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Proposed Maximum Residue Limit

PMRL2026-10

Cyprodinil

(publié aussi en français)

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Health Canada is consulting the public and seeking your feedback on:

- Proposed maximum residue limit (MRL) increases for the use of cyprodinil on radish leaves, turnip greens and Chinese broccoli.
- Proposed MRL decreases for the use of cyprodinil on arugula, garden cress, upland cress and cranberries.
- Setting new MRLs on Abyssinian cabbages, seakale cabbages, Hanover salad, maca, wild rocket and shepherd's purse.

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1.0 Pesticides in Canada

Pesticides provide both organic and conventional growers in Canada with a variety of options to help minimize damage from pests to their crops and livestock. Pesticides help protect crops from pests such as weeds, fungi, and insects. This allows people in Canada to access high-quality nutritious foods throughout the year.

All pesticides, for both organic and conventionally grown crops, that are approved for use in Canada are regulated by Health Canada. This includes regulating pesticide residues that may be present on food commodities **imported** into Canada. Health Canada reviews all new pesticide applications and re-evaluates existing pesticides on a regular basis to help ensure the protection of human health.

Maximum residue limits

A maximum residue limit (MRL) is the highest amount of a specific pesticide residue allowed on a particular food commodity when a pesticide is used according to label directions.

Health Canada scientists set (or specify) MRLs after a robust scientific review of the pesticide, provided that the risks meet Health Canada's requirements for the protection of human health. This means that the scientists first make sure the amount of pesticide residue on or in food commodities is low enough that there are no effects on human health. Health Canada is responsible for setting MRLs on food commodities grown domestically or imported into Canada. Different food commodities can have different MRLs for the same pesticide due to differences in how the pesticide is used for each crop or food commodity.

An MRL is a scientific calculation that estimates the maximum potential concentration of residues on food commodities. It is **not** a measurement of pesticide toxicity or safety. It accounts for the highest potential amount of residue that may remain on a food commodity when label directions are followed. More information about these calculations is in Section 5.0 Calculating the proposed MRL. Often, the residues that remain are much lower than the MRL under typical use conditions. If the use directions change for a given pesticide, the MRL can also change. However, before any change to an MRL is proposed, the risks must meet Health Canada's requirements for the protection of human health.

MRLs are legal limits that are enforced by the Canadian Food Inspection Agency (CFIA). The latest National Chemical Residue Monitoring Program and Chemistry Food Safety report that uses MRLs to determine compliance rates can be requested on the Food safety testing reports and journal articles page on Canada.ca.

Food commodities grown in Canada

Before making any registration decision for a pesticide in Canada, Health Canada must evaluate the chemistry of a pesticide, how well a pesticide works, and the pesticide's potential impact on human health and the environment. This is the full pesticide assessment process as directed in the *Pest Control Products Act*. This is to ensure there are no health or environmental concerns from the potential pesticide exposure to Canadians through this use, and that the pesticide has value.

2.0 Purpose of this consultation

Health Canada is consulting the public and seeking your feedback on proposed new and revised MRLs to address potential cyprodinil residues on various commodities grown in Canada.

Cyprodinil is a fungicide currently registered for use in Canada on various food commodities.

Proposals were submitted by Agriculture and Agri-Food Canada/Pest Management Centre, and supported by the registrant Syngenta Canada Inc., to register the postemergent foliar uses of cyprodinil on *Brassica* leafy greens (crop subgroup 4-13B) and cranberries on the Switch 62.5 WG Fungicide label containing technical grade cyprodinil and fludioxonil (*Pest Control Products Act* Registration Number 28189). These MRL changes, including new MRLs, would allow these treated commodities to be sold in Canada.

Health Canada is proposing to accept these MRL changes (including new MRLs). This is because Health Canada conducted a thorough scientific assessment and found that the health risk from eating food commodities treated with cyprodinil meets Health Canada's requirements for the protection of human health. The main health assessment required for this consultation was the dietary risk assessment, which was conducted in accordance with Sections 10 and 11 of the *Pest Control Products Act*. This assessment involves a thorough evaluation of health risks that considered the toxicity and dietary exposure of cyprodinil, and follows strict regulatory standards. Further details on the dietary risk assessment can be found in Section 3.0 Dietary risk assessment.

The pesticide product used is a co-formulation, containing the pesticides fludioxonil and cyprodinil. As such, the application for proposed MRLs for fludioxonil on various commodities is being consulted on under a separate document.

Proposed Canadian maximum residue limits for cyprodinil

[Table 1](#) summarizes the proposed new and revised MRLs for cyprodinil, as well as the reason for each proposed MRL.

MRLs are based on a residue definition that typically includes the pesticide itself and may also include one or more degradation products referred to as metabolites. A searchable residue definition table is available on the Residue Definitions for Chemicals with Maximum Residue Limits Regulated Under the *Pest Control Products Act* page on Canada.ca.

