

---

# Summary of comments received on the framework for pesticide water monitoring programs in Canada



**Health Canada is the federal department responsible for helping the people of Canada maintain and improve their health.** Health Canada is committed to improving the lives of all of Canada's people and to making this country's population among the healthiest in the world as measured by longevity, lifestyle and effective use of the public health care system.

Également disponible en français sous le titre :

Résumé des commentaires reçus sur le cadre de travail pour les programmes de surveillance des pesticides dans l'eau au Canada

Information contained in this publication or product may be reproduced, in whole or in part, and by any means, for personal or public non-commercial purposes without charge or further permission, unless otherwise specified. Commercial reproduction and distribution are prohibited except with written permission from Health Canada. To obtain permission to reproduce any content owned by the Government of Canada available on this site for commercial purposes, please contact [pubsadmin@hc-sc.gc.ca](mailto:pubsadmin@hc-sc.gc.ca).

To obtain additional information, please contact:

Health Canada  
Address Locator 0900C2  
Ottawa, ON K1A 0K9  
Tel.: 613-957-2991  
Toll free: 1-866-225-0709  
Fax: 613-941-5366  
TTY: 1-800-465-7735  
E-mail: [publications-publications@hc-sc.gc.ca](mailto:publications-publications@hc-sc.gc.ca)

© His Majesty the King in Right of Canada, as represented by the Minister of Health, 2025

Publication date: June 2025

Cat.: H114-52/2025E-PDF ISBN: 978-0-660-76316-3 Pub.: 240964

Introduction.....	4
Summary .....	5
Framework feedback.....	6
Reference values .....	6
Collaboration .....	7
Data .....	9
Transparency .....	10
Modernized business processes .....	11
Global biodiversity .....	12
Sampling .....	13
Priority pesticides and transformation products .....	15
Risk assessments .....	20
Feedback on the Canadian Water Monitoring Program for Pesticides (CWMPP).....	23
Implementing the Canadian Water Monitoring Program for Pesticides .....	24
Pesticide use data .....	27
Collaboration .....	28
Reporting.....	30
Relationship building .....	32
Water monitoring program goals .....	33
Site selection .....	34

## Introduction

Health Canada's Pest Management Regulatory Agency (PMRA) makes timely, science-based decisions to support the safe and sustainable use of effective pesticide products in Canada. This involves further strengthening safety oversight and the protection of human health and the environment. The PMRA is committed on improving the availability of independent data to support pesticide registration decisions and increasing transparency in decision-making. These actions can be supported by generating real-world data via an enhanced water monitoring program for pesticides across the country.

The PMRA developed a *Framework for Pesticide Water Monitoring Programs in Canada* to provide guidance and recommendations for designing effective pesticide monitoring programs in Canada. Through following this framework it is expected that programs will generate data that are relevant and reliable for pesticide regulatory decision-making.

The draft framework was developed with input from several engagement and consultation events with partners and stakeholders who were members of the Water Monitoring Technical Working Group. The PMRA is thankful for the collaboration, feedback and interest received in this important initiative.

On March 22, 2024, the PMRA published a proposed *Framework for Pesticide Water Monitoring Programs in Canada* and initiated a 30-calendar-day consultation. This consultation aimed to gather valuable insight from the public. This transparent, open and inclusive approach aligns with the PMRA's commitment to provide access to information, meaningful public understanding and transparent decision-making. The proposed framework reflected information gathered during numerous consultation events with partners and stakeholders.

A total of 20 responses were received from growers (9), industry (1), non-governmental organizations (4), provincial government (2) and the general public (4).

The following sections contain the comments received during the public consultation as well as the PMRA's responses. The comments are grouped according to the topics discussed. Comments that went beyond the scope of the PMRA's Canadian Water Monitoring Program for Pesticides (CWMPP) and the proposed framework are not included in this document.

## Summary

The majority of comments received supported the PMRA's proposed framework. Many recognized the extensive collaboration and engagement that went into developing the draft framework and encouraged continued collaboration with partners and stakeholders. Water Monitoring Technical Working Group members acknowledged adjustments that were made to the proposed framework following feedback received from the working group.

The importance of launching a CWMPP along with long-term ongoing funding was acknowledged as it signifies:

- progress toward enhancing risk assessment methodologies
- validating mitigation strategies and
- bolstering public confidence in the PMRA's scientific integrity

The implementation of a water monitoring program following this framework will generate valuable data for pesticide regulatory decisions.

While generally supportive of this initiative, some respondents shared concerns about the framework and PMRA's water monitoring initiatives (2-year pilot program and development of a long-term program), noting confusion around the program goals and expectations of the framework. The framework is not a description of the PMRA's program. The CWMPP is led by the PMRA and will follow the framework guidance and align with the Agency's objectives. The PMRA has always considered available water monitoring data in its regulatory decision making from various sources (e.g., provincial sampling programs, other

government departments, industry-generated data, and open literature). These data were often not relevant or reliable for regulatory decisions. Under the CWMPP, the Agency will collaborate closely with sampling partners to obtain more robust and reliable data which will be considered along with data and information from other programs.

## Framework feedback

This section includes all feedback received on the content of the framework and the PMRA's responses.

## Reference values

**Comment:** A few respondents from the general public raised concerns about the use of acute lethality test data to establish aquatic life and human health reference values. They advocated that animal laboratory testing should cease.

**PMRA's response:** The ALRVs and HHRVs rely exclusively on existing test data mandated under the PCPA. These studies are conducted according to international test guidelines, which include requirements to protect the welfare of laboratory animals. The PMRA is committed to applying the international principles for the judicious use of animals in toxicity testing and alternative methods to animal testing are considered where available.

