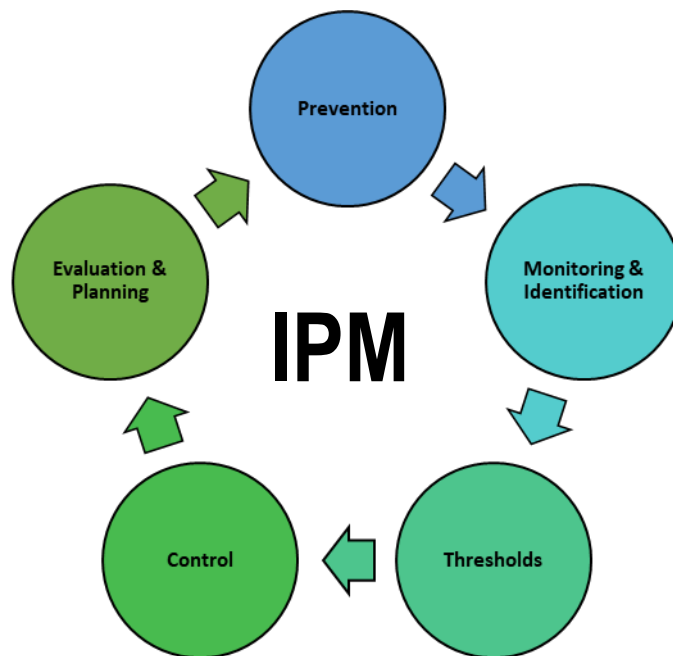


City of Calgary Pesticide Use in 2023

IPM

The City of Calgary has adopted an Integrated Pest Management (IPM) approach to pest control operations on City-owned horticultural assets and landscapes. IPM is a science-based method which uses a holistic approach to pest management decisions with an aim to protect the long-term health of citizens, ecosystems and the environment. The five key elements of an IPM approach are: prevention, identification & monitoring, thresholds, control, and evaluation & planning.



Prior to the start of any treatment, a site is evaluated to ensure the pest has been identified correctly and that it is present in an amount which warrants control action. The number of pests which must be found on a site to initiate control is called a threshold. Different sites will have varying tolerances for pest levels based on the type of site and its frequency of use, and each pest will have different considerations for control.

There are several different pest control approaches available and choosing the correct approach involves multiple considerations including: the pest and its lifecycle, the site and how it's used and the safety of its users, and the threat the pest may pose to surrounding ecosystems.

- Biological control is the use of beneficial insects or pathogens which may be used to manage unwanted weeds, insects or diseases. The City of Calgary has used biological control since 2006, and programs are in place to control leafy spurge and hound's-tongue at 125 sites citywide, with numerous other agents in the trial phase.
- Mechanical control involves the physical removal or manipulation of pests to reduce their populations. This includes mowing, hand pulling, digging out of roots or removal of seed heads. In 2023, the City mechanically controlled over 242 hectares and removed 42 metric tonnes of invasive weeds.
- Chemical control involves using pesticides to control invasive weeds and pests. Pesticides are used with careful consideration, and the goal is to choose a pesticide which will be most effective at controlling the pest while limiting their possible impacts on humans, non-target organisms and the ecosystem. The City of Calgary only uses pesticides which are approved by Health Canada and the Pest Management Regulatory Agency (PMRA). All pesticide applications are conducted under the supervision of licensed pesticide applicators.

Pesticide Legislation

The City of Calgary ensures that pesticide applications are conducted in accordance with all relevant municipal, provincial and federal regulations. Health Canada defines a pesticide as “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”.

Federal regulations: The principal body for evaluating and regulating pesticides and their toxicity in Canada is the [Pest Management Regulatory Agency](#) (PMRA), a division of Health Canada. Health Canada is responsible for defining, evaluating, categorizing, registering and regulating pesticides in Canada. Health Canada deems that reducing pesticide exposure is foundational to the safe and low-risk use of pesticides according to the label direction.

Provincial regulations: The provincial [Environmental Protection and Enhancement Act](#) and its regulations govern the sales, handling, use and application of pesticides in Alberta. These include:

- [Pesticide \(Ministerial\) Regulation](#)
- [Pesticide Sales, Handling, Use and Application Regulation](#)
- [Environmental Code of Practice for Pesticides](#)

City policy and procedures: The City's [Pest Management Policy](#) directs the City staff, contractors and other stakeholders to ensure the pest management activities comply with all applicable regulations. The City's pest management policy endorses science-based decisions and actions for pest management in an integrated manner including all options like hand pulling, mowing, the use of insects, livestock (goats), and/or pesticides. When pesticide use is warranted, the least toxic, most effective pesticide product is selected.