The following MRLs are based on the following residue definition: 4-cyclopropyl-6-methyl-*N*-phenyl-2-pyrimidinamine

Table 1 Current and proposed maximum residue limits for cyprodinil

Food commodity	Current MRL (ppm) ¹	Proposed MRL (ppm) ¹	Reason for the proposed MRL
Arugula, garden cress, upland cress	50	30	Decreased MRL on arugula, garden cress, and upland cress because of re-assessed field trial data on mustard greens (which is the representative commodity for crop subgroup 4-13B <i>Brassica</i> leafy greens, in which arugula, garden cress and upland cress are included) ²
Radish leaves, turnip greens	10	30	Increased MRL on radish leaves and turnip greens because of re-assessed field trial data on mustard greens (which is the representative commodity for crop subgroup 4-13B <i>Brassica</i> leafy greens, in which radish leaves and turnip greens are included) ³
Chinese broccoli	1.0	30	Increased MRL on Chinese broccoli because of re-assessed field trial data on mustard greens (which is the representative commodity for crop subgroup 4-13B <i>Brassica</i> leafy greens, in which Chinese broccoli is included) ⁴
Abyssinian cabbages, Hanover salad, maca, seekale cabbages, shepherd's purse, wild rocket	None	30	New MRL on Abyssinian cabbages, Hanover salad, maca, seekale cabbages, shepherd's purse, wild rocket because of re-assessed field trial data on mustard greens (which is the representative commodity for crop subgroup 4-13B <i>Brassica</i> leafy greens)
Cranberries	6.0	0.4	Decreased MRL on cranberries because of new field trial data on cranberries ⁵ .

¹ ppm = parts per million

² Arugula, garden cress, and upland cress were previously part of crop subgroup 4A, for which spinach was the representative crop. As such, the current MRL for these crops was based on residue data from spinach. Following revisions to the residue chemistry crop groupings, these crops are now classified under crop subgroup 4-13B, which is represented by mustard greens. The applicant is requesting registration on crop subgroup 4-13B. As a result, mustard greens residue data were used to determine a revised (decreased) MRL for arugula, garden cress, and upland cress, reflecting the current crop grouping structure.

³ The current MRL for these crops was based on residue data from radish tops (leaves) and older data on mustard greens (to cover turnip greens as mustard greens have similar morphology). Following revisions to the residue chemistry crop groupings, these crops are now classified under crop subgroup 4-13B, which is represented by mustard greens. The applicant is requesting registration on crop subgroup 4-13B. As a result, the old and more recent mustard greens residue data were used to determine a revised (increased) MRL for turnip greens and radish leaves, reflecting the current crop grouping structure.

- ⁴ Chinese broccoli was previously part of crop subgroup 5A, which was represented by cabbage. As such, the current MRL was based on cabbage residue data. Following revisions to the residue chemistry crop groupings, Chinese broccoli is now included in crop subgroup 4-13B, for which mustard greens is the representative crop. The applicant is requesting registration on crop subgroup 4-13B, and residue data from mustard greens were used to determine the revised (increased) MRL for Chinese broccoli.
- ⁵ Cranberries are part of crop subgroup 13-07G, which is represented by strawberries. The current MRL on cranberries was based on strawberry residue data. The applicant is now requesting registration specifically on cranberries. As cranberry-specific residue data are now available, these data were used to determine a revised (lower) MRL that more accurately reflects residues on the crop itself when used according to the proposed use pattern.

Based on the results from the dietary risk assessment, Health Canada is proposing to accept the revised MRL requests for cyprodinil. This is because these revised MRLs meet Health Canada's requirements for the protection of human health.

3.0 Dietary risk assessment

Before an MRL can be set, Health Canada scientists make sure the amount of pesticide residue on or in food commodities is low enough that there are no effects on human health. They evaluate the relevant scientific information on the toxicity and dietary exposure of the pesticide. This process is called a dietary risk assessment.

Overview of the dietary risk assessment process

The **dietary risk assessment** process involves four distinct steps:

1. Evaluate the relevant scientific data and information and then identify the toxicology hazards of the pesticide;
2. Determine the **acute reference dose (ARfD)** and the **acceptable daily intake (ADI)**, where applicable.

ARfD: the amount of a specific pesticide residue that a person can eat and drink **on any given day** without any negative health effects. The ARfD is used to estimate acute dietary risk, which considers the potential for health effects after a single day of exposure to the pesticide.

ADI: the amount of a specific pesticide residue a person could eat and drink **every day** over their entire lifetime without any negative health effects. The ADI is used to estimate chronic dietary risk, which considers the potential for health effects after a lifetime of exposure to the pesticide.

