Herbicide
Bromoxynil	Herbicide

Sales information by sector

All products were grouped according to their areas of use into three sectors: Agricultural, Non-agricultural, and Domestic. (Data from each of the sectors are discussed in more detail in the following sections.)

The groups were designed so there would be no overlap between the groupings. A product was placed into the Domestic sector if its classification was Domestic on its label. For the Non-domestic products, a product with any agricultural use on the label was grouped with the Agricultural sector, even if there were non-agricultural uses listed on the label. All remaining products were grouped as Non-agricultural. In some cases, if upon analysis, it was determined a product in the Agricultural sector had its main usage in the Non-agricultural sector, the product was moved to the Non-agricultural sector group.

Agricultural sector products have constituted the largest amount of pesticides sold in Canada since data collection began, followed by Non-agricultural sector products and Domestic sector products. In 2024, 70.1% of pesticide sales in Canada were Agricultural sector products (see Figure 2), whereas 26.3% were Non-agricultural sector products and 3.6% were Domestic sector products. The relative sales of products in the Agricultural sector was the same between 2023 and 2024 (70.1%). In contrast, from 2023 to 2024, the Non-agricultural sector decreased from 27.4% to 26.3%, and the Domestic sector increased from 2.5% to 3.6% (see Figure 3 for data from 2020 to 2024).

Figure 2. Quantity of pesticides sold in Canada in 2024 by sector

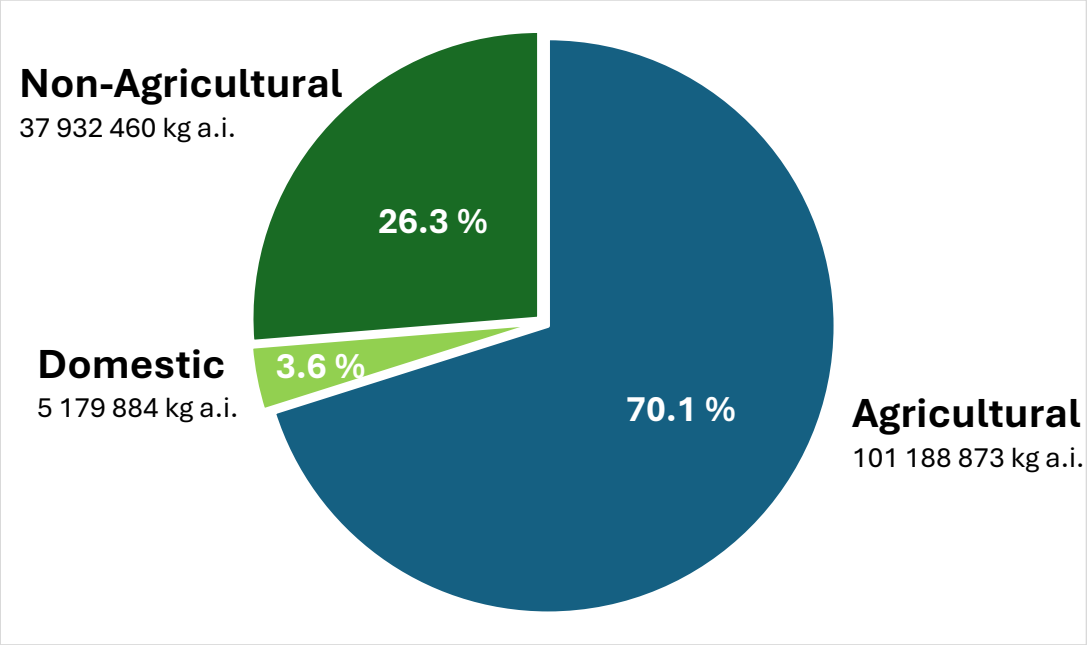
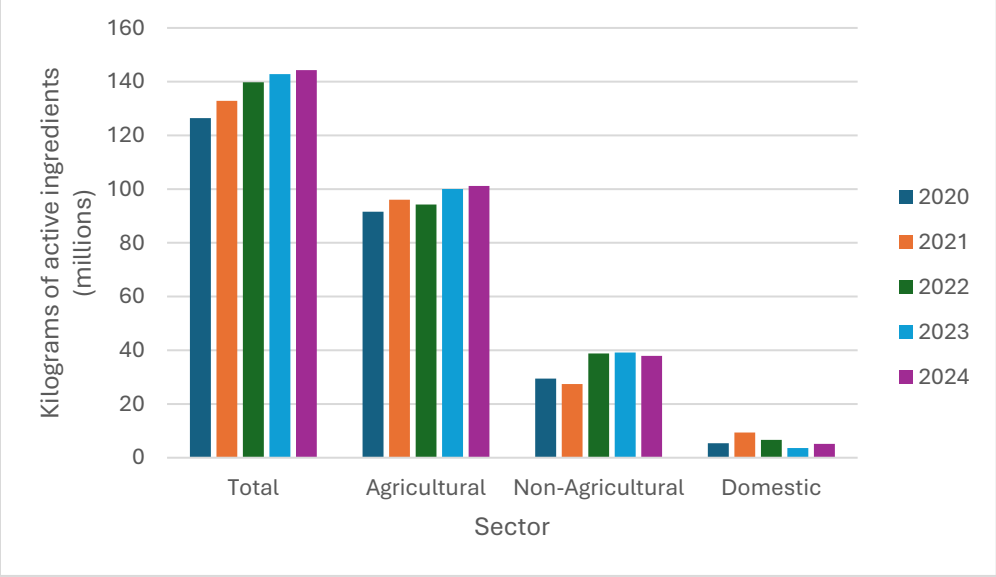


Figure 3. Quantity of pesticides sold in Canada by sector (2020–2024)



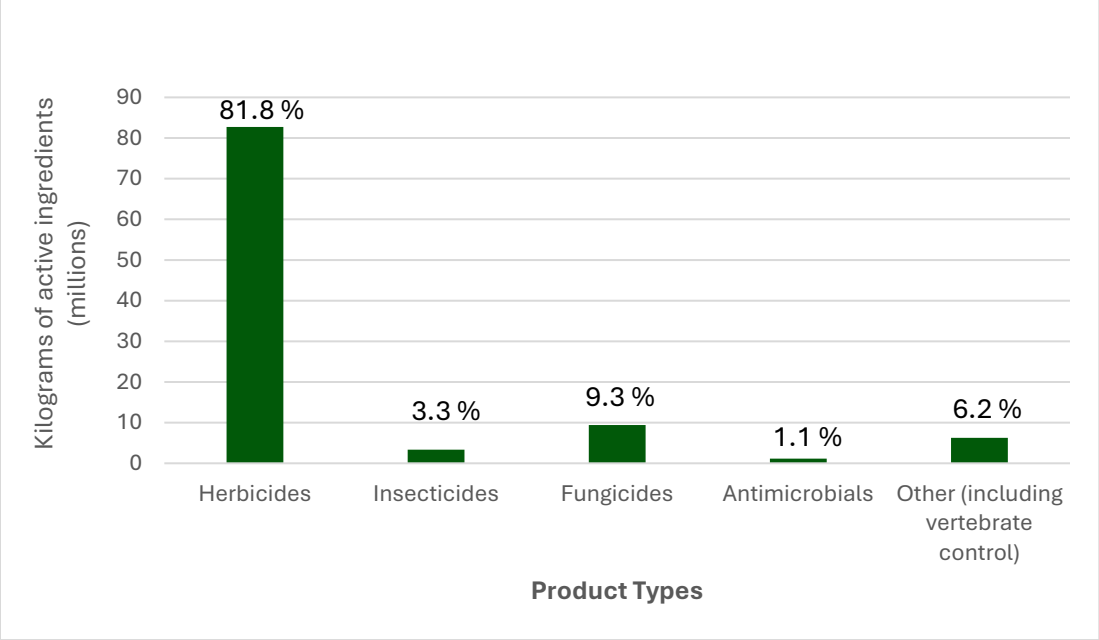
Within each sector, data were further broken down into product type groupings. These include: herbicides, insecticides, fungicides, antimicrobials, vertebrate controls, and others (for the remaining products). A product may have a number of different uses on the label. As the sales reporting does not collect data on the relative amount of a product used for a specific label use, the data may not necessarily be separated into only one product type. This means that there may be overlap between the product type groupings and these numbers should not be summed to obtain total quantities sold in Canada in 2024, as an over-reporting would occur.

Agricultural sector

Products with agricultural uses accounted for 70.1% of pesticide sales in Canada in 2024. There was a 1.1% increase in Agricultural sector pesticide sales from 2023 (100 063 057 kg a.i.) to 2024 (101 188 873 kg a.i.).

Herbicides accounted for 81.8% of Agricultural sector pesticide sales, followed by fungicides (9.3%), others (6.2%), insecticides (3.3%), and antimicrobials (1.1%) (Figure 4). Vertebrate controls (0.02%) accounted for very small quantities of agricultural pesticides sold in 2024 and have been included in the "others" category. Within the Agricultural sector, sales by product type are generally consistent, with only small changes seen in the percentage of sales in each type throughout the years reported.

Figure 4. Agricultural sector



The top 10 active ingredients sold with agricultural uses are shown in Table 2 in decreasing order of quantity. Nine of the top 10 agricultural active ingredients were herbicides and adjuvants that are used in conjunction with herbicides. These top 10 active ingredients accounted for 72.6% of the Agricultural sector pesticides sold. Six active ingredients have remained in the top 10 over the last five years of reporting: glyphosate, 2,4-D, MCPA, glufosinate-ammonium, mineral oil, and surfactant blend.