Consult the following to learn more

- [Aquatic Life Reference Values \(ALRVs\) - Canada.ca](#)
- [Pesticides in drinking water sources: Human health reference values - Canada.ca](#)
- [Canadian Regulatory Perspective on Next Generation Risk Assessments for Pest Control Products and Industrial Chemicals - PMC](#)

[CCAC - Canadian Council on Animal Care: Three Rs](#)

**Comment:** A grower group recommended establishing effects thresholds that take into account the climate across Canada.

**PMRA's response:** The PMRA follows a science-based approach to establishing effects metrics that is accepted and used by other international regulatory bodies (for example, the United States Environmental Protection Agency). The ALRVs are based on these effects metrics, which do not consider climatic or regional differences. However, climate is considered when assessing exposure.

**Comment:** A respondent from a provincial government mentioned that access to the PMRA's ALRVs and HHRVs is helpful for interpreting pesticide concentrations and encouraged the PMRA to continue to share these reference values.

**PMRA's response:** The PMRA will continue to update these values and publish them online.

**Comment:** A grower group suggested that when provincial water monitoring data are integrated into a Canadian evaluation, the frequency of exceedances should be determined using the same thresholds for all samples to ensure that comparisons across provinces can be made.

**PMRA's response:** The PMRA integrates data from all provinces when conducting risk assessments. Concentrations detected across Canada are compared to a consistent reference value to facilitate comparisons across provinces.

## Collaboration

**Comment:** A non-governmental organization emphasized that collaboration with Indigenous communities would broaden the scope of monitoring activities and result in a more comprehensive dataset.

**PMRA's response:** The PMRA agrees. The framework includes a section on collaborating with Indigenous partners and the PMRA is currently working with Indigenous communities under the Canadian water monitoring program for pesticides.

**Comment:** Conflicting points of view were received related to citizen science (participatory science).

- Non-governmental organizations emphasized that collaboration with citizen science initiatives would broaden the scope of monitoring activities and result in a more comprehensive dataset. They were disappointed that the framework did not have a stronger emphasis on encouraging the use of citizen scientists in monitoring programs for pesticides.
- On the other hand, growers expressed that the framework should not support the use of citizen science and water monitoring should be conducted by trained professionals.

**PMRA's response:** Differences of opinions related to citizen science were also expressed during the water monitoring technical workshops that were held with a broad group of stakeholders. While the draft framework was silent on citizen science, it was not intended to suggest citizen science should not be considered for pesticide monitoring programs. Program managers using this framework can decide on the role of citizen science within their programs. This clarification has been added to the framework. Citizen science is considered by the PMRA as a viable option for water monitoring programs. The PMRA included a citizen science component within the pilot program and plans to continue under the CWMPP.

**Comment:** Growers welcomed the commitment to ensuring landowner consent was received prior to conducting water monitoring activities on private agricultural lands. It was suggested that the framework could be adjusted to provide a detailed outline of the process of forming and sustaining partnerships with farmers.

Growers also emphasized the importance of transparency with stakeholders. They suggested clearly listing the data to be generated and the intended uses, including

regulatory implications. According to them, this will foster trust and strengthen relationships with landowners and local communities.

**PMRA's response:** When access to private land is required in a water monitoring program, samplers must obtain permission from landowners before collecting samples. The framework has been updated to enhance the section on access to private lands.

The PMRA agrees that transparency and communication with growers and landowners is important to foster trust and strengthen relationships. The framework clearly stipulates that it is advisable for any water monitoring program that is sampling on private land to clearly identify the data that will be generated and how they will be used.

## Data

**Comment:** A non-governmental organization indicated that measures should be added to the framework to ensure the reliability and accuracy of the collected data. They recommended setting clear and standardized criteria for data validation, including protocols for data collection, quality assurance (QA) and validation.

**PMRA's response:** For all sampling methods, following established standard operating procedures (SOPs) and implementing QA and quality control (QC) methods will ensure sample and data integrity are maintained. A reference to the document *Design, Analysis, and Interpretation of Field Quality-Control Data for Water-Sampling Projects* published by the United States Geological Survey has been added to the framework. Some of the components covered include, health and safety documentation and protocols, as well as QC procedures in the field (sample collection and submission) and laboratory (holding-time, storage temperature and preservatives required).

For more information, consult [USGS Techniques and Methods 4–C4: Design, Analysis, and Interpretation of Field Quality- Control Data for Water-Sampling Projects.](#)

**Comments:** A growers' association and a non-governmental organization acknowledged that ancillary data are discussed in the framework. However, they recommended strengthening the language in the framework to emphasize the need for standardized, consistent and accurate data collected with sound experimental principles.

**PMRA's response:** The PMRA agrees additional parameters will strengthen the water monitoring data collected. The framework specifies a list of basic information that could be considered as the standard set of ancillary data to be collected. As for other types of data, consulting with local partners and stakeholders is important to understand the relevance and feasibility. Discussion with sampling partners is required to generate a more specific list of ancillary data for each site.

**Comment:** A non-governmental organization indicated that the framework lacks any explanation of how uncertainties will be addressed when ancillary data cannot be acquired.

**PMRA's response:** Obtaining ancillary data at each sampling site aids with data interpretation. However, it depends on partners' capacity to collect and provide such data, including the availability of field equipment, expertise, and staff time for data collection and validation. In certain cases, there are workarounds, such as using calculated values or data sets that can be used as a substitution. This has been added to the framework.

## Transparency

**Comment:** Concerns were expressed regarding privacy. Growers indicated that care should be taken to protect the privacy of farmers if sampling is done on or close to their farms. The exact locations of sampling points, on or close to a farm, should be masked.

**PMRA's response:** The PMRA respects the protection of privacy and encourages all pesticide monitoring programs to do the same. When sharing sampling locations publicly that are on private lands, the PMRA recommends masking the locations by using bounding boxes. A bounding box is a rectangular coordinate system used to define a

geographic area on maps. The bounding box is defined by two sets of coordinates (latitude and longitude) that mark the northwest and southeast corners of the rectangle around the site. To protect privacy, the precise site location is randomly located within the area defined by the bounding box.