Health Canada scientists estimate both acute (single day) and chronic (lifetime) dietary intakes, where applicable, for the general population and several subpopulations such as pregnant people, infants, children and seniors.

3. Estimate the **potential daily intake (PDI)**.

PDI: the total amount of a specific pesticide residue that might be eaten. When determining the PDI for a pesticide, scientists consider **all** food commodities (both registered (domestic) and imported), drinking water (where applicable), and how diets can vary between people in Canada. The PDI is the potential dietary exposure to a specific pesticide.

4. Characterize the **acute dietary risk** by comparing the PDI with the ARfD, and characterize the **chronic dietary risk** by comparing the PDI with the ADI, where applicable.

If the PDI is lower than both the ARfD and the ADI (where applicable), Health Canada scientists conclude that all food commodities that could be treated with this pesticide are safe to eat.

Summary of the dietary risk assessment results for cyprodinil

This summary focusses on key aspects of the dietary risk assessment that are potentially of greatest interest to people in Canada. It is intended to help improve the understanding of Health Canada's pesticide decisions. Technical details and how to request additional information about the dietary risk assessment can be found in [Section 7.0 How to get involved](#) and in [Appendix I](#).

The results from the dietary risk assessment show that when cyprodinil is used according to the Canadian label directions for the proposed uses, the dietary risks from cyprodinil on food commodities continue to meet Health Canada's requirements for the protection of human health.

As per REG2006-08, the cyprodinil toxicology data relevant to acute dietary exposure indicated that cyprodinil is not likely to present an acute hazard, and so an ARfD is not necessary. This means that acute exposure to cyprodinil will not affect your health.

The toxicology information for cyprodinil relevant to the dietary risk assessment is reported in Appendix I, [Table A1-1](#).

The chronic dietary risk assessment results showed that exposure to cyprodinil is **less than 72%** of the ADI level. **This means that chronic exposure to cyprodinil will not affect your health.** The dietary risk for each subpopulation is reported in Appendix I, [Table A1-2](#).

- Health Canada considers that chronic risk may be of concern when exposure is greater than 100% of the ADI. When the chronic dietary risk assessment is lower than 100% of the ADI, it means that there are no human health concerns from eating foods treated with cyprodinil every day over a person's lifetime.

For more information on how Health Canada assesses and manages risk from pesticides, refer to this guidance document:

- PMRA Guidance Document, *A framework for risk assessment and risk management of pest control products*

For more information on the MRL process, refer to Section 19, Maximum Residue Limits, found within this guideline:

- Residue chemistry guidelines: Revised 2022 PMRA guidance document

4.0 Summary of residue data to support the proposed maximum residue limits

Health Canada scientists reviewed residue data for cyprodinil on the following:

- previously reviewed trial studies on mustard greens were re-assessed to support the proposed MRLs on Brassica leafy greens (crop subgroup 4-13B).
- new trial studies on cranberries were submitted and reviewed to support the proposed MRL on cranberries.

Table 2 summarizes the residue data used to calculate the proposed MRLs for the various commodities.

Table 2 Summary of field trial data used to support the maximum residue limits

Commodity	Application method	Total application rate (kg a.i./ha) ¹	Preharvest interval (days)	Lowest average field trial residues (ppm) ²	Highest average field trial residues (ppm) ²	Proposed MRL (ppm) ²
Mustard greens	Foliar application	1.44–1.54	6–8	0.23	12.9	30 (arugula, garden cress, upland cress, radish leaves, turnip greens, Chinese broccoli, Abyssinian cabbages, Hanover salad, maca, seakale cabbages, shepherd's purse, wild rocket)
Cranberries	Foliar	1.48–1.50	30–31	0.026	0.215	0.4

Commodity	Application method	Total application rate (kg a.i./ha) ¹	Preharvest interval (days)	Lowest average field trial residues (ppm) ²	Highest average field trial residues (ppm) ²	Proposed MRL (ppm) ²
	application					(cranberries)

¹ kg a.i./ha = kilograms of active ingredient per hectare

² ppm = parts per million

5.0 Calculating the proposed maximum residue limits

Health Canada scientists calculated the proposed MRLs for cyprodinil using the residues observed in the residue trials, and the guidance provided in the OECD MRL Calculator. Many international regulatory authorities use this statistical calculator to set MRLs on food commodities that are either grown domestically or imported from different countries. Full residue datasets are required to run the OECD MRL calculator, not just the highest and lowest residues reported in [Table 2](#).

Pesticide MRLs established for each food commodity may be found using the Maximum Residue Limit Database. The database allows users to search for established MRLs, regulated under the *Pest Control Products Act*, for pesticides or food commodities.