Table 2 Top 10 active ingredients sold in Canada in 2024 in the Agricultural sector

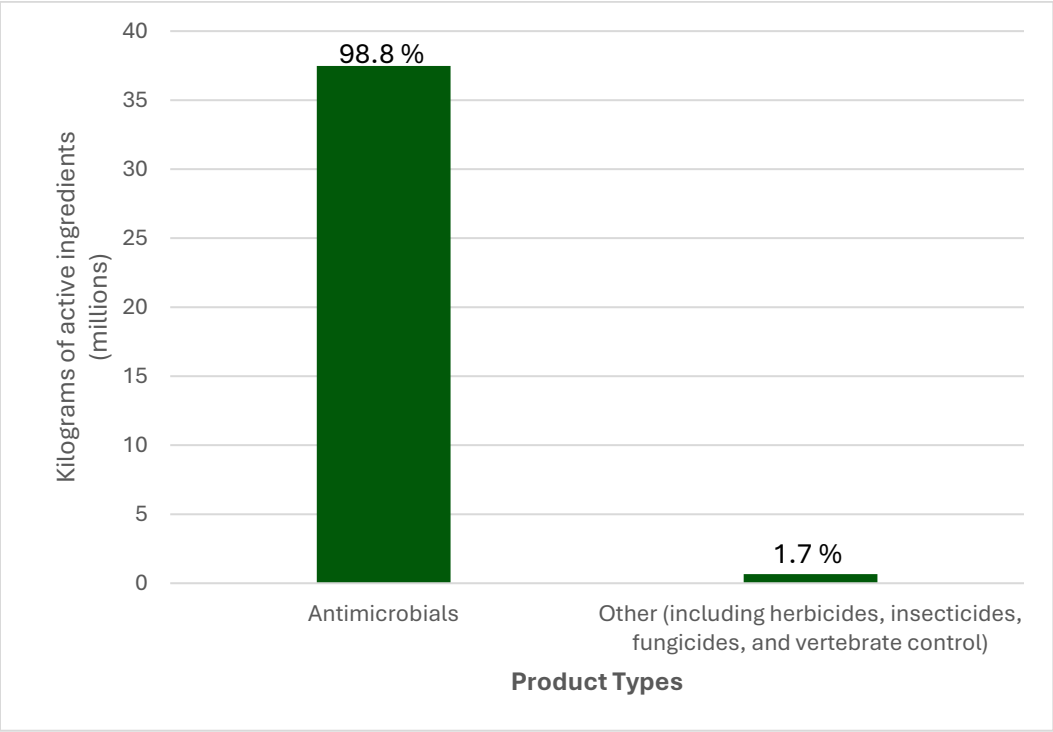
Active ingredient	Product type
Glyphosate	Herbicide
Surfactant blend	Other
Triallate	Herbicide
Glufosinate-ammonium	Herbicide
Ethalfluralin	Herbicide
2,4-D	Herbicide
Bromoxynil	Herbicide
MCPA	Herbicide
Halosulfuron (present as methyl ester)	Herbicide
Mineral oil	Insecticide/Fungicide/Other

Non-agricultural sector

Commercial products with non-agricultural uses accounted for 26.3% of all pesticides sold in Canada in 2024. Non-agricultural sector pesticide sales decreased (3.1%) from 2023 to 2024 (from 39 165 587 kg a.i. to 37 932 460 kg a.i.). Typically, small fluctuations (increases and decreases) with Non-agricultural sector sales are seen from year to year, though a large increase was seen in 2022.

Antimicrobials accounted for 98.8% of Non-agricultural sector sales followed by herbicides (1.2%), fungicides (0.3%), insecticides (0.1%), vertebrate control (0.03%), and others (0.05%) (Figure 5). These last five product types were combined in the figure due to the low quantities of pesticides sold. Fluctuations within the product type groupings have been evident since the start of pesticide sales reporting. However, antimicrobials consistently account for the majority and increasing amount of Non-agricultural sector pesticide sales (ranging from 86% to 98.8%).

Figure 5. Non-agricultural sector



The top 10 active ingredients sold with Non-agricultural sector uses were antimicrobials. These are presented in Table 3 in decreasing order of quantity. Three of these active ingredients also had other product types in addition to the antimicrobial type (copper, borates, and arsenic acid). Non-agricultural sector products are used predominantly in the wood preservation industry and for water treatment. The top 10 active ingredients accounted for 91.3% of the Non-agricultural sector pesticides sold. Seven active ingredients have remained in the top 10 for Non-agricultural sector pesticides over the last five years of reporting: available chlorine (present as sodium hypochlorite), creosote, chromic acid, glutaraldehyde, borates, alkyl-1,3-propylene diamine acetates, and copper as elemental.

Table 3 Top 10 active ingredients sold in Canada in 2024 in the Non-agricultural sector

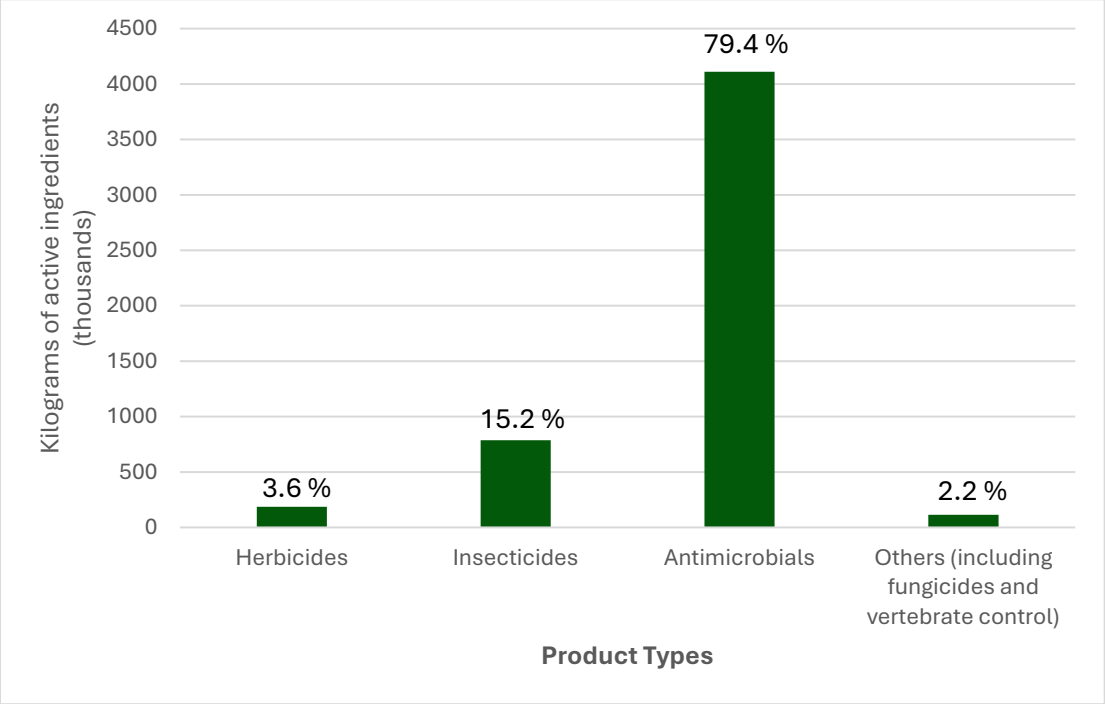
Active ingredient	Product type
Available chlorine (present as sodium hypochlorite)	Antimicrobial
Creosote	Antimicrobial
Borates	Antimicrobial/Insecticide/Fungicide
Copper as elemental	Antimicrobial/Herbicide/Fungicide
Glutaraldehyde	Antimicrobial
Chromic acid	Antimicrobial
Arsenic acid	Antimicrobial/Insecticide
Alkyl-1,3-propylene diamine acetates	Antimicrobial
Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine	Antimicrobial
2,2-dibromo-3-nitrilopropionamide	Antimicrobial

Domestic sector

The Domestic Class products accounted for 3.6% of overall pesticide sales in Canada for 2024. There was a 43.8% increase from 2023 (3 601 209 kg a.i.) to 2024 (5 179 884 kg a.i.) in Domestic sector pesticide sales. There have been significant fluctuations in Domestic Class sales from year to year. These changes in the Domestic sector may be influenced by changes in regional regulations (for example, restrictions at the municipal or provincial level), weather conditions (for example, cold and damp summers may result in decreased sales of swimming pool and spa products) and/or changes in the marketing strategies of specific products.

Antimicrobial products accounted for 79.4% of domestic pesticides sold in Canada in 2024 (Figure 6) (mainly sales of swimming pool and spa products) followed by insecticides (15.2%), herbicides (4%), vertebrate controls (1.8%), fungicides (0.3%), and "other" products (0.03%). These last two product types were combined in Figure 6. The Domestic sector has seen large fluctuation from year to year in the product-type groupings.

Figure 6. Domestic sector



The top 10 active ingredients sold for use in the Domestic sector are from two product type groups: antimicrobials and insecticides. They are presented in Table 4 in decreasing order of quantity sold. These active ingredients accounted for 85.8% of the Domestic sector pesticides sold. Of the top 10 products, seven are used for swimming pools and spas. Seven active ingredients have remained in the top 10 over the last five years of reporting: available chlorine (present as trichloro-s-triazinetrione), alkyl (40% C12, 50% C14, 10% C16) dimethylbenzylammonium chloride, poly[oxyethylene(dimethyliminio)ethylene(dimethyliminio) ethylene dichloride], DEET, available bromine present as 1-bromo-3-chloro-5,5-dimethylhydantoin and related hydantoins, paradichlorobenzene, and silicon dioxide.

Table 4 Top 10 active ingredients sold in Canada in 2024 in the Domestic sector

Active ingredient	Product type
Available chlorine (present as trichloro-s-triazinetrione)	Antimicrobial
Available chlorine (present as calcium hypochlorite)	Antimicrobial
Available bromine (present as 1-bromo-3-chloro-5,5-dimethylhydantoin and related hydantoins)	Antimicrobial
Poly[oxyethylene(dimethyliminio)ethylene (dimethyliminio)ethylene dichloride]	Antimicrobial
Alkyl (40% C12, 50% C14, 10% C16) dimethylbenzylammonium chloride	Antimicrobial
DEET*	Insecticide
Available chlorine (present as 1-bromo-3-chloro-5,5-dimethylhydantoin and related hydantoins)	Antimicrobial
Available chlorine (present as trichloro-s-triazinetrione and sodium dichloro-s-triazinetrione)	Antimicrobial
Paradichlorobenzene	Insecticides
Silicon dioxide	Insecticide

*Since DEET is an insect repellent, it has been grouped with the insecticides.

Sales information by product type

In the following sections, all pesticides are discussed according to their product type (including herbicides, insecticides, fungicides, antimicrobials, vertebrate controls, and other product types). As previously discussed, a product may have a number of different uses listed on the label. As the sales reporting does not collect data on the relative amount of a product used for a specific label use, the data may not necessarily be separated into only one product type. This means that there may be overlap between the product type groupings and these values should not be summed to obtain total quantities of pesticide sold in Canada in 2024, as an over-reporting would occur.