Regulatory decisions made by the PMRA may require the exact location (GIS coordinate) and therefore may request the exact location from sampling programs. This information will be protected during the review process to ensure privacy of landowners.

**Comment:** A group of growers asked for clarification concerning how the PMRA will use exceedances of reference values to make regulatory decisions. They asked specifically about situations where a pesticide exceeds a reference value in one province or some provinces, but not in others (based on the water monitoring program in place). They want to know if the PMRA would abandon the use of the pesticide only in the provinces with exceedances and continue to authorize its use in the non-problematic provinces.

**PMRA's response:** As the water monitoring data is available to everyone, it may be used to inform regulatory decisions for all levels of government. This includes federal departments, as well as provinces, territories and municipalities. Canada is a large country with different crops, climates and ecosystems. Having a Canadian water monitoring program that collects monitoring information from all agricultural regions of Canada will better inform regulatory risk management decisions.

## Modernized business processes

For more information on the PMRA's modernized business processes, please consult the following resources:

- [Protecting human health and the environment: Transforming the Pest Management Regulatory Agency - Canada.ca](https://www.canada.ca/en/health-science-and-safety/2019/06/protecting-human-health-and-the-environment-transforming-the-pest-management-regulatory-agency-canada.ca)

**Comments:** Grower groups recommended that further details be added to the framework to describe the relationship and interaction of the proposed policies on continuous oversight and proportional effort and water monitoring within the framework. Growers were also interested in learning whether water monitoring data could expedite product approvals.

**PMRA's response:** Water monitoring data are relevant for regulatory activities for currently registered pesticides (for example; use expansions, special review and re-evaluation). These data will be considered throughout the life-cycle of a pesticide to determine when additional regulatory action may be required. In addition, continuous oversight will provide surveillance of new scientific information on pesticides. Information obtained through continuous oversight will inform proportional effort to ensure that the risk designation for the pesticide remains appropriate throughout its life cycle. Water monitoring data are not anticipated to expedite or speed-up the registration process but rather reduce the un-necessary level of conservatism. Additional information on this has been added to the framework.

## Global biodiversity

Learn more:

- [Kunming-Montreal Global Biodiversity Framework](#)
- [Canada's 2030 Nature Strategy: Halting and Reversing Biodiversity Loss in Canada - Canada.ca](#)

**Comments:** A grower group suggested strengthening the linkage in the framework between water monitoring programs and Canada's National Biodiversity Strategy and Action Plan. They suggested water monitoring programs should consider the potential need for additional sampling efforts in specific areas of concern related to biodiversity.

**PMRA's response:** The PMRA is actively engaged on how Canada will monitor changes in risk of pesticides to biodiversity and recognizes the link between water monitoring and

the National Biodiversity Strategy and Action Plan. It is anticipated that data collected by programs following this framework could be used to inform the necessary pesticide reporting requirement for the Kunming-Montreal Global Biodiversity Framework. As reporting requirements for the Global Biodiversity Framework become better understood, programs could make adjustments to gather information required. With that, it should be remembered that the goal of this framework is to ensure water monitoring data for pesticides collected will be reliable and relevant for pesticide regulatory decisions.

## Sampling

**Comment:** Growers and non-governmental organizations mentioned that adequate sampling protocols, based on scientific knowledge and best practices, should be considered while developing a framework.

**PMRA's response:** As stated in the framework, following established Standard Operating Procedures (SOPs) and Quality Assurance (QA) and Quality Control (QC) measures will help maintain sample and data integrity as well as consistency across programs. As SOPs and protocols are developed, sharing among partners and with the public can improve transparency, foster collaboration and enhance consistency among sampling programs.

**Comment:** Growers outlined that biosecurity measures should be strictly adhered to. Samplers should communicate with farmers and ranchers and their respective commodity groups to understand mandatory biosecurity practices.

**PMRA's response:** The PMRA agrees that biosecurity measures need to be strictly followed. When samples are collected from publicly accessible locations, these biosecurity measures are typically not required. A section has been added to the framework.

**Comment:** A non-governmental organization suggested that the framework states that hourly sampling should be considered an appropriate sampling frequency for risk assessment purposes. It is their position that when sampling is not supported by use information, samples collected at a frequency less than hourly will not provide accurate

information for risk assessment. Additionally, they stated that less frequent sampling will not address variations in hydrological flows during the day, and therefore, will not capture daily peaks or daily average flows and concentrations. They also mentioned that the PMRA should address chronic exposures in the environment by assessing concentrations over time.

**PMRA's response:** The PMRA agrees that more frequent sampling can help confirm peak concentrations. However, collecting samples every hour might not be necessary nor feasible. The PMRA's pilot program sought to achieve twice-weekly sampling as a compromise between the relatively low (typically monthly) sampling frequency of most water monitoring programs and extremely high frequency of daily sampling. Collecting samples twice per week at all locations was unachievable during the pilot program because of limitations such as partners' capacity (limited human resources), access to sites or budget constraints. In certain cases, the PMRA worked with several partners to collect samples from the same site to achieve the twice-weekly sampling frequency.

Regulatory decisions require knowledge of both acute (short-term) and chronic (long-term) exposure. High frequency sampling (twice per week, as suggested in the framework) permits the characterization and assessment of potential chronic versus acute risks. While collecting and analyzing the data, the PMRA will be able to differentiate both types of exposure (chronic or acute) and take the required actions (for example, launching a special review).

**Comment:** A non-governmental organization noted that the framework assumes that peak concentrations occur during periods of pesticide use. They suggested that it is not known if peak concentrations coincide with pesticide application times as movement to water depends on the fate properties of the pesticide. There may be other times when peak concentrations for pesticides may occur, such as during rain events and spring runoff.