Pesticide Use in 2023

The table below outlines the City of Calgary's 2023 applications of regulated pesticides and herbicides on over 13,000 hectares of city owned land, including roadway medians, transit depots, LRT tracks, parks, and open green spaces. The city uses pesticides for:

Regulated Weed Management: Weeds legislated for control or eradication under the Alberta Weed Control Act

Public property and asset protection: Protecting the City's urban trees from insect and disease infection. Preventing pest damage to critical infrastructure such as storm water ponds and sports field turf

Public health and safety: Rodent control on sport fields. Controlling nuisance mosquitoes which carry diseases (West Nile Virus).

The table headings are:

- Product name: The official pesticide trade name.
- PCP#: The registration number assigned to the product under the Pest Control Products Act implemented by Health Canada.
- Active ingredient(s): The components of pesticides that control the target pest. There may be one or more active ingredients in any given product.
- Schedule: The Alberta Pesticide (Ministerial) Regulation Schedule that the product falls under. Refer to the 2022 edition of [Alberta Registered Pesticide Products](#) listing and their scheduling.
- Total product concentrate: Total amount of product used in its concentrated form, as sold in product containers; most of the products need dilution in water prior to application to make a less concentrated solution.
- Total active ingredient: Total amount of active ingredient applied in proportion to its product concentration.
- Total application area: Total area in hectares (or alternative unit of measurement) the product was applied to.
- Active ingredients use intensity: The total amount of active ingredient applied in kg per total application area (or alternate unit).
- Reason for use: Asset types and/or target pests that the product is used for. All permitted uses may be viewed on the product labels. Government approved labels can be accessed on [Health Canada-Search Product Label](#) webpage.

Product name	PCP #	Active ingredient(s)	Schedule*	Total product concentrate in L (or alternate unit)	Total active ingredient in kg (or alternate unit)	Total application area in Ha (or alternate unit)	Active ingredient use intensity (kg/Ha or alternate unit)	Reason for use (example target pests and assets)
HERBICIDES: Controls weeds/plants								
2,4-D Amine 600 Liquid Herbicide	14726/5931	2,4-D (present as dimethylamine salt) 564 g a.e./L	2	1229.01 L	693.2 kg	520.4 Ha	1.3 kg/ha	To control legislated & invasive weed species in Parks shrub beds, on LRT lines, along roads side ditches and hard surfaces. To protect assets and comply with Alberta weeds control act.
ClearView Herbicide	29752	Aminopyralid 52.50% Metsulfuron – methyl 9.45%	2	0.5 L	0.3 L	23.7 Ha	0.01 kg/ha	To control prohibited noxious weed (purple loosestrife) on crown land along the Bow River
Garlon™ RTU Herbicide	29334	Triclopyr 144 g acid equivalent/L (present as butoxyethyl ester)	2	507.4 L	73.1 kg	16.3 Ha+2864 trees	No data	To control common buckthorn (prohibited noxious), cotoneaster and caragana (invasive woody shrubs) in natural areas.
GF-871 Liquid Herbicide	28137	Aminopyralid, present as triisopropanolamine salt 240 g/L	2	4.2 L	1.0 Kg	65.5 Ha	0.02 kg/ha	For controlling broadleaf & invasive weeds on roadside naturalization project and in solar park, bus depots, NW LRT leg & clean the urban forestry canopy expansion site from weeds
Habitat Aqua Herbicide Solution	32374	Imazapyr, present as the isopropylamine salt -240 g/L	2	4.5 L	1.1 kg	0.7 Ha	1.5 kg/ha	To control prohibited noxious weed species; flowering rush in Shephard Wetlands, Calgary Zoo and University Research Pond
Lontrel 360 Liquid Herbicide	23545	Clopyralid (present as the monoethanolamine salt) 360g/L	2	52.1 L	18.7 kg	143.2 Ha	0.1 kg/ha	To control Canada thistle, common tansy (noxious); and other legislated species along the boulevards; noxious weeds in natural areas and Calgary Zoo
Lontrel XC Liquid Herbicide	32795	Clopyralid (present as the dimethylamine salt) 600g/L	2	0.1 L	0.04 kg	0.12 Ha	0.3 kg/ha	To control Canada thistle, common tansy (noxious); and other legislated species along the boulevards; noxious weeds in natural areas and Calgary Zoo
Par III Liquid Herbicide	27884	2,4-D 190 g a.e /L, Mecoprop P 100 g a.e /L, Dicamba 18 g a.e /L (All present as dimethylamine salt))	2	144.6 L	44.5 kg	28.3 Ha	1.6 kg/ha	For controlling broadleaf weeds in maintained turf; parks and roads medians
Roundup Liquid Herbicide	27487/33653	Glyphosate (present as potassium salt) 540 g acid equivalent/L	2	2.6 L	1.3 Kg	2.2 Ha	0.6 kg/ha	Non-selective weed control for annual and perennial grasses, broadleaf weeds, and woody brush and trees; turf grass renovation in City golf courses