Herbicides

Herbicides remained the dominant pesticide category sold in Canada in 2024 accounting or 57.8% (83 390 343 kg a.i.) of all pesticides sold. This is a 1.6% increase in sales from 2023 when herbicides accounted for 57.4% of all pesticides sold (82 062 591 kg a.i.).

The top 10 herbicides sold in 2024, as listed in Table 5 in decreasing order of quantity, accounted for 84.1% of all herbicide sales in Canada and 48.6% of all pesticide sales. Six active ingredients have remained in the top 10 over the last five years of reporting: glyphosate, glufosinate-ammonium, 2,4-D, MCPA, bromoxynil, and S-metolachlor and R-enantiomer.

Table 5 Top 10 herbicide active ingredients sold in Canada in 2024

Active ingredient
Glyphosate
Triallate
Glufosinate-ammonium
Ethalfluralin
2,4-D
Bromoxynil
MCPA
Halosulfuron (present as methyl ester)
S-metolachlor and R-enantiomer
EPTC

Insecticides

Insecticides accounted for 2.9% (4 203 583 kg a.i.) of all pesticides sold in Canada in 2024. Insecticide sales have remained relatively low throughout the years of reporting, with the highest quantities sold in 2021 (6 144 217 kg a.i.) and the lowest in 2018 (3 836 995 kg a.i.). Many of the insecticides are used in agricultural settings, though the fourth-most sold insecticide (DEET) is used only in the Domestic sector.

The top 10 insecticides sold in 2024, as listed in Table 6 in decreasing order of quantity, accounted for 69.5% of all insecticides sales in Canada and 2% of pesticide sales overall. Four insecticides have remained in the top 10 during the last five years of reporting: mineral oil, silicon dioxide, DEET, and sulphur.

Table 6 Top 10 insecticide active ingredients sold in Canada in 2024

Active ingredient
Mineral oil
Phosmet
Sulphur
DEET*
Thiamethoxam
Silicon dioxide
Fenazaquin
Pyridaben
Cyantraniliprole
Paradichlorobenzene

*Since DEET is an insect repellent, it has been grouped with the insecticides.

Fungicides

Fungicides accounted for 6.6% (9 521 570 kg a.i.) of all pesticides sold in Canada in 2024. Fungicide sales have remained relatively low throughout the reporting years, with a high in 2018 (13 724 886 kg a.i.) and a low in 2010 (5 784 829 kg a.i.). The vast majority of fungicides are used in the Agricultural sector (98.7%).

The top 10 fungicides sold in Canada in 2024, as listed in Table 7 in decreasing order of quantity, accounted for 65% of fungicide sales and 4.3% of pesticide sales overall. Eight of the active ingredients have remained in the top 10 in the last five years of reporting: chlorothalonil, mancozeb, metam-sodium, prothioconazole, chloropicrin, mono- and dibasic sodium, potassium, and ammonium phosphites, propiconazole, and sulphur.

Table 7 Top 10 fungicide active ingredients sold in Canada in 2024

Active ingredient
Mancozeb
Chloropicrin
Prothioconazole
Metam-sodium
Chlorothalonil
Mineral Oil
Fenamidone
Mono- and dibasic sodium, potassium, and ammonium phosphites
Sulphur
Propiconazole

Antimicrobials

Antimicrobials accounted for 29.6% (42 719 508 kg a.i.) of all pesticides sold in Canada in 2024. This was a slight increase from 2023 where 42 381 687 kg a.i. were sold. While most of the antimicrobial active ingredients are used in the Non-agricultural sector, for some active ingredients the majority of sales occur in the Domestic sector. This is the case for certain active ingredients containing available chlorine and available bromine. The high volumes of sales are due to large quantities used in swimming pools and spas, which are mostly for Domestic use.

The top 10 antimicrobial active ingredients sold in 2024, as listed in Table 8 in decreasing order of quantity, accounted for 88.5% of all antimicrobial sales in Canada and 26% of pesticide sales overall. Seven of the active ingredients have remained in the top 10 in the last five years of reporting: available chlorine (present as sodium hypochlorite and as trichloro-s-triazinetrione, creosote), borates, glutaraldehyde, alkyl-1,3-propylene diamine acetates, and copper as elemental.

Table 8 Top 10 antimicrobial active ingredients sold in Canada in 2024

Active ingredient
Available chlorine (present as sodium hypochlorite)
Creosote
Borates
Available chlorine (present as trichloro-s-triazinetrione)
Copper as elemental
Glutaraldehyde
Chromic acid
Arsenic acid
Available chlorine (present as calcium hypochlorite)
Alkyl-1,3-propylene diamine acetates

Vertebrate control

Vertebrate controls accounted for 0.09% (126 046 kg a.i.) of all pesticides sold in Canada in 2024. Since sales data collection began in Canada, products for vertebrate control have always accounted for a very small and consistent amount of overall pesticide sales.

The top 10 vertebrate controls, as listed in Table 9 in decreasing order of quantity sold, accounted for 96.9% of all vertebrate control sales in 2024 and 0.08% of pesticide sales overall. Seven of the active ingredients have remained in the top 10 in the last five years of reporting: cellulose (from powdered corn cobs), aluminum phosphide, sulphur, dried blood, fish meal mixture, stearic acid and related fatty acids, and zinc phosphide.

Table 9 Top 10 vertebrate control active ingredients sold in Canada in 2024

Active ingredient
Cellulose (from powdered corn cobs)
Aluminum phosphide
Stearic acid and related fatty acids
Sulphur
Zinc phosphide
Dried blood
Fish meal mixture
Brassica hirta white mustard seed powder
Oil of black pepper
Dried eggs

Others

Products fall into the "Others" type when they include uses that are not classified in any of the groups above and include adjuvants, nematicides, and molluscicides. These "other" products accounted for 4.3% (6 278 069 kg a.i.) of pesticide sales in Canada in 2024. Sales in this category have fluctuated slightly over the years of reporting, but have remained fairly low, with a high in 2016 (7 852 564 kg a.i.) and a low in 2008 (2 033 691 kg a.i.). The majority of label uses for these other active ingredients are in the Agricultural sector (99.7%).

The top 10 active ingredients sold in Canada in 2024 that fall into this type are listed in Table 10 in decreasing order of quantity and accounted for 99.3% of "other" type sales and 4.4% of pesticide sales overall. Seven of the active ingredients have remained in the top 10 in the last five years of reporting: surfactant blend, mineral oil, nonylphenoxypolyethoxyethanol, paraffin based petroleum oil, triglyceride ethoxylate, methylated seed oil of soybean, and alcohols, C9-11, ethoxylated.

Table 10 Top 10 other active ingredients sold in Canada in 2024

Active ingredient
Surfactant blend
Nonylphenoxypolyethoxyethanol
Mineral oil
Methylated seed oil of soybean
Paraffin based petroleum oil
Alcohols, C9-11, ethoxylated
Metam-potassium
Triglyceride ethoxylate
Polyoxyalkylated alkyl phosphate ester
5,5-dimethylhydantoin

Biopesticides

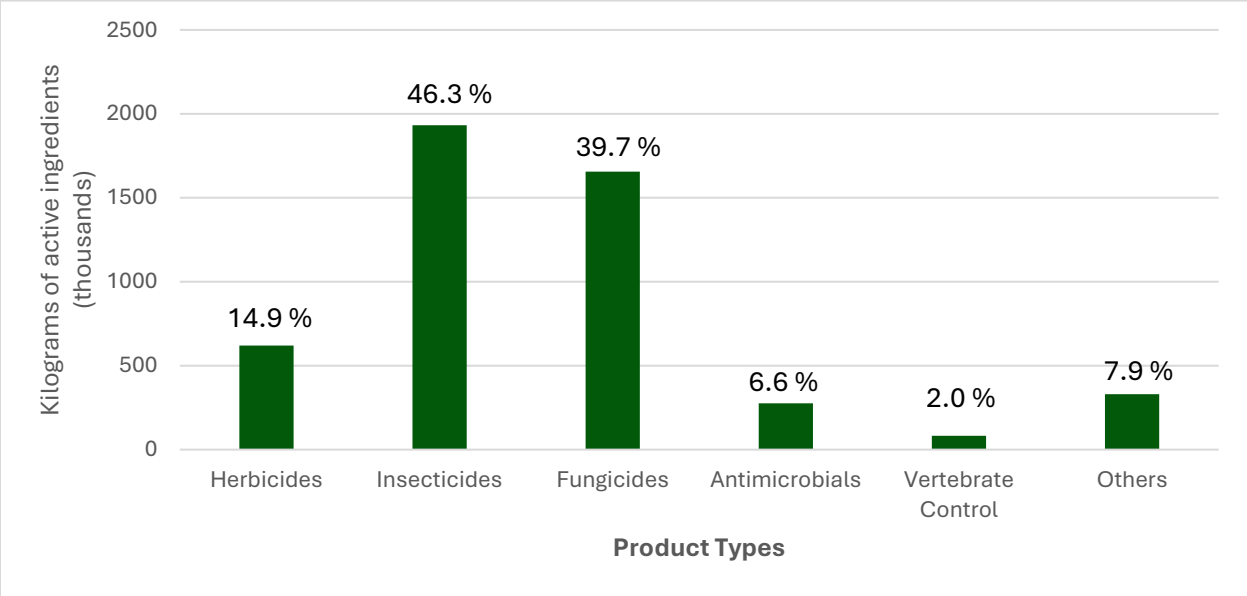
Biopesticides include microbial pesticides (which contain a bacterium, fungus, virus, protozoan, or alga as the active ingredient), pheromones and other semiochemical pesticides, and other non-conventional (formerly biochemical) pesticides.

In 2024, there were 202 active ingredients identified as biopesticides, which accounted for 1096 registered products.

The 397 end-use biopesticide products reported as sold have been broken into two groups: 1) those products which could be converted into kg a.i. and 2) microbial products that could not be converted into kg a.i. It is important to note that biopesticide sales are represented in this subsection in addition to being included in each individual product type section above (for example, herbicides, insecticides).

The 311 products that could be converted to kg a.i. accounted for 2.9% of total pesticide sales (4 174 706 kg a.i.) in 2024. There was a 14% decrease in biopesticide sales from 2023 (4 854 689 kg a.i.) to 2024. The sales of biopesticides have fluctuated over the years in which data have been collected and have deceased over the last three years. Insecticides accounted for 46.3% of the biopesticide sales in 2024 (Figure 7), followed by fungicides (39.7%), herbicides (14.9%), antimicrobials (6.6%), "others" (7.9%), and vertebrate controls (2%).