**PMRA's response:** The PMRA agrees that the movement of pesticides to water depends on the fate properties of the pesticides along with the weather patterns in the area. In the

framework, the pesticide use window is referring to the months that pesticides are typically applied in Canada (April – September) to capture spring runoff and water movement throughout this period. Historical data suggests that peak concentrations are typically detected during these time frames. With the knowledge that pesticides can be detected in water outside this window, the framework indicates that various factors can be considered when establishing a sampling program. Water monitoring programs are encouraged to adjust their sampling programs to capture runoff events.

**Comment:** A non-governmental organization stated that daily or weekly grab sampling in locations where pesticides may not be used or may not be transported to waterways cannot obtain useful information.

**PMRA's response:** The PMRA agrees with this comment. One of the key goals of the framework is to ensure that the data collected in water monitoring programs is relevant and reliable for consideration in pesticide risk assessments. The framework provides guidance on a scientific process to consider geospatial information to help guide programs in selecting sites with a high risk of pesticide movement to water. By considering this guidance, sites selected will be located in areas where pesticides may be used and may be transported to waterways. As described in the framework, high frequency sampling in these areas permits the characterization and assessment of chronic versus acute risks.

## Priority pesticides and transformation products

**Comment:** One respondent from the pesticide industry and 2 respondents from non-governmental organizations commented on the pesticide prioritization tool outlined in the framework. They asked if the parameters are weighted equally or are listed in order of significance with registration status being considered the most important and sales data the least important.

It was suggested that the factors for developing priorities are inadequate and seem to focus on applying a ranking tool to set priorities for pesticide monitoring programs. They expressed that a stronger approach would be to include stakeholders, particularly communities and other vulnerable groups that could add their perspectives, in the decision-making process.

In addition, a non-governmental organization indicated that a list of pesticides that the government sees as priorities has not been included in the framework. An industry respondent requested that the priority list be provided with enough time to consider new actives and develop analytical methods.

**PMRA's response:** In the draft framework, the PMRA presented a ranking tool that could be used by monitoring programs to prioritize pesticides using currently available data. The details about the tool have been removed from the final framework as the tool was not used by the PMRA to establish the pesticides to analyze in its own program, the CWMPP. The PMRA provides regulatory oversight of pesticides that are currently registered and used in Canada. Therefore, monitoring current-use pesticides should be a key consideration to provide data needed for PMRA's risk assessments.

For the CWMPP, the PMRA generated a list of all pesticides currently registered for outdoor use in Canada. These pesticides were identified as having the potential to reach water and therefore, are relevant for water monitoring. This list was provided to the Health Canada laboratory who developed a method that includes approximately 200 pesticides (multi-residue method). This analytical method is revisited annually to incorporate newly registered pesticides and transformation products for outdoor use, as feasible. To increase laboratory capacity, additional laboratories have been used. The PMRA worked with these labs to ensure many of the same pesticides are analyzed across all locations. In addition, when there is a particular pesticide of interest (for instance, glyphosate) that is not compatible with the multi-residue method, the PMRA worked with other labs for this analysis.

To assist other programs with method development, the analyte list (across all laboratories) that the PMRA is currently using is available on the Open Data portal. The full list of currently registered or recently discontinued pesticides in Canada that could reach water is available on Health Canada's ALRVs web page. As new pesticides with outdoor uses are registered in Canada, they are added to the ALRV database and considered for analysis in the CWMPP.

The PMRA decided not to provide a list of priority pesticides for water monitoring in the framework because it could change annually. The PMRA will consider the best way to communicate priority pesticides to water monitoring program coordinators for consideration.

To access data, consult [National Water Monitoring Program for Pesticides \(NWMPP\) Data - Open Government Portal](#).

For the full list of currently registered or recently discontinued pesticides, consult [Aquatic Life Reference Values \(ALRVs\) - Canada.ca](#).

**Comment:** The framework mentions that outdoor pesticide uses are included in the ranking tool. An industry representative requested clarification about whether greenhouse products were considered.

**PMRA's response:** Currently the analytical method only considers pesticides with uses that may result in the pesticide entering a water body. Products with greenhouse uses have the following label statement: "Do not allow releases, effluent or runoff from greenhouses containing this product to enter lakes, streams, ponds or other waters." As pesticide users need to follow the directives on the label, pesticides used within a greenhouse should not move to waterways from proper use. Any use in contravention of the label or other specified conditions is illegal under the *Pest Control Products Act*. When establishing our analytical method, the PMRA did not consider pesticides that are

exclusively registered for use in greenhouses. Pesticides that are used both in a greenhouse and outdoors were considered for the multi-residue method.

**Comment:** Respondents from industry and a non-governmental organization indicated that specific formulants and contaminants in pesticides (namely, per- and poly-fluoroalkyl substances [PFAS] or dioxins) should be considered in monitoring programs. They noted that these products are omitted from the framework without explanation despite growing evidence that these also play a critical role in pesticide risks.

**PMRA's response:** PFAS originates from multiple potential sources including pesticides and other non-pesticide related sources (e.g., industry, biosolids). A small number of pesticides can contribute to PFAS in the environment when used. Some pesticides contain PFAS as formulants or have PFAS as a contaminant that is formed during the production process. In addition, some active ingredients in pesticides have chemical structures that fall under the PFAS definition.

The PMRA follows the Organization for Economic Co-operation and Development (OECD) 2021 definition for PFAS:

fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it), that is with a few noted exceptions, any chemical with at least a perfluorinated methyl group (–CF<sub>3</sub>) or a perfluorinated methylene group (–CF<sub>2</sub>–) is a PFAS.