Product name	PCP #	Active ingredient(s)	Schedule*	Total product concentrate in L (or alternate unit)	Total active ingredient in kg (or alternate unit)	Total application area in Ha (or alternate unit)	Active ingredient use intensity (kg/Ha or alternate unit)	Reason for use (example target pests and assets)
StartUp Herbicide	29498	Glyphosate (present as potassium salt) 540 g/L acid equivalent/L	2	237.9 L	128.5 kg	121.3 Ha	1.1 kg/ha	Non-selective weed control for annual and perennial grasses, broadleaf weeds, and woody brush and trees; turf grass renovation in golf courses, and hard surfaces
Nufarm Trillion Turf Herbicide	27972	2,4-D 190 g a.e./L, Mecoprop-P 100 g a.e./L, Dicamba 18 g a.e./L (All present as dimethylamine salt)	2	1648.3 L	507.7 kg	283.7 Ha	1.8 kg/ha	For controlling broadleaf weeds in maintained turf in parks, roadsides, and other green areas
VisionMAX Herbicide	27736	Glyphosate (present as potassium salt) 540 g/L acid equivalent/L	2	400.2 L	216.1 kg	232.3 Ha	0.9 kg/ha	Non-selective weed control for annual and perennial grasses, broadleaf weeds, and woody brush and trees; turf grass renovation and vegetation control on hard surfaces
VP 480 Herbicide	28840	Glyphosate (present as dimethylamine salt) 480 g/L	2	198.0 L	95.1 kg	103.1 Ha	0.9 kg/ha	Used for all vegetation control on hard surfaces in depots, LRT lines, fire stations etc, along rights-of-ways; and to control legislated weeds in natural areas
INSECTICIDES: Control insect pests								
Doktor Doom Wasp & Hornet Nest Annihilator	30777	Tetramethrin 0.200% d-phenothrin (Sumithrin™) 0.125%	4	8.6 kg	0.03 kg	11 Nests	No data	To control wasps and yellow jackets in parks and public areas
Dragnet FT Emulsifiable Concentrate Insecticide	24175	Permethrin 384 g/L (55% Maximum <i>cis</i> ; 45% Minimum <i>trans</i>)	2	0.15 L	0.05 kg	5 nests/holes	No data	For control of ants and wasps in parks and tree insect pests
Ortho Slug- B – Gone (Slug and snail bait)	28375	Iron (present as ferric phosphate) 0.28%	4	0.1 kg	0.0003 kg	0.002 Ha	0.14 kg/ha	To control snail and slug infestation in Devonian Gardens
SAFER'S Insecticidal Soap Concentrate	14669	Potassium salts of fatty acids 50.50%	3	1.5 L	0.8 L	Spot spray	No data	To control mealybugs, spider mites, aphids and scale insect infestations in interior plants and ground cover in Devonian Gardens and Calgary Zoo trees
SAFER'S TROUNCE Insecticide Concentrate	24363	Potassium salts of fatty acids 20.0%, Pyrethrins 0.2%	3	27.2 L	5.5 L	Spot spray	No data	To control insects on shrubs, landscape trees, greenhouse, and interior plantations
TreeAzin® Systemic Insecticide	30559	Azadirachtin 5%	2	181.8 L	9.1 L	2537 trees	4.2 ml/tree	To protect elm trees from scale insects along City streets using the trunk injection method