Figure 7. Quantity of biopesticides sold in Canada in 2024



The top 10 biopesticide active ingredients sold in Canada are listed in Table 11 in decreasing order of quantity. The top 10 active ingredients accounted for 87.4% of sales of biopesticides that could be converted to kg a.i. and 2.5% of pesticide sales overall. Six of the active ingredients have remained in the top 10 over the last five years of reporting: mineral oil, N-decanol, sulphur, mono- and dibasic sodium, potassium, and ammonium phosphites, silicon dioxide, and ammonia.

Table 11 Top 10 biopesticide active ingredient sold in Canada in 2024

Active ingredient	Product type
Mineral oil	Fungicide/Insecticide/Others
Mono- and dibasic sodium, potassium, and ammonium phosphites	Fungicide
Sulphur	Fungicide/Insecticide/Vertebrate Control
N-decanol	Herbicide
Mono- and dipotassium phosphite	Fungicide
Ammonia	Antimicrobial
Silicon dioxide	Insecticide
Soap	Herbicide/Insecticide/Fungicide
Iron	Herbicide/Others
Acetic acid	Herbicide/Insecticide

The remaining 86 sold products are microbial agents that could not be converted into kg a.i. due to unconventional units of measure. The amount of products sold in 2024 of these is listed in Table 12.

Table 12 Quantity of microbials sold in Canada in 2024

Units of product sold	Total
Litres (microbials)	2 286 931
Kilograms (microbials)	1 289 146

Sales information by chemical group

Active ingredients have been grouped into chemical groups to present an alternate way of viewing Canadian pesticide sales information (Table 13). The chemical groups are aligned with the Quebec Ministry of Sustainable Development, Environment and Climate Change Canada listings (Quebec, 2016) and are outlined in Appendix II.

In 2024, the chemical group with the largest proportion of sales was the “Phosphonic and phosphinic acids” group at 34%, followed by the “Inorganics” group at 18.1%. The third group was the “Hydrocarbons” at 6.9%. The remaining chemical groups were all under 5% and 39 out of 54 chemical groups were less than 1% of total sales. Nine chemical families remained in the top 10 from 2023 to 2024.

Table 13 Summary of pesticide sales by chemical group (all sectors) in 2024

Chemical group	Kilograms of active ingredients sold	Rank
Phosphonic acids, phosphinic acids	49 122 885	1
Inorganic	26 187 775	2
Hydrocarbons	9 953 508	3
Phenoxy acids	6 663 759	4
Fatty acids and surfactants	6 524 449	5
Thiocarbamates	XXX	6
Dinitrobenzenes	5 028 761	7
Acylureas	4 481 434	8
Benzonitriles	3 165 040	9
Sulfonylureas	2 565 752	10
Triazoles	2 166 412	11
Ammoniums, quaternary	2 085 617	12
Anilides	2 002 913	13
Oils, minerals and vegetable	1 907 790	14
Aldehydes	1 667 976	15
Biscarbamates	1 220 317	16
Azoles, oxazoles, thiazoles	1 206 028	17
Pyridines	1 103 327	18
Organochlorines	XXX	19
Triazines, tetrazines	952 472	20
Alcohols	941 382	21
Benzoic acid and derivatives	891 429	22
Dithiocarbamates	854 761	23
Benzamides	71 3084	24
Chlorotriazines	XXX	25
Imidazolinones	520 660	26
Methoxyacrylates	487 321	27
Dithiophosphates	469 742	28
Cyclohexanedione oximes	435 182	29
Carbamates	426 531	30
Aryloxyphenoxyl acids	404 145	31
Diazines	373 551	32
Guanidines	316 634	33
Amides	314 941	34
Phtalic acids	296 001	35
Others	273 055	36
Organic acids	251 766	37

Chemical group	Kilograms of active ingredients sold	Rank
Urea derivatives	194 364	38
Halogenated organic acids	193 852	39
Nitrobenzenes	148 109	40
Pyrethroids, pyrethrins	140 591	41
Morpholines & oxathiines	XXX	42
Pheromones	28 567	43
Organohalogens	25 525	44
Phenols/chlorophenols	11 748	45
Phosphates	XXX	46
Phosphoramidothioates	XXX	47
Oximes-carbamates	1517	48
Anilines	1471	49
Thiophosphates	XXX	50
Organometallics	XXX	51
Chromenones	44	52
Indanediones	35	53
Microbials	0	54

XXX Indicates confidential business information. The chemical group did not contain a minimum of three registrants in the calculation of the total.

References

Quebec. Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques. *Bilan des ventes de pesticides au Québec 2016*.

Appendix I Ranking of all active ingredients sold in Canada in 2024

Active name	Kilograms of active ingredients sold
Glyphosate	<50 000 000
Available chlorine (present as sodium hypochlorite)	>10 000 000
Creosote	>5 000 000
Surfactant blend	>1 000 000
Triallate	
Glufosinate-ammonium	
Borates	
Ethalfluralin	
2,4-D	
Bromoxynil	
Available chlorine (present as trichloro-s-triazinetrione)	
Copper as elemental	
MCPA	
Halosulfuron (present as methyl ester)	
Glutaraldehyde	
Mineral oil	
S-metolachlor and R-enantiomer	
EPTC	
Diquat dibromide	
Mancozeb	
Trifluralin	>500 000
Dithiopyr	
Fluroxypyr-meptyl	
Chloropicrin	
Chromic acid	
Prothioconazole	
Dicamba	
Metam-sodium	
Arsenic acid	
Tiafenacil	
Atrazine (plus related active triazines)	
Available chlorine (present as calcium hypochlorite)	
Bentazone	
Alkyl-1,3-propylene diamine acetates	
Prosulfuron	
Available bromine (present as 1-bromo-3-chloro-5,5-dimethylhydantoin and related hydantoins)	
Chlorothalonil	

Active name	Kilograms of active ingredients sold
Chlormequat chloride	>100 000
Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine	
Fenamidone	
Mono- and dibasic sodium, potassium, and ammonium phosphites	
Clethodim	
Poly[oxyethylene(dimethyliminio)ethylene(dimethyliminio)ethylene dichloride]	
Nonylphenoxypolyethoxyethanol	
Sulphur	
Phosmet	
Propiconazole	
Tebuconazole	
N-decanol	
Alkyl (40% C12, 50% C14, 10% C16) dimethylbenzylammonium chloride	
Mono- and dipotassium phosphite	
2,2-dibromo-3-nitrilopropionamide	
Ammonia	
Sodium bromide	
Sulfentrazone	
Metribuzin	
Sodium chlorate	
Pydiflumetofen	
Tetrakis (hydroxymethyl) phosphonium sulphate (THPS)	
Available chlorine (present as 1-bromo-3-chloro-5,5-dimethylhydantoin and related hydantoins)	
Methylated seed oil of soybean	
Pyroxasulfone	
Dichlorprop	
DEET	
Thiamethoxam	
Fluopyram	
Quizalofop-P-ethyl	
Bronopol	
Ammonium bromide	
3-iodo-2-propynyl butyl carbamate	
Silicon dioxide	
Fenazaquin	
Trifloxystrobin	
Pyridaben	
Pinoxaden	

Active name	Kilograms of active ingredients sold
Captan	
Azoxystrobin	
Cyantraniliprole	
Available chlorine (present as trichloro-s-triazinetrione and sodium dichloro-s-triazinetrione)	
Chlorpropham	
Clodinafop-propargyl	
Paradichlorobenzene	
Dimethenamid-P	
Boscalid	
Tetraconazole	
1,2-benzisothiazolin-3-one	
Soap	
Clopyralid	
Saflufenacil	
Flumioxazin	
Paraffin based petroleum oil	
Pyraclostrobin	
Chlorantraniliprole	
Mesotrione	
Sodium chlorite	
Alcohols, C9-11, ethoxylated	
Difenoconazole	>50 000
Available chlorine (present as sodium dichloro-s-triazinetrione)	
Mecoprop	
2,4-DB	
Metam-potassium	
Iron	
Carfentrazone-ethyl	
Pendimethalin	
Pyrasulfotole	
Folpet	
Permethrin	
Triglyceride ethoxylate	
Acetic acid	
Metalaxyl	
Fluazinam	
Linuron	
N-octyl bicycloheptene dicarboximide	
Oxirane derivatives (50% minimum)	
Picoxystrobin	

Active name	Kilograms of active ingredients sold
Cellulose (from powdered corn cobs)	
Fenoxaprop-P-ethyl	
Sodium chloride	
Potassium bicarbonate	
Polyoxyalkylated alkyl phosphate ester	
Flupyradifurone	
Dimethoate	
Didecyldimethylammonium chloride	
2-(hydroxymethyl)-2-nitro-1,3-propanediol	
Piperonyl butoxide	
Hexazinone	
Mefentrifluconazole	
Metconazole	
Octhilinone	>10 000
Fosetyl-Al	
Formic acid	
5-chloro-2-methyl-4-isothiazolin-3-one	
Acrolein	
Imazamox	
Fludioxonil	
Chlorimuron-ethyl	
Ipconazole	
Kaolin	
Carbathiin	
Aluminum phosphide	
Malathion	
Imidacloprid	
Lime sulfur	
Pyrimethanil	
Carbaryl	
Corn gluten meal	
Spirodiclofen	
Imazethapyr	
Fomesafen	
Sedaxane	
Quinclorac	
Sodium omadine	
Mandipropamid	
Triclopyr-butotyl	
Garlic juice	
S-methoprene	