Pesticides were chosen for analysis in the PMRA's water monitoring program because they are registered for use in Canada and have the potential to move from the site of application to Canadian waterways. The following pesticides fit the OECD definition of PFAS based on their structure and were compatible with the analytical method for the Canadian Water Monitoring Program for Pesticides:

- Acifluorfen
- Bicyclopyrone
- Broflanilide
- Dithiopyr
- Ethalfuralin
- Flazasulfuron
- Flonicamid
- Fluazaindolizine
- Fluazifop-P-butyl

- Fluazinam
- Fluensulfone
- Flufenacet
- Fluopicolide
- Fluopyram
- Isoxaflutole
- Mefentrifluconazole
- Oxathiapiprolin
- Oxyfluorfen
- Penthiopyrad
- Picolinafen
- Picoxystrobin
- Pyrasulfotole
- Pyroxasulfone
- Pyroxsulam
- Saflufenacil
- Sulfoxaflor
- Tetranilprole
- Tiafenacil
- Trifloxystrobin
- Trifluralin

There are certain formulants in a limited number of pesticide products that are also identified as PFAS. These formulants are found only in products from which significant environmental releases are not expected to occur. Formulants are not analyzed for in the pesticide water monitoring program as many of these chemicals have many other industrial uses that can result in their presence in the environment. As such, these chemicals (including PFAS formulants) in water may not directly link to pesticide use. Given that the goal of the pesticide monitoring program is to ensure data is available for regulatory decision making, the PMRA did not include chemicals with multiple potential sources and a high likelihood of background presence in the pesticide water monitoring. Environment and Climate Change Canada monitors and manages some of these products under the *Canadian Environmental Protection Act, 1999*.

**Comment:** According to an industry respondent, monitoring programs should focus on relevant transformation products (TPs), which have at least some ecotoxicological properties comparable with the parent active ingredient.

**PMRA's response:** The PMRA agrees that analyses need to focus on the relevant TPs for a specific active ingredient. TP data can also enable risk assessments of chemical mixtures including transformation products.

**Comment:** A non-governmental organization added that a list of TPs that the government sees as priorities has not been included in the framework. They felt the lack of a specific commitment to consider TPs for monitoring is problematic. This concern is further complicated by the discussion of the potential cost to monitor these products and the uncertainty of methods to identify them.

**PMRA's response:** The PMRA is committed to analyzing TPs as demonstrated by the 9 TPs analyzed during the pilot program. Few analytical methods exist for transformation products, and it can be cost-prohibitive to include all transformation products in a monitoring program. As such, it would be important to prioritize the addition of transformation products to ensure a balance between cost and risk assessment needs.

## Risk assessments

For more information, consult [Framework for risk assessment and risk management of pest control products: PMRA guidance document - Canada.ca](#).

**Comment:** Growers felt that the rationale for selecting certain endpoints or how real-world water monitoring data have been used or not used has not always been clear. A respondent from a non-governmental organization added that there is a need for more transparency about the criteria used to consider monitoring data in the risk assessment context.

**PMRA's response:** The PMRA aims to be transparent while publishing proposed and final decision documents on how endpoints are selected for risk assessment. Additional information on environmental endpoints can be found in Health Canada's *Approach to Environmental Risk Assessment for Pest Control Products*: PMRA Guidance Document.

The framework provides a summary of how water monitoring data can be used in risk assessments. It describes a general approach and does not contain detailed information as this is not the purpose of the framework. Each pesticide risk assessment is unique. Details about the use of real-world monitoring data are provided in the proposed registration, re-evaluation, or special review documents. These documents also include a description of how the data were used in any risk assessment and are published for public consultation.

Read for more information: [PMRA Guidance Document, Health Canada's Approach to Environmental Risk Assessment for Pest Control Products - Canada.ca](#)

**Comment:** A grower group suggested that real-world data should not be used solely for risk assessments that are problematic. Data should also be used to revise risk assessments which support a wide margin of safety (for example, increasing the number or rate of applications). According to them, data collected should be used in a fair and equitable manner, providing downstream benefits for all stakeholders involved.

**PMRA's response:** The PMRA uses the data collected in a fair and equitable manner to assess the risks and ensure they remain acceptable to human health and the environment. Every evaluation of a pesticide uses modelling as an initial estimate of the potential exposure concentration for both human health and the environment. The models provide a high-end estimate of the concentrations that could be present in the environment. If the risk assessment using these values shows acceptable risk, water monitoring results add limited value to the risk assessment. However, if the modelled concentrations show a risk of concern, the real-world monitoring data can provide additional information and context to the risk. In general, the modelled concentrations are a conservative estimate of the potential exposure, whereas monitoring data provide an estimate of exposure following the use of the pesticide.

Increases in the rate or number of applications must be requested by the registrant through the pre-market registration process. Additionally, the absence of exceedances or detections does not necessarily mean that it is safe to increase the use of the product. Rather, the levels indicate that there are no issues when the pesticide is applied according to the current use pattern.

**Comment:** A grower group requested more information about the process if repeated exceedances are observed and alternatively when no exceedances occur for multiple years.

**PMRA's response:** Under the continuous oversight policy, water monitoring data will be considered throughout the life-cycle of a pesticides to determine when additional regulatory action may be required. If pesticide concentrations are detected above the HHRVs or the ALRVs, these data will be further evaluated to determine if a special review may be required. Relevant and reliable data from this program and other pesticide monitoring programs will be used to inform risk assessments conducted during re-evaluations and special reviews..

**Comment:** Comments were received by a grower group indicating that the PMRA should ensure mitigation measures put in place at the time of initial registration are sufficient to avoid withdrawing pesticides from the market following registration. This could be achieved by requiring additional information at the time of registration and adding sufficient mitigation measures so that pesticides are not found in water monitoring after initial registration.