Product name	PCP #	Active ingredient(s)	Schedule*	Total product concentrate in L (or alternate unit)	Total active ingredient in kg (or alternate unit)	Total application area in Ha (or alternate unit)	Active ingredient use intensity (kg/Ha or alternate unit)	Reason for use (example target pests and assets)
Vegol Crop Oil EC Insecticide	32408	CANOLA OIL 96%	2	0.12 L	0.1 L	Spot spray	No data	A greener insecticide for control of insect pests in Devonian Gardens
RODENTICIDES: Control rodents								
The Giant Destroyer	12269	Sulfur 34.8%	4	77.5 kg	26.9 kg	1366 holes	19.7 g/hole	Richardson's ground squirrel and gophers control in cemeteries, roads sides, and high-use sport fields
Rocon Rodenticide	27400	White Mustard Seed Powder 10.89%, Sodium Alpha-olefin sulfonate sodium 6.91%	2	1164.44 L	209.6 L	5354 holes	39 ml/hole	Poison free product to control Richardson ground squirrel in parks, cemeteries, & roadsides with non-toxic ingredients
Rozol RTU-Granular Bait	29545	Chlorophacinone 0.005 %	2	273.6 kg	0.014 kg	9054 holes/bait stations	0.8 mg/hole or bait station	Richardson's ground squirrel and gophers control in cemeteries, trees nursery, landfills and other fenced areas as well as non- residential roadways
‡FUNGICIDES: for control and protection against fungal diseases in turf								
DACONIL 2787® FLOWABLE FUNGICIDE	15724	Chlorothalonil (tetrachloroisophthalonitrile) 40.4%	2	32 L	12.9 L	1.3 Ha	9.7 L/ha	Contact preventative turf spray in golf courses against Sclerotinia dollar spot, Helminthosporium leafspot, and Rhizoctonia brown patch
DEDICATE STRESSGARD	33236	Tebuconazole-190 g/L, Trifloxystrobin-48 g/L	2	20 L	4.8 kg	3.3 Ha	1.4 kg/ha	Control of turf diseases in Golf courses; Sclerotinia dollar spot, leafspot, and Rhizoctonia brown patch etc.
DISARM™ TURF FUNGICIDE SUSPENSION	31857	Fluoxastrobin: 480 g/L	2	3.5 L	1.7 kg	3.1 Ha	0.5 kg/ha	Preventative spray against anthracnose – foliar blight, basal rot, summer patch and dollar spot diseases.
HONOR™ Fungicide	32329	Pyraclostrobin 16.8%, Boscalid 11.2%	2	2.8 kg	0.8 kg	0.9 Ha	0.9 kg/ha	Broad spectrum fungicide for disease (anthracnose, brown patch, dollar spot, fusarium patch etc.) control on golf course turf
INSIGNIA SC FUNGICIDE	32247	Pyraclostrobin 250 g/L	2	6.1 L	1.5 kg	3.04 Ha	0.5 kg/ha	Broad spectrum fungicide for disease control on golf course turf
INSTRATA® Fungicide	28861	Chlorothalonil 362 g/L, Propiconazole 57 g/L, Fludioxonil 14.5 g/L	2	120.7 L	52.3 kg	4.0 Ha	13 kg/ha	For control of gray snow mould, and pink snow mould disease on golf courses turf
INSTRATA® II A Fungicide	32712	Fludioxonil 125 g/L	2	14.6 L	1.8 kg	2.4 Ha	0.74 kg/ha	For control of pink snow mould in turf

Product name	PCP #	Active ingredient(s)	Schedule*	Total product concentrate in L (or alternate unit)	Total active ingredient in kg (or alternate unit)	Total application area in Ha (or alternate unit)	Active ingredient use intensity (kg/Ha or alternate unit)	Reason for use (example target pests and assets)
INSTRATA® II B Fungicide	32711	Benzovindiflupyr 100 g/L	2	1.8 L	0.2 kg	2.4 Ha	0.07 kg/ha	For control of snow mould in turf
MEDALLION® Fungicide	31528	Fludioxonil 125 g/L	2	30.3 L	3.8 kg	5.0 Ha	0.75 kg/ha	For control of fungal diseases (brown patch, leaf spot, anthracnose) in turf on golf courses
PENDANT 50 WDG Fungicide	32728	Fludioxonil 50 %	2	6.0 kg	3.0 kg	4.04 Ha	0.7 kg/ha	For control of brown patch and snow moulds in turfgrass
PHOSTROL PRO	33899	Mono- & dibasic Na, K, and ammonium phosphites-53.6%	2	10 L	5.3 L	0.6 Ha	9.3 L/ha	For the suppression of Pythium blight, anthracnose and Microdochium patch on turf
PREMIS 200 F	28387	Triticonazole 200 g/L	2	9.6 L	1.9 kg	3.04 Ha	0.6 kg/ha	For the control/ suppression of anthracnose, dollar spot, gray snow mold, pink snow mold, fusarium patch, red thread, rust and algae on established golf course turf
SECURE® Fungicide Suspension	32991	Fluazinam 40.0%	2	3.9 L	1.9 kg	2.5 Ha	0.80 kg/ha	For control of fungal diseases including dollar spot, anthracnose, Microdochium patch and brown patch in turf
SEGWAY® 400SC FUNGICIDE	32642	Cyazofamid 34.5 %	2	9.1 L	3.1 L	3.7 Ha	0.84 L/ha	For control of pythium diseases affecting turf in golf courses
TOURNEY FUNGICIDE	30928	Metconazole 50.0%	2	4.5 kg	2.3 kg	4.0 Ha	0.6 kg/ha	For control of anthracnose, dollar spot, brown patch, fairy ring, & pink snow mould, etc. diseases on golf course turf

‡Used only by City golf courses

*Of the 38 pesticide products that The City used in 2023: 87% are Schedule 2; 5% are Schedule 3, 8% are Schedule 4 and none from the restricted class that is Schedule 1.