Active name	Kilograms of active ingredients sold
Maleic hydrazide	
Tribenuron-methyl	
Fluxapyroxad	
Florasulam	
2-methyl-4-isothiazolin-3-one	
Bicyclopyrone	
Thifensulfuron-methyl	
Pyrethrins	
Lambda-cyhalothrin	
Clothianidin	
Icaridin	
Carbendazim	
Trinexapac-ethyl	
Dazomet	
Tembotrione	
Zoxamide	
Thiabendazole	
Sulfuryl fluoride	
Pyroxsulam	
Thiophanate-methyl	
5,5-dimethylhydantoin	
Flonicamid	
Halauxifen-methyl	
Flucarbazone (present as flucarbazone-sodium)	
Stearic acid and related fatty acids	
Available chlorine (present as 1-bromo-3-chloro-5,5-dimethylhydantoin, 1,3-dichloro-5,5-dimethylhydantoin, 1,3-dichloro-5-ethyl-5-methylhydantoin and related hydantoins)	
MCPB	
Ethephon	
Picloram	
Potassium dimethyldithiocarbamate	
Clomazone	
Solvent (petroleum hydrocarbons)	
Tributyl tetradecyl phosphonium chloride	
Siloxylated polyether	
Garlic powder	
Pyraflufen-ethyl	
Thiram	
Propamocarb hydrochloride	

Active name	Kilograms of active ingredients sold
Imazapyr	
Peracetic acid	
N-alkyl (60% C14, 30% C16, 5% C12, 5% c18)dimethyl benzyl ammonium chloride	
4,5-dichloro-2-n-octyl-3(2H)isothiazolone	
Diflufenzopyr	
Dimethomorph	
Tolpyralate	
Penthiopyrad	
Metsulfuron-methyl	
Dichlobenil	
Aminopyralid	
2,6-diisopropylnaphthalene	
Terbacil	
Fluazifop	
Prometryne plus related active triazines	>5000
1,3-bis(hydroxymethyl)-5,5-dimethylhydantoin	
Silica gel (amorphous)	
Hydrogen peroxide	
Ametoctradin	
Propyzamide	
Acifluorfen-sodium	
Deltamethrin	
Thiencarbazone-methyl	
Trifludimoxazin	
2-phenylphenol	
Tralkoxydim	
N-alkyl(68% C12, 32% C14)dimethyl ethylbenzyl ammonium chloride	
Topramezone	
Triticonazole	
Simazine plus related active triazines	
Formaldehyde	
1,4-dimethylnaphthalene	
Napropamide	
Spinetoram	
Aminocyclopyrachlor	
Penflufen	
Oxathiapiprolin	
Canola oil	
Oil of lemon eucalyptus, hydrated, cyclized	
Acetamiprid	

Active name	Kilograms of active ingredients sold
Acephate	
Zinc phosphide	
Octylphenoxypolyethoxyethanol	
Sethoxydim	
Naled	
Cyprodinil	>1000
Spirotetramat	
Florylpicoxamid	
Isoxaflutole	
Spearmint oil	
2-(thiocyanomethylthio)benzothiazole	
Cyazofamid	
Dried blood	
Novaluron	
Broflanilide	
D-cis,trans-allethrin	
Sulfoxaflor	
Picarbutrazox	
4-chloro-3-methylphenol (sodium salt)	
Thymol	
Tetraniliprole	
Indaziflam	
Dodine	
Fenhexamid	
Daminozide	
Spinosad	
Benzovindiflupyr	
Lactic acid	
Ethanol	
BLAD polypeptide	
2,2'-(1-methyltrimethylenedioxy)bis-(4-methyl-1,3,2-dioxaborinane)	
Fish meal mixture	
Isofetamid	
P-menthane-3,8-diol	
Caprylic acid	
Rimsulfuron	
Potassium peroxymonosulfate (present as potassium peroxymonosulfate sulfate)	
Zinc	
Ethanol extract of *Reynoutria sachalinensis*	
Streptomycin (present as sulphate)	

Active name	Kilograms of active ingredients sold
Methylene bis(thiocyanate)	
Methyl bromide	
Metaldehyde	
Ethofumesate	
Hydroxymethyl-5,5-dimethylhydantoin	
Flumetsulam	
Tetramethrin	
Fluoxastrobin	
N-alkyl(67% C12, 25% C14, 7% C16, 1% C18)dimethylbenzylammonium chloride	
Metrafenone	
Cymoxanil	
Fluazaindolizine	
Cypermethrin	
Methoxyfenozide	
D-phenothrin	
1-methylcyclopropene	
Capric acid	
Fenpropathrin	
Citric acid	
Dinotefuran	
Ethaboxam	
Methomyl	
Tefluthrin	
Polyoxin D zinc salt, Polyoxorim-zinc	
Prohexadione calcium	
Fluopicolide	
Oxalic acid dihydrate	
2,2-oxybis(4,4,6-trimethyl-1,3,2-dioxaborinane)	
Brassica hirta white mustard seed powder	
Myclobutanil	
Acequinocyl	>500
Dodecylguanidine hydrochloride	
Cyflumetofen	
Oxydiethylene bis(alkyl dimethyl ammonium chloride)	
Paraformaldehyde	
Afidopyropen	
Famoxadone	
Oil of black pepper	
Spiromesifen	
Bifenazate	

Active name	Kilograms of active ingredients sold
Pyridate	
Diphenylamine	
Dried eggs	
Capsaicin	
1-octanol	
Amitraz	
Sodium alpha-olefin sulfonate	
Azamethiphos	
Related capsaicinoids	
Oxyfluorfen	
Tetrachlorvinphos	
Pelargonic acid	
Chlorfenapyr	
4-chloroindole-3-acetic acid	<500
Abamectin	
Paclobutrazol	
Kasugamycin hydrochloride hydrate	
Nicosulfuron	
Codlelure	
Cyclaniliprole	
Beta-cyfluthrin	
Octenol	
Meat meal mixture	
Fenbutatin oxide	
Wintergreen oil	
Azadirachtin	
Phosphine	
Pyrifluquinazon	
Spiroxamine	
Diflubenzuron	
Etridiazole	
Diodofon	
Flazasulfuron	
Garlic oil	
GS-omega/Kappa-HXTX-HV1A	
Clove oil	
Chlorsulfuron	
10,10'-oxybis(phenoxarsine)	
Magnesium phosphide	
6-benzylaminopurine (or: 6-benzyladenine)	
Pyriofenone	

Active name	Kilograms of active ingredients sold
Fish oil mixture	
Cloransulam-methyl	
3-(trimethoxysilyl)propyldimethyloctadecyl ammonium chloride	
Metofluthrin	
Ethametsulfuron-methyl	
Castor oil	
Methyl nonyl ketone	
Buprofezin	
Oxamyl	
Flutianil	
Piperine	
Denatonium benzoate	
Carbon dioxide gas	
Z-8-dodecen-1-yl acetate or Z-8-dodecenyl acetate	
3-methyl-2-cyclohexen-1-one	
Cyfluthrin	
HOP beta acids (present as potassium salts)	
Eucalyptus oil	
Triflusulfuron-methyl	
Artificial grape extract	
(Z)-9-dodecenyl acetate + (Z)-11-tetradecenyl acetate	
Inpyrfluxam	
1-dodecanol	
Florpyrauxifen-benzyl	
Verbenone	
Sodium 2-phenylphenate	
Pyriproxyfen	
Pine needle oil	
Lemon oil	
Geranium oil	
Naphthylacetic acid	
D-limonene	
1-alkyl(C6-C18)-1,3-propanediamine	
Natamycin	
Saponins of Chenopodium quinoa	
Mandestrobin	
Bromadiolone	
Foramsulfuron	
Muscalure	
Nicarbazin	
Diphacinone (present in free form or as sodium salt)	

Active name	Kilograms of active ingredients sold
Chlorophacinone	
Fenpyroximate	
Camphor oil	
N-dialkyl(5% C12, 60% C14, 30% C16, 5% C18)methylbenzylammonium chloride	
(Z,Z)-3,13-octadecadien-1-yl acetate	
1-tetradecanol	
Diisobutylphenoxyethoxyethyl dimethyl benzyl ammonium chloride	
Garlic	
Warfarin	
E-8-dodecen-1-yl acetate or E-8-dodecenyl acetate	
(E,Z)-3,13-octadecadien-1-yl acetate	
Etoxazole	
3-(trihydroxysilyl)propyldimethyloctadecyl ammonium chloride	
Bispyribac-sodium	
(9Z,12E)-9,12-tetradecadien-1-yl acetate	
L-menthol	
Racemic camphor	
Bromethalin	
Brodifacoum	
Difethialone	
Dichlorvos	
4-aminopyridine	
Cyromazine	
Jasmone	
Z-8-dodecen-1-ol or Z-8-dodecenol	
Uniconazole-P	
Propoxycarbazone-sodium	
Aviglycine hydrochloride	
(E,Z)-2,13-octadecadien-1-yl acetate	
Octyldecyldimethylammonium chloride	
Noviflumuron	
Dioctyldimethylammonium chloride	
(Z,Z)-3,13-octadecadien-1-ol	
Ancymidol	
(E,Z)-2,13-octadecadien-1-ol	
Sodium monofluoroacetate	
Isoxaben	
Available chlorine (present as lithium hypochlorite)	
Tioxazafen	
Iprodione	

Active name	Kilograms of active ingredients sold
Octadec-9-enoic acid	
Rotenone	
Ipflufenoquin	
N-alkyl(40% C12, 50% C14, 10% C16)dimethylbenzylammonium saccharinate	
Akanthomyces muscarius strain VE6	
Tea tree oil	
Mesosulfuron-methyl	
Oriental mustard seed meal	
Triclopyr triethylamine salt	
Kresoxim-methyl	
Picolinafen	
3-ketopetromyzonol-24-sulfate, ammonium salt	
Triforine	
Streptomyces griseoviridis strain K61	
Rescalure	
Streptomyces lydicus strain WYEC108	
Quintozene	
Potassium chloride	
R-(-)-1-octen-3-ol	
Strychnine	
Rosemary oil	
Soybean oil	
Lymantria dispar multicapsid nucleopolyhedrovirus strain LDP-67	
1R-trans prallethrin	
Plutella xylostella granulovirus (PLXYGV) isolate GV-0020	
Metiram	
Sheep fat	
Sulfuric acid	
(E,Z)-11-tetradecenal	
From nanogen: chlorocresol (or: parachlorocresol)	
Neodiprion abietis nucleopolyhedrovirus	
Phlebiopsis gigantea	
Metarhizium brunneum strain F52	
(E)-11-tetradecenol acetate; trans-11-tetradecenyl acetate	
Trichoderma asperellum	
Triethylene glycol	
Didecyldimethylammonium (present as carbonate and bicarbonate salts)	
Mefenpyr	
Trichoderma virens strain G-41	