**PMRA's response:** New pesticides are registered only if potential risks to human health and the environment and value are determined to be acceptable when the product is used according to the proposed conditions of registration. Decisions to register pesticides and the required mitigation reflect the available information and regulatory practices at the time the decision is made. Once a product is registered, new toxicity data may be generated, which may provide additional information to help inform the risk assessment. Post-market review, continuous oversight, monitoring and surveillance, including incident reporting, all play an essential role in ensuring the continued acceptability and value of registered pesticides. As new information and data from these sources become available, actions can be taken by the PMRA. This include to withdraw products from the market when the risks and value are no longer acceptable or apply additional mitigation measures to reduce risks to acceptable levels.

**Comment:** In the framework, the PMRA indicated that reducing application rates can be used as a mitigation measure. Some growers stated that reducing the rates could potentially reduce effectiveness and lead to weed and pest resistance. They were also

concerned that with a lower application rate, several applications of pesticides would be needed to achieve the same result. As such, they felt that risk mitigation should not be achieved through rate reductions, as this could lead to confusion about the rate to be used by growers.

**PMRA's response:** The PMRA agrees that product efficacy is an important consideration. When rate reductions are considered as a risk mitigation, the PMRA conducts a value assessment to ensure the reduced application rates continue to meet the efficacy claims identified on product labels.

When new risks are identified for a registered pesticide, reducing the application rate and/or the number of applications permitted in a season can be an effective way to mitigate the amount of pesticide entering the environment without having to cancel the use. .

The PMRA specifies the pesticide registration conditions, which also include use directions on the legally binding label. The maximum rate indicated on product labels is not a recommendation, but a legal limit on the application rate. Any use in contravention of the label or other specified conditions is illegal under the *Pest Control Products Act*. Pesticide users must refer to the label every time products are used as labels are updated regularly.

More details can be found in the [Framework for Risk Assessments and Risk Management of Pest Control Products: PMRA Guidance Document](#).

Updates on labels can be found in the [Decisions and Updates - Canada.ca](#).

## Feedback on the Canadian Water Monitoring Program for Pesticides (CWMPP)

This section includes feedback that is directly linked to the CWMPP. The framework is not a description of the CWMPP but provides guidance for developing water monitoring programs for pesticides, including the CWMPP.

## Implementing the Canadian Water Monitoring Program for Pesticides

**Comment:** Non-governmental organizations proposed adopting a phased approach to successfully implement a program that protects public health, supports environmental sustainability and fosters innovation in the life sciences sector. They suggested starting with the pilot program to refine methodologies and validate data collection techniques before moving to the CWMPP.

**PMRA's response:** The PMRA agrees with this comment and completed a 2-year pilot program from 2022 to 2024 before full implementation of the program. Through an analysis of the pilot program, the PMRA is considering lessons learned and is transitioning toward CWMPP implementation. The CWMPP will build upon the guidance provided in the framework by working with partners and stakeholders. Information on the CWMPP, including site selection processes and frequency of sampling, will be shared online.

**Comment:** A non-governmental organization expressed that the program must be conducted independently from any actor with financial interests in the pesticides used and the monitoring results. According to them, given PMRA's working relationships with pesticide manufacturers, Environment and Climate Change Canada (ECCC) should deliver the pesticide monitoring program. From their perspective, ECCC has no real or perceived conflict of interest in their relationship with pesticide manufacturers and the work would fit in with responsibilities under the Canadian Environmental Protection Act 1999 by which ECCC is bound. There was also concern that it may be a duplication of public funds for the PMRA to carry out a function best delivered by ECCC.

**PMRA's response:** The PMRA's mandate is to protect human health and the environment by regulating pesticides under the *Pest Control Products Act*. As the federal pesticide regulator, the PMRA accepts applications to register pesticides from pesticide registrants but make regulatory decisions in line with the mandate.

The PMRA agrees that ECCC has expertise in monitoring freshwater quality to characterize the overall health of ecosystems and in monitoring ambient water quality over time. The CWMPP will be designed to answer specific questions related to pesticide risk assessment and regulatory decisions as opposed to being directed at ambient water monitoring or examining overall ecosystem health. Having PMRA administer the CWMPP ensures sampling frequency, sampling sites, ancillary data collection and pesticides analyzed are addressing pesticide regulatory needs. ECCC will continue to collaborate with PMRA on data management for the CWMPP and the two departments will continue to explore opportunities to collaborate on pesticide monitoring.

**Comment:** Non-governmental organizations and grower groups asked how the PMRA will evaluate how current water monitoring initiatives align with the framework. In other words, how other programs are adhering to the framework to enhance confidence in using the data for risk assessments and regulatory decision-making.

**PMRA's response:** The PMRA encourages other water monitoring program operators to consider the guidance outlined in this framework when establishing programs. Following the voluntary guidance will help ensure the data collected are relevant for use by the PMRA during regulatory decision-making and scientifically robust for use for their own purposes. When the PMRA considers water monitoring data in a risk assessment (including data from the CWMPP), the data are evaluated to determine whether the data are reliable and relevant for a particular evaluation. If the data from a particular program is found to be relevant it will be considered alongside all other available monitoring data.

**Comment:** Non-governmental organizations outlined that the framework does not provide a suggested governance structure for managing the program. They also requested better clarity and transparency on how the framework will be applied within the PMRA. They hope to see a strategy and workplan that clearly define objectives, milestones and deliverables that can be measured and used to hold stakeholders accountable. Growers noted that the framework is a step in the right direction. However, they feel there is still a lot of room for improvement. Further discussion is required to determine how the framework will be applied to implement and manage a long-term program. Operational issues, such as laboratory capacity and resource allocation, also need to be addressed.

**PMRA's response:** The framework is not intended to describe the governance of the PMRA's CWMPP. The CWMPP will follow the framework guidance in line with the agency's objectives and will be based on ongoing collaboration with partners to obtain consistent and reliable data. The framework will be applied within PMRA as it:

- works with partners on site selection, incorporating local knowledge and expertise
- provides the standard operating procedures for sampling
- trains partners on laboratory submission processes
- provides sampling bottles and access to the PMRA's expertise for advice and feedback

The PMRA agrees that a lot of work is still required to use the framework to develop and implement the CWMPP. The PMRA is working closely with partners to address operational issues such as resource allocation and laboratory capacity. Frequent meetings are held with sampling partners to provide updates on progress (including milestones and deliverables). The PMRA will share details about the program on the CWMPP webpage.

More detail can be found on the CWMPP webpage.

## Pesticide use data

**Comment:** A non-governmental organization expressed concerns about the use of sales data for pesticide active ingredients as a “surrogate for pesticide use.” In their opinion, these data are inadequate for understanding where, when and how pesticides are applied, as the data are typically at least two years old. It was stressed by a different non-governmental organization that more resources need to be put into the collection of pesticide use data. Without it, they feel the monitoring information is not reliable for risk assessment.

**PMRA’s response:** The PMRA agrees that the use of sales data presents limitations, but in the absence of more timely and accurate data, the sales data are considered to be an acceptable surrogate for pesticides use data. As stated in the framework, it can be challenging to obtain high quality pesticide use data.

The PMRA sought input from partners and stakeholders to develop a proposed pesticide use information framework. The proposed framework is intended to identify, gather, and manage pesticide use information in a systematic manner. The PMRA hopes to hold a consultation on this proposal in 2025.

For more information consult the [What We Heard Report-Pesticide Use Information Framework Development](#)

In addition to sales data, the PMRA also uses geospatial data to understand where particular pesticides may have been applied. The Agriculture and Agri-Food Canada Annual Crop Inventory provides detailed data on crops types within sampling site catchment areas. The PMRA can compare the inventory, and the list of pesticides registered for use in Canada on each crop type, to help with the analysis of pesticide detections in water monitoring data.

## Collaboration

**Comment:** A grower group suggested that efforts should be made to integrate and align with provincial initiatives to minimize redundancy and enhance efficiency in monitoring efforts. They raised concerns about the fact that the program heavily relies on provincial partners who might not have capacity or funding to successfully implement this initiative. This may lead to inconsistencies in implementation of the framework across Canada.

**PMRA's response:** The PMRA works to enhance efficiency by aligning CWMPP sampling plans with provincial and territorial sampling initiatives when they align with the mandate of the CWMPP. The PMRA is working closely with partners to collect data from across the country through the CWMPP. If provincial and territorial partners indicate they do not have the capacity to collect samples for the CWMPP, the PMRA works with them to identify other partners, such as watershed organizations. The CWMPP is not intended to duplicate efforts or replace existing water monitoring programs in Canada. It is intended to supplement and strengthen existing programs through collaboration and partnerships.

**Comment:** A non-governmental organization advocated that transparency can be enhanced by working with partners and stakeholders to define methodologies for analysis, interpretation and integration of data into risk management decisions.

**PMRA's response:** The PMRA is committed to increased transparency with partners and stakeholders. There are many opportunities to provide comments and suggestions on methodologies for analysis, interpretation and integration of data into risk management decisions including (but not limited to):

- open consultation on proposed risk assessment decisions
- open consultation on methodology changes
- notice of objection
- the PMRA call line

In addition, the PMRA has two advisory committees that include various stakeholders:

- The Pest Management Advisory Council
- Science Advisory Committee

The PMRA uses a well-defined, internationally recognized risk assessment and risk management framework in its decision-making. *A Framework for Risk Assessments and Risk Management of Pest Control Products* provides predictability and transparency to the process used to protect the health of Canadians and their environment. It helps ensure risk management decision-making comprehensively considers all relevant criteria.

When a registration or re-evaluation decision is proposed, a description of how water monitoring data are used in the risk assessment is provided. This document is published for public consultation before the final decision is made. The PMRA believes no further editing of the water monitoring framework is required to address this comment.

For more details, consult

- [Pesticides and pest management consultations - Canada.ca](#)
- [Public Engagement Portal forms - Public Engagement Portal \(PEP\)](#)
- [Notice of Objection - Public Engagement Portal \(PEP\)](#)
- [Pest Management Advisory Council - Canada.ca](#)
- [Science Advisory Committee on Pest Control Products - Canada.ca](#)

[Framework for risk assessment and risk management of pest control products: PMRA guidance document - Canada.ca](#)

## Reporting

**Comment:** Growers recommended that the PMRA remove raw and interpreted datasets from online publications. According to them, one contextualized dataset should be provided, as it would be easier for the public to understand and interpret.

**PMRA's response:** The PMRA continues to explore ways to improve access to and interpretation of data generated under the CWMPP.

The Government of Canada is committed to being more open and is striving for increased transparency in decision-making. To contribute to this objective, an Open Data portal (Open Government) was created for departments to share data with Canadians. Raw data from Health Canada's water monitoring program are shared on this portal, providing pesticide data to the public in an accessible and useable format.

By making data available online, other programs (for example, research initiatives) can use the data, which benefits the scientific community. To improve communication and provide contextualized data, the PMRA has set up web pages with additional information, including reference values and pilot program details. A dashboard was also created to assist in contextualization. It includes all data generated (with or without exceedances), more information about how to interpret data and references to web pages containing program details.

Consult for more information:

- [Health Canada's Open Science Action Plan - Canada.ca](#)
- [The Open Government Guidebook - Open Government Portal](#)
- [Water Monitoring for Pesticides: Dashboard - Canada.ca.](#)
- [National Action Plan on Open Government - Canada.ca.](#)

**Comment:** Growers requested clarity concerning who is responsible for interpreting the data and disseminating findings. According to them, the results should be publicly released along with an interpretation of the results in the context of risk management. Growers shared that the PMRA should act as the authority. This could be done by providing national summaries that include sharing information on the risks to public health and the environment when there are exceedances of ALRVs or HHRVs. The PMRA should also note whether steps were taken to ensure the results were not due to human error (for example, reporting issues).