Active name	Kilograms of active ingredients sold
Pasteuria nishizawae PN1	
Lactobacillus casei strain LPT-111	
Liquid corn gluten	
Pethoxamid	
Phthorimaea operculella granulovirus isolate GV-0019	
Nosema (paranosema) locustae canning	
Methyl salicylate	
Petroleum hydrocarbon blend	
(E,E)-8,10-dodecadien-1-ol + 1-dodecanol + 1-tetradecanol	
4-nitro-3-(trifluoromethyl)phenol or sodium salt	
Mild pepino mosaic virus	
Pentachlorophenol	
Phoma macrostoma	
Verticillium albo-atrum, isolate WCS850	
Prohydrojasmon	
Phorate	
Lactobacillus rhamnosus (strain LPT-21)	
Tebufenozide	
Naphthalene	
Trichoderma gamsii strain ICC 080	
Thiacloprid	
Nuclear polyhedrosis virus of red-headed pine sawfly	
Chloridazon	
Sulfometuron methyl	
Nucleopolyhedrovirus for Douglas-fir tussock moth	
Extract of *Swinglea glutinosa*	
Pyraziflumid	
Lactococcus lactis	
Phenmedipham	
N-alkyl (25% C12, 60% C14, 15% C16) dimethyl benzyl ammonium chloride	
Pepino mosaic virus, strain CH2, isolate 1906	
Clavibacter michiganensis (spp *michiganensis*) bacteriophage	
(E)-4-tridecenyl acetate + (Z)-4-tridecenyl acetate	
Peppermint oil	
Lemongrass oil	
Paecilomyces fumosoroseus strain FE 9901	
Imiprothrin	
Aureobasidium pullulans	
Bensulide	
1-aminocyclopropanecarboxylic acid	

Active name	Kilograms of active ingredients sold
Helicoverpa armigera nucleopolyhedrovirus BV-0003	
Etofenprox	
Calcium disodium EDTA hydrate	
Putrescent whole egg solids	
Endothall	
1,4-bis(bromoacetoxy)-2-butene	
Coniothyrium minitans strain CON/M/91-08	
Ethylene oxide	
Cydia pomonella granulovirus	
Propoxur	
Pseudomonas fluorescens	
Niclosamide	
Diflufenican	
(E,Z)-9-dodecenyl acetate	
Trichoderma harzianum	
Bacillus firmus strain I-1582	
Alkyl(C12-16)dimethylamine oxide	
Pseudomonas syringae - strain ESC-10	
Desmedipham	
Bacillus thuringiensis	
Bacillus velezensis strain RTI301	
Bixafen	
Fenpropimorph	
Indole-3-butyric acid	
Clofentezine	
3-decen-2-one	
Citronella oil	
Imazamethabenz-methyl	
Agrobacterium radiobacter	
Ferrous sulfate heptahydrate	
Ferrous sulfate monohydrate	
Cyprosulfamide	
Available chlorine (present as 1,3-dichloro-5,5-dimethylhydantoin and 1,3-dichloro-5-ethyl-5-methylhydantoin)	
Bacillus subtilis	
Clonostachys rosea strain J1446	
Bacillus licheniformis strain FMCH001	
Attenuated cucumber green mottle mosaic virus strain ON-BM3; AL-BIO10	
German cockroach extract	
N-coco-alkyltrimethylene diamines (present as monobenzoate salt)	

Active name	Kilograms of active ingredients sold
Beauveria bassiana	
Flutriafol	
Bacillus mycoides isolate J	
Flumethrin	
1,2-dibromo-2,4-dicyanobutane	
Lysinibacillus sphaericus 2362, serotype H5a5b, strain ABTS 1743	
(ACMNPV) cabbage looper	
Flufenacet	
Tau-fluvalinate	
Bromacil (present in free form, as dimethylamine salt, or as lithium salt)	
Chondrostereum purpureum strain PFC2139	
Cornmint oil	
Cedarwood oil	
(Z,Z)-11,13-hexadecadienal	
Iodosulfuron-methyl-sodium	
Diuron	
Fluensulfone	
Cloquintocet-mexyl	
Bacillus amyloliquefaciens	
3-chloro-P-toluidine hydrochloride	
Formetanate hydrochloride	
Cyphenothrin	
Gibberellic acid	

Appendix II Chemical groups and active ingredients – 2024

Chemical group	Active ingredient name
Acylureas	Bromacil (present in free form as dimethylamine salt or as lithium salt) Available chlorine (present as 1-bromo-3-chloro-5,5-dimethylhydantoin and related hydantoins) Available bromine (present as 1-bromo-3-chloro-5,5-dimethylhydantoin and related hydantoins) Bentazon (present as sodium salt) Bentazone Cymoxanil Available chlorine (present as 1-bromo-3-chloro-5,5-dimethylhydantoin, 1,3-dichloro-5,5-dimethylhydantoin, 1,3-dichloro-5-ethyl-5-methylhydantoin and related hydantoins) Available chlorine (present as 1,3-dichloro-5,5-dimethylhydantoin and 1,3-dichloro-5-ethyl-5-methylhydantoin) Diflubenzuron Iprodione Noviflumuron Novaluron Saflufenacil Terbacil Tiafenacil Trifludimoxazin Available chlorine (present as trichloro-s-triazinetrione) Hexazinone
Alcohols	Alcohols, C9-11, ethoxylated Bronopol Ethanol Ethylene oxide N-decanol 1-octanol Tetrakis (hydroxymethyl) phosphonium sulphate (THPS) Octenol Oil of lemon eucalyptus, hydrated, cyclized P-menthane-3,8-diol Propylene glycol Siloxylated polyether

Chemical group	Active ingredient name
	Saponins of *Chenopodium quinoa* Triethylene glycol 2-(hydroxymethyl)-2-nitro-1,3-propanediol
Aldehydes	Formaldehyde Glutaraldehyde Jasmone Metaldehyde Paraformaldehyde
Amides	Bixafen 2,2-dibromo-3-nitrilopropionamide Capsaicin Piperine Daminozide Isofetamid Mandipropamid Napropamide Related capsaicinoids
Ammoniums, Quaternary	Chlormequat chloride Alkyl(C12-16)dimethylamine oxide Denatonium benzoate Diquat dibromide N-alkyl (25% C12, 60% C14, 15% C16) dimethyl benzyl ammonium chloride Alkyl (40% C12, 50% C14, 10% C16) dimethylbenzylammonium chloride N-alkyl (68% C12, 32% C14) dimethyl ethylbenzyl ammonium chloride Didecyldimethylammonium chloride N-alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride N-alkyl (67% C12, 25% C14, 7% C16, 1% C18) dimethylbenzylammonium chloride Diisobutylphenoxyethoxyethyl dimethyl benzyl ammonium chloride N-alkyl (40% C12, 50% C14, 10% C16) dimethylbenzylammonium saccharinate

Chemical group	Active ingredient name
	Didecyldimethylammonium (present as carbonate and bicarbonate salts) Dioctyldimethylammonium chloride Octyldecyldimethylammonium chloride N-dialkyl (5% C12, 60% C14, 30% C16, 5% C18) methylbenzylammonium chloride Oxydiethylene bis(alkyl dimethyl ammonium chloride) 3-(trimethoxysilyl)-propyldimethyloctadecyl ammonium chloride 3-(trihydroxysilyl)-propyldimethyloctadecyl ammonium chloride
Anilides	S-Metolachlor and R-enantiomer Niclosamide Benzovindiflupyr Boscalid 3-chloro-P-toluidine hydrochloride Diflufenican Dimethenamid-P Fenhexamid Flufenacet Flumioxazin Fluxapyroxad Inpyrfluxam Metalaxyl-m and s-isomer Metalaxyl Picolinafen Penflufen Penthiopyrad Pethoxamid Sedaxane Tetraniliprole
Anilines	Amitraz Diphenylamine
Aryloxyphenoxyl Acids	Clodinafop-propargyl Fenoxaprop-P-ethyl Fluazifop-P-butyl Fluazifop-P-butyl and s-isomer Quizalofop-P-ethyl

Chemical group	Active ingredient name
Azoles, Oxazoles, Thiazoles	Chlorfenapyr
	1,2-benzisothiazolin-3-one
	4-chloroindole-3-acetic acid
	4-chloroindole-3-acetic acid (present as potassium salt)
	Carbendazim
	Clomazone
	Fluensulfone
	Ethaboxam
	Etoxazole
	Fenpyroximate
	Fludioxonil
	Pydiflumetofen
	Flutianil
	Metconazole
	Oxirane derivatives (50% minimum)
	Indole-3-butyric acid (present as potassium salt)
	Indole-3-butyric acid
	2-methyl-4-isothiazolin-3-one
	5-chloro-2-methyl-4-isothiazolin-3-one
	4,5-dichloro-2-n-octyl-3(2H)isothiazolone
	Tioxazafen
	Isoxaflutole
	Mefenpyr
	Topramezone
	Octhilinone
	Oxathiapiprolin
	Pinoxaden
	Pyrasulfotole
	Pyroxasulfone
	Spirotetramat
	Strychnine
	2-(thiocyanomethylthio)benzothiazole
	Tolpyralate
	Etridiazole
	Thiabendazole

Chemical group	Active ingredient name
Benzamides	Broflanilide Cyantraniliprole Cyclaniliprole Cyprosulfamide DEET Fluopicolide Fluopyram Isoxaben Chlorantraniliprole Propyzamide Methoxyfenozide Tebufenozide Zoxamide
Benzoic Acid And Derivatives	Bispyribac-sodium Dicamba-olamine Dicamba (present as BAPMA salt) Dicamba (present as acid, amine salt, ester or sodium salt) Artificial grape extract Methyl salicylate Quinclorac (present as dimethylamine salt) Quinclorac
Benzonitriles	Bromoxynil Dichlobenil Chlorothalonil
Biscarbamates	Desmedipham Mancozeb Metiram Phenmedipham Thiram Thiophanate-methyl
Carbamates	Ammonia (present as ammonium carbamate) Propoxur Bifenazate Carbaryl Chlorpropham Famoxadone