**PMRA's response:** The PMRA agrees that it is the responsibility of the regulator to report on the potential risks associated with monitoring data. However, the Government of Canada is moving toward Open Government, which includes publication of the raw data to the Open Data portal. Once the data are published, various groups can access this information for their own uses.

The PMRA will continue to communicate regularly with provinces and territories on identified risks prior to releasing data to the Open Data portal. This allows provincial and territorial governments to take appropriate actions and prepare to address potential questions from the public once the data are released. Provinces and territories have communicated support for this approach throughout the consultation.

**Comment:** A few growers recommended that the PMRA develop and implement verification mechanisms and corrective measures for any misuse of pesticide data.

**PMRA's response:** Similar to other types of data shared on the Open Data portal, the raw data is accompanied by a disclaimer to provide important context for users. While the PMRA is committed to transparency in sharing data, the Agency recognizes that users may interpret the information in diverse ways. If the PMRA becomes aware of any misunderstandings of the data or inaccuracies in published articles or in media coverage, the PMRA will make an effort to clarify and provide accurate information.

For more information, consult: [National Water Monitoring Program for Pesticides \(NWMPP\) Data - Open Government Portal](#)

## Relationship building

**Comment:** Growers noted that Statistics Canada’s Quality Assurance Framework outlines measures for managing relations with data providers, data users and stakeholders. They hope that the PMRA will take a similar approach in the future.

**PMRA’s response:** Statistics Canada’s Quality Assurance Framework contains guidance for managing relations with partners and stakeholders, as well as ways to keep the public informed. The PMRA sees the value in following these guidelines and has followed many of the principles, such as:

- consultation and collaboration with a large number of stakeholders, through a water monitoring technical working group to develop the framework
- publication of a “What we Heard” report on the feedback received from the technical working group
- consultation with the Science Advisory Committee on Pest Control Products, the Pest Management Advisory Council, and PMRA staff
- collaboration with a large group of stakeholders and partners during the 2-year pilot program
- public consultation on the draft framework
- establishment of various types of data-sharing agreements with partners
- publication of all data from the program to date on the Open Data portal

For the CWMPP, the PMRA will continue to collaborate with partners and stakeholders, consult with advisory committees and share data and information with the public.

Read more:

- [Statistics Canada's Quality Assurance Framework.](#)

- [Science Advisory Committee on Pest Control Products - Canada.ca](https://www3.internationalpestcontrol.org/Science-Advisory-Committee-on-Pest-Control-Products)
- [Pest Management Advisory Council - Canada.ca](https://www3.internationalpestcontrol.org/Pest-Management-Advisory-Council)

## Water monitoring program goals

**Comments:** According to a non-governmental organization, the CWMPP should be designed to validate the models the PMRA uses to estimate environmental concentrations. They suggested the data could be used to test whether the concentrations predicted by models are seen in the environment. If, due to limitations, the PMRA cannot validate the model, they asked that this be transparently explained, and the monitoring data be used with extreme caution. They claimed that the full limitations of the monitoring program for risk assessment and decision-making need to be explained and disclosed to the public.

**PMRA's response:** The goal of the water monitoring is not to validate the PMRA's models. Rather, it is to generate high-quality real-world data on the concentrations of pesticides and some transformation products in water across Canada under real-world use conditions. The data generated allows the PMRA to identify potential risks and take regulatory action when necessary.

The CWMPP employs a retrospective approach. It gathers information on the levels of pesticides in the environment without a predetermined understanding of where and when the pesticides were applied. To validate the model used to estimate concentrations of pesticides in surface water and groundwater (Pesticide in Water Calculator, PWC), a controlled prospective monitoring program (an experiment) would need to be established. For instance, the sampling location would be immediately at the down-slope edge of the field where the pesticide was applied at a known rate and with a known application method. This is not the type of program being developed and, therefore, the data collected cannot be used to validate the model.

The PWC model was developed and validated by the United States Environmental Protection Agency. It was adopted by the PMRA following adjustments to make the PWC model more suitable for use in Canada (e.g., using Canadian-specific soil information and weather data). Modelling is done using the highest application rate indicated on the label to predict concentrations at the maximum legal use. The model assumes that the pesticide is applied to the entire watershed. It also assumes all the water from the watershed flows into the same edge-of-field waterbody that does not have an outflow. The model simulates application to the same field at maximum rates every year for 50 years. The modelling can be adjusted to account for different crops, application methods and application rates. This may allow for refinement of the use pattern when some scenarios do not result in acceptable risk.

To learn more about the PWC, consult [Models for Pesticide Risk Assessment | US EPA.](#)

## Site selection

**Comment:** A non-governmental organization stated that the PMRA's water monitoring program needs to identify locations and times where pesticides are used. The program design should capture peak concentrations based on the fate properties of particular pesticides (for example, highest application rates, periods of heavy runoff or snow melt) based on use information. They recommended including an appropriately broad spatial distribution in different landscapes, agricultural areas and provinces and territories.

**PMRA's response:** In alignment with the framework, the PMRA uses a scientific method to choose suitable sampling locations for its CWMPP. Areas are identified where there is a high risk of pesticide movement to the water. Site selection to date has focused mainly on agricultural pesticide use, as it is often the main source of pesticides entering the environment. However, some non-agricultural sampling sites were selected in collaboration with partners. Overall, site selection requires close collaboration with sampling partners to ensure a balance between science and feasibility. More details

regarding the CWMPP site selection process will be shared publicly through the timely publication of web content.