Chemical group	Active ingredient name
	Formetanate hydrochloride
	3-iodo-2-propynyl butyl carbamate
	Picarbutrazox
	Propamocarb hydrochloride
	Icaridin
	Polyoxin D zinc salt, Polyoxorim-zinc
Chlorotriazine	Atrazine (plus related active triazines)
	Simazine plus related active triazines
Chromenones	Brodifacoum
	Bromadiolone
	Difethialone
	Rotenone
	Warfarin
Cyclohexanedione Oximes	Clethodim
	Sethoxydim
	Tralkoxydim
Diazines	Aminocyclopyrachlor
	Aminocyclopyrachlor-potassium
	Ancymidol
	6-benzylaminopurine (or: 6-benzyladenine)
	Buprofezin
	Pyridate
	Fenazaquin
	Maleic hydrazide
	Pyridaben
	Pyrifluquinazon
	Chloridazon
	Pyraziflumid
	Triforine
Dinitrobenzenes	Bromethalin
	Ethalfluralin
	Fluazinam
	Pendimethalin
	Trifluralin

Chemical group	Active ingredient name
Dithiocarbamates	Dazomet Potassium dimethyldithiocarbamate Metam-potassium Metam-sodium
Dithiophosphates	Bensulide Dimethoate Malathion Phorate Phosmet
Fatty Acids, Surfactants	N-coco-alkyltrimethylene diamines (present as monobenzoate salt) Alkyl-1,3-propylene diamine acetates 1-alkyl(C6-C18)-1,3-propanediamine Alkanolamine salts of fatty acids Ammonium salt of fatty acids Capric acid Fatty acids Pelargonic acid Nonylphenoxypolyethoxyethanol Caprylic acid Octadec-9-enoic acid, methyl ester Octadec-9-enoic acid, ethyl ester Octylphenoxypolyethoxyethanol Polyoxyalkylated alkyl phosphate ester Poly[oxyethylene(dimethyliminio)ethylene(dimethyliminio)ethylene dichloride] Soap (non-specific) Potassium salts of fatty acids Soap (herbicidal) Stearic acid and related fatty acids Triethanolamine salts of fatty acids Tributyl tetradecyl phosphonium chloride Triglyceride ethoxylate 10 POE Surfactant blend Surfactant mixture

Chemical group	Active ingredient name
Guanidines	Clothianidin Cyprodinil Dinotefuran Dodine Dodecylguanidine hydrochloride Imidacloprid Pyrimethanil Streptomycin (present as sulphate) Thiamethoxam
Halogenated Organic Acids	Aminopyralid Aminopyralid (present as potassium salt) 1,4-bis(bromoacetoxy)-2-butene Cyflumetofen Clopyralid Florpyrauxifen-benzyl Halauxifen-methyl Mefenpyr-diethyl Picloram (present as potassium salts) Picloram (present as acid) Picloram (present as amine salts) Spirodiclofen
Hydrocarbons	Creosote 1,4-dimethylnaphthalene 2,6-diisopropylnaphthalene Naphthalene Petroleum hydrocarbon blend
Imidazolinones	Imazapyr Imazamethabenz-methyl Fenamidone Imazethapyr Imazamox
Indanediones	Chlorophacinone Diphacinone (present in free form or as sodium salt)

Chemical group	Active ingredient name
Inorganic, Others	Aluminum phosphide
	Ammonium bromide
	Arsenic acid
	Ammonia (present as ammonium sulfate)
	Borax pentahydrate
	Borax
	Boracic acid (boric acid)
	Disodium octaborate tetrahydrate
	Available chlorine (present as calcium hypochlorite)
	Chromic acid
	Copper (present as basic copper sulphate)
	Copper (present as cuprous thiocyanate)
	Copper (present as copper octanoate)
	Copper (present as cupric oxide)
	Metallic copper
	Copper (present as copper naphthenate)
	Cupric oxide
	Copper (present as cuprous oxide)
	Copper, present as copper 8-quinolinolate
	Copper (present as mixed copper ethanolamine complexes or as bis(2-aminoethanolate))
	Copper (present as copper sulfate pentahydrate)
	Copper (present as basic copper carbonate)
	Copper (present as copper oxychloride)
	Copper (present as copper hydroxide)
	Borax or disodium tetraborate decahydrate
	Fosetyl-Al
	Ferrous sulfate monohydrate
	Ferrous sulfate heptahydrate
	Ferric phosphate
	Hydrogen peroxide
	Iron (present as ferric phosphate)
	Kaolin
	Potassium chloride

Chemical group	Active ingredient name
	Potassium peroxymonosulfate (present as potassium peroxymonosulfate) sulfate Available chlorine (present as lithium hypochlorite) Mono- and dipotassium phosphite Magnesium phosphide Mono- and dibasic sodium, potassium, and ammonium phosphites Sodium chloride Sodium nitrite Phosphine Potassium bicarbonate Sodium bromide Sodium chlorite Sodium chlorate Sodium fluoride Sulfuryl fluoride Sodium hypochlorite Available chlorine (present as sodium hypochlorite) Silicon dioxide (present as 100% diatomaceous earth) - fresh water fossils Silica gel (amorphous) Silicon dioxide (present as 100% diatomaceous earth) - salt water fossils Sulphur Lime sulfur Sulfuric acid Zinc borate Zinc as elemental (present as zinc naphthenate) Zinc (present as zinc oxide) Zinc phosphide
Methoxyacrylates	Azoxystrobin Fluoxastrobin Kresoxim-methyl Mandestrobin Pyraclostrobin Picoxystrobin Trifloxystrobin

Chemical group	Active ingredient name
Microbials	*Aureobasidium pullulans* DSM 14940
	Aureobasidium pullulans DSM 14941
	Aureobasidium pullulans DSM 14940 and DSM 14941
	Agrobacterium radiobacter
	(ACMNPV) cabbage looper
	Bacillus amyloliquefaciens strain F727
	Bacillus amyloliquefaciens, strain PTA-4838
	Beauveria bassiana strain ANT 03
	Beauveria bassiana strain PPRI 5339
	Beauveria bassiana strain CFL-A
	Bacillus subtilis strain FMCH002
	Bacillus firmus I-1582
	Beauveria bassiana strain GHA
	Beauveria bassiana strain HF23
	Bacillus licheniformis strain FMCH0001
	Bacillus amyloliquefaciens, strain D747
	Bacillus mycoides isolate J
	Pseudomonas fluorescens A506
	Pseudomonas syringae - strain ESC-10
	Pseudomonas fluorescens CL145A
	Bacillus amyloliquefaciens strain FZB42
	Bacillus subtilis QST 713
	Bacillus subtilis (strain GB03)
	Bacillus subtilis (strain BU 1814)
	Bacillus subtilis MB1600
	Bacillus subtilis strain RTI477
	Bacillus subtilis var. *amyloliquefaciens* strain FZB24
	Bacillus thuringiensis Berliner spp. *kurstaki*
	Bacillus thuringiensis serotype H-14
	Lysinibacillus sphaericus 2362, serotype H5a5b, strain ABTS 1743
	Bacillus thuringiensis subsp. *galleriae* strain SDS-502
	Bacillus thuringiensis sp. *tenebrionis*
	Bacillus thuringiensis ssp. *aizawai*
	Beauveria bassiana strain R444
	Bacillus velezensis strain RTI301
	Attenuated cucumber green mottle mosaic virus strain ON-BM3; AL-BIO10
	Coniothyrium minitans strain CON/M/91-08

Chemical group	Active ingredient name
	Cydia pomonella granulovirus (strain M)
	Cydia pomonella granulosis virus (strain CMGV4)
	Chondrostereum purpureum strain PFC2139
	Cydia pomonella granulovirus isolate V-22
	Clonostachys rosea strain J1446
	Trichoderma harzianum strain KRL-AG2
	Helicoverpa armigera nucleopolyhedrovirus BV-0003
	Lactobacillus casei strain LPT-111
	Lactobacillus rhamnosus (strain LPT-21)
	Lactococcus lactis ssp. *lactis* strain LL64/CSL
	Lactococcus lactis ssp. *cremoris* strain M11/CSL
	Lactococcus lactis ssp. *lactis* strain LL102/CSL
	Akanthomyces muscarius strain VE6
	Metarhizium brunneum strain F52
	Phoma macrostoma
	Neodiprion abietis nucleopolyhedrovirus
	Nosema (paranosema) locustae canning
	Lymantria dispar multicapsid nucleopolyhedrovirus strain LDP-67
	Nuclear polyhedrosis virus of red-headed pine sawfly
	Nucleopolyhedrovirus for Douglas-fir tussock moth
	Pantoea agglomerans C9-1
	Phlebiopsis gigantea
	Paecilomyces fumosoroseus strain FE 9901
	Phthorimaea operculella granulovirus isolate GV-0019
	Plutella xylostella granulovirus (PLXYGV) isolate GV-0020
	Pepino mosaic virus, strain CH2, isolate 1906
	Pasteuria nishizawae PN1
	Streptomyces acidiscabies strain RL-110T cells and spent fermentation media
	Streptomyces griseoviridis strain K61
	Streptomyces lydicus strain WYEC 108
	Trichoderma asperellum strain ICC 012
	Trichoderma asperellum, strain T34
	Trichoderma virens strain G-41
	Trichoderma gamsii strain ICC 080
	Trichoderma harzianum Rifai strain T-22
	Clavibacter michiganensis (spp *michiganensis*) bacteriophage
	Mild pepino mosaic virus isolate VC1

Chemical group	Active ingredient name
	Verticillium albo-atrum isolate WCS850
	Mild pepino mosaic virus isolate VX1
Morpholines, Oxathiines	Dimethomorph
	Fenpropimorph
	Carbathiin
	Spiroxamine
Nitrobenzenes	Acifluorfen-sodium
	Fomesafen
	Mesotrione
	Oxyfluorfen
	Quintozene
Oils, Minerals, Vegetable	Racemic camphor
	Oil of black pepper
	Cedarwood oil
	Citronella oil
	Clove oil
	Canola oil
	Camphor oil
	Cornmint oil
	Castor oil
	Eucalyptus oil
	Fish oil mixture
	Geranium oil
	Garlic oil
	D-limonene
	Lemon oil
	L-menthol
	Mineral oil - paraffin base (adjuvants)
	Mineral oil
	Methylated seed oil of soybean
	Lemongrass oil
	Paraffin based petroleum oil
	Peppermint oil
	Verbenone
	Pine needle oil

Chemical group	Active ingredient name
	Thymol Rosemary oil Soybean oil Sheep fat Spearmint oil Tea tree oil Wintergreen oil
Organic Acids	Abamectin Carboxylic acid Acetic acid Acequinocyl Aviglycine hydrochloride Azadirachtin Citric acid Calcium disodium EDTA hydrate Formic acid Gibberellic acid Gibberellins A4A7 HOP beta acids (present as potassium salts) Iron (present as FeHEDTA) Kasugamycin hydrochloride hydrate Lactic acid Naphthylacetic acid Oxalic acid dihydrate Peracetic acid Prohexadione calcium Prohydrojasmon Natamycin Spinosad Spiromesifen Spinetoram Sodium monofluoroacetate Trinexapac-ethyl Ferric sodium EDTA
Organochlorines	Chloropicrin Paradichlorobenzene

Chemical group	Active ingredient name
Organohalogens	1,2-dibromo-2,4-dicyanobutane Diodofon Tembotrione Methyl bromide Metrafenone Pyriofenone
Organometallics	Fenbutatin oxide 10,10'-oxybis(phenoxarsine)
Others	Acrolein Solvent (petroleum hydrocarbons) 2,2-oxybis(4,4,6-trimethyl-1,3,2-dioxaborinane) BLAD polypeptide Dried blood *Brassica hirta* white mustard seed powder Cellulose (from powdered corn cobs) Corn gluten meal Carbon dioxide gas 3-methyl-2-cyclohexen-1-one 3-decen-2-one Putrescent whole egg solids Dried eggs Endothall Ethofumesate Fish meal mixture Garlic powder Garlic juice Garlic GS-Omega/Kappa-HXTX-HV1A Liquid corn gluten Methylene bis(thiocyanate) 1-Methylcyclopropene 2,2'-(1-methyltrimethylenedioxy)bis-(4-methyl-1,3,2-dioxaborinane) Methyl nonyl ketone Oriental mustard seed meal Meat meal mixture

Chemical group	Active ingredient name
	Piperonyl butoxide
	Ethanol extract of *Reynoutria sachalinensis*
	Sodium alpha-olefin sulfonate
	Extract of *Swinglea glutinosa*
Oximes-carbamates	Methomyl
	Oxamyl
Phenols/Chlorophenols	2-phenylphenol
	2-phenylphenol (present as sodium salt)
	Pentachlorophenol
	From nanogen: chlorocresol (or: parachlorocresol)
	4-chloro-3-methylphenol (sodium salt)
	Sodium 2-phenylphenate
	4-nitro-3-(trifluoromethyl)phenol or sodium salt
Phenoxy Acids	Cloquintocet-mexyl
	2,4-DB
	Dichlorprop-P
	Dichlorprop P-isomer (present as 2-ethylhexyl ester)
	2,4-D (present as acid)
	2,4-D (present as amine salts: dimethylamine salt, diethanolamine salt, or other amine salts)
	2,4-D (present as low volatile esters)
	2,4-D present as choline salt
	Fluroxypyr-meptyl
	MCPA (present as acid)
	MCPA (present as amine salts: diethanolamine, dimethylamine or mixed amines)
	MCPA (present as esters)
	MCPA (present as potassium salt or sodium salt)
	MCPB (present as sodium salt)
	MCPB (present as isomer specific)
	Mecoprop P-isomer (present as acid)
	Mecoprop-P (present as dimethylamine salt)
	Mecoprop-P (present as potassium salt)
	Mecoprop-P (present as amine salt)
	Pyraflufen-ethyl
	Triclopyr-butotyl
	Triclopyr triethylamine salt

Chemical group	Active ingredient name
Pheromones	E-8-dodecen-1-yl acetate or E-8-dodecenyl acetate (E,Z)-2,13-octadecadien-1-yl acetate (E,Z)-9-dodecenyl acetate (E,Z)-2,13-octadecadien-1-ol German cockroach extract (Z,Z)-11,13-hexadecadienal 3-ketopetromyzonol-24-sulfate, ammonium salt Rescalure S-methoprene (E,E)-8,10-dodecadien-1-ol + 1-dodecanol + 1-tetradecanol (Z)-9-dodecenyl acetate + (Z)-11-tetradecenyl acetate (E,Z)-11-tetradecenal (E,Z)-3,13-octadecadien-1-yl acetate (Z,Z)-3,13-octadecadien-1-yl acetate R-(-)-1-octen-3-ol (E)-11-tetradecenol acetate; trans-11-tetradecenyl acetate Muscalure (Z)-11-tetradecenal (Z)-11-tetradecen-1-ol (Z)-9-tetradecen-1-yl acetate 1-tetradecanol 1-dodecanol Codlelure Z-8-dodecen-1-ol or Z-8-dodecenol Z-8-dodecen-1-yl acetate or Z-8-dodecenyl acetate (Z)-11-tetradecenyl acetate (Z,Z)-3,13-octadecadien-1-ol (9Z,12E)-9,12-tetradecadien-1-yl acetate (E)-4-tridecenyl acetate + (Z)-4-tridecenyl acetate
Phosphates	Dichlorvos Tetrachlorvinphos Naled

Chemical group	Active ingredient name
Phosphonic Acids, Phosphinic Acids	Ethephon Glufosinate ammonium Glyphosate (present as isopropylamine or ethanolamine salt) Glyphosate (present as mono-ammonium or diammonium salt) Glyphosate (present as isopropylamine and potassium salt) Glyphosate (present as potassium salt) Glyphosate Glyphosate (present as dimethylamine salt)
Phosphoramidothioates	Acephate
Phthalic Acids	Captan Chlorthal-dimethyl Folpet N-octyl bicycloheptene dicarboximide
Pyrethroids, Pyrethrins	D-cis, trans allethrin Bifenthrin Beta-cyfluthrin Cyfluthrin Lambda-cyhalothrin Cypermethrin Cyphenothrin Deltamethrin Imiprothrin Etofenprox Fenpropathrin Flumethrin Tau-fluvalinate Tetramethrin Metofluthrin Permethrin D-phenothrin D-phenothrin 98/2 trans/cis ratio 1R-trans prallethrin Pyrethrins Tefluthrin

Chemical group	Active ingredient name
Pyridines	Afidopyropen 4-aminopyridine Bicyclopyrone Dithiopyr Flupyradifurone Florylpicoxamid Fluazaindolizine Ipflufenoquin Acetamiprid Sodium omadine Pyriproxyfen Sulfoxaflor Thiacloprid Flonicamid
Sulfonylureas	Chlorimuron-ethyl Chlorsulfuron Rimsulfuron Ethametsulfuron-methyl Flucarbazone (present as flucarbazone-sodium) Foramsulfuron Flazasulfuron Halosulfuron (present as methyl ester) Iodosulfuron-methyl-sodium Mesosulfuron-methyl Metsulfuron-methyl Tribenuron-methyl Thifensulfuron-methyl Nicosulfuron Propoxycarbazone-sodium Prosulfuron Thiencarbazone-methyl Sulfometuron methyl Triflusulfuron-methyl
Thiocarbamates	EPTC Triallate
Thiophosphates	Azamethiphos

Chemical group	Active ingredient name
Triazines, Tetrazines	Metribuzin Clofentezine Available chlorine (present as trichloro-s-triazinetrione and sodium dichloro-s-triazinetrione) Cyromazine Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine Indaziflam Prometryne plus related active triazines Available chlorine (present as sodium dichloro-s-triazinetrione)
Triazoles	Ametoctradin Cloransulam-methyl Difenoconazole Fenbuconazole Flutriafol Flumetsulam Florasulam Ipconazole Pyroxsulam Mefentrifluconazole Myclobutanil Paclobutrazol Propiconazole Prothioconazole Sulfentrazone Tebuconazole Triticonazole Tetraconazole Uniconazole-P
Urea Derivatives	Carfentrazone-ethyl Cyazofamid Diflufenzopyr Diflufenzopyr (present as sodium salt) 5,5-dimethylhydantoin 1,3-bis(hydroxymethyl)-5,5-dimethylhydantoin Diuron Linuron Hydroxymethyl-5,5-dimethylhydantoin Nicarbazin Thidiazuron

Appendix III Glossary

Active ingredient	Ingredient of a pesticide that controls the targeted pest.
Adjuvant	Any substance that is added to a spray tank (separate from the pesticide formulation) that will improve the performance of the pesticide.
Agricultural sector	Commercial pesticides applied to farms involved in the production of raw agricultural commodities, such as food, fibre, and tobacco; excluding non-crop and post-harvest applications.
Antimicrobial	A pest control product that intends to control microorganisms and fouling organisms on/in inanimate objects, industrial processes and systems, surfaces, water and air.
Biopesticide	Microbial pesticides (contain a bacterium, fungus, virus, protozoan, or alga as the active ingredient), pheromones and other semiochemical pesticides, and other non-conventional (formerly biochemical) pesticides.
Colony forming unit	A measure of viable bacterial or fungal numbers.
Commercial product	A product that is used in commercial activities, such as farming and other industrial processes.
Device	An instrument or apparatus that generates or applies a pest control product.
Domestic product	A product that is used in or around the house by the public.
End-use product	A product containing active ingredient(s) and usually formulant(s) that is labelled with instructions for direct pest control use or application.
Fungicide	Pesticides used to kill or inhibit fungi or fungal spores.
Herbicide	Pesticides used to kill or inhibit weeds.
Insecticide	Pesticides used to kill or inhibit insects.
Insect repellent	Pesticides used to repel insects.
Manufacturing concentrate	A product containing a registered technical grade of active ingredient(s) and formulant(s) intended for further reformulating and/or repackaging into end-use products.

Non-agricultural sector	Commercial pesticides that are not applied to farms involved in the production of raw agricultural commodities.
Pest control product or Pesticide	Any product, device, organism, substance or thing that is manufactured, represented, sold or used as a means for directly or indirectly controlling, preventing, destroying, mitigating, attracting or repelling any pest.
Product type	Pesticide products can be grouped by their main target pest, into herbicide, insecticide, fungicide, antimicrobial, vertebrate control and "other".
Registrant	A company that holds the registration of a pesticide with Health Canada.
Technical grade active ingredient	Contains the active ingredient and normally contains impurities that are by-products of the manufacturing process.
Vertebrate control	A product used to control vertebrates.
Water treatment	Products to control microorganisms in swimming pools and industrial process waters (for example, paper mill whitewater, wastewater systems, cooling water).
Wood preservative	Antimicrobials applied to wood to control wood-destroying organisms and increase the service life of the wood.