6.0 International considerations

Internationally, MRLs are used to facilitate trade of food commodities between countries. Canadian MRLs are established or amended based on a robust scientific risk assessment that demonstrates safety for people in Canada. [Table 3](#) compares the MRLs proposed for cyprodinil in Canada with the corresponding tolerances in the United States (U.S.) and international Codex MRLs. The Codex Alimentarius Commission is an international organization under the auspices of the United Nations that develops international food standards, including MRLs.

MRLs may vary from one country to another for a number of reasons, including differences in pesticide use patterns and the geographic locations of the crop field trials used to generate residue chemistry data.

The tolerance in the U.S. is listed by pesticide in the Electronic Code of Federal Regulations, 40 CFR Part 180. The term “**tolerance**” is used in the U.S. as another name for MRLs.

The Codex MRL is listed by pesticide or commodity on the Codex Alimentarius Pesticide Index webpage.

Table 3 Comparison of proposed Canadian maximum residue limits, U.S. tolerances and Codex MRLs

Food commodity	Proposed Canadian MRL (ppm) ¹	Established U.S. tolerance (ppm) ¹	Established Codex MRL (ppm) ¹
Abyssinian cabbages, arugula, Chinese broccoli, garden cress, Hanover salad, maca, radish leaves, seakale cabbages, shepherd's purse, turnip greens, upland cress, wild rocket	30	10 (<i>Brassica</i> , leafy greens, subgroup 4-16B)	15 (Leaves of Brassicaceae (subgroup)) 2 (Flowerhead <i>brassicas</i> (includes broccoli: broccoli, Chinese and cauliflower))
Cranberries	0.4	0.4	10 (Berries and other small fruits (except grapes))

¹ ppm = parts per million

International consultation on the proposed MRLs also occurs as a result of Canada notifying the World Trade Organization. This is coordinated by Canada's Notification Authority and Enquiry Point in order to comply with Canada's international trade obligations.

7.0 How to get involved

Health Canada invites the public to submit written comments that are directly related to this proposed MRL action for cyprodinil, such as comments directed to the residue chemistry data and dietary exposure assessment, up to 75 days from the date of publication of this document (by 11 October 2026).

Please submit your comments to the Pesticides Publications Section.

Health Canada considers all comments received that are directly related to the residue chemistry data and dietary exposure assessment supporting the proposed MRL action, and a science-based approach will be applied in making a final decision on the proposed MRL changes. Comments received will be addressed in a response to comments document found in Pesticides consultations. If no comments are received, or the comments do not result in a change to the proposed MRLs, the MRLs will be set and legally in effect on the date they are entered into the Maximum Residue Limit Database.

If you would like to request additional information on the supporting scientific documents for this proposed MRLs, here is the information you will need to identify the request:

Active ingredient:	cyprodinil
Published document number:	PMRL2026-10
Submission numbers:	2021-5577, 2022-1892
Related registration decisions:	REG2006-08

Appendix I Excerpt of the dietary risk assessment

Table A1-1 Summary of toxicology information for cyprodinil for use in the dietary exposure assessment

Exposure scenario	Toxicology reference value used in the risk assessment	Study	Toxicological Endpoint
Acute Dietary General population	No ARfD ¹ required.	Not applicable	None
Repeated (Chronic) Dietary All populations	NOAEL ¹ = 2.7 mg/kg bw/day SF ² = 100 ADI ¹ = 0.027 mg/kg bw/day	2-year dietary study in rats	NOAEL ¹ = 2.7 mg/kg bw/day Based on liver spongiosis

¹ ARfD = Acute Reference Dose; ADI = Acceptable Daily Intake; NOAEL = No Observed Adverse Effect Level; bw = body weight. Reference values and endpoints cited in [REG2006-08](#).

² A SF (safety factor) refers to a total of uncertainty for dietary assessments. An SF of 100, which includes standard uncertainty factors of 10-fold for interspecies extrapolation and 10-fold for intraspecies variability were applied to the NOAEL in order to calculate the ADI. Therefore, $\text{NOAEL} \div \text{SF} = 2.7 \text{ mg/kg bw/day} \div 100 = 0.027 \text{ mg/kg bw/day}$.

Dietary exposure assessments are conducted using a database called the Dietary Exposure Evaluation Model - Food Commodity Intake Database (DEEM-FCID) which is explained in Science Policy Note SPN2014-01, General Exposure Factor Inputs for Dietary, Occupational, and Residential Exposure Assessments. This is a food recipe and consumption database used by Canada and the U.S. for dietary exposure modelling that incorporates food consumption data from the U.S. National Health and Nutritional Examination Survey, What We Eat in America (NHANES/ WWEIA) dietary survey. This survey is made available through the National Center for Health Statistics (NCHS), which is part of the Centers for Disease Control and Prevention (CDC). The NHANES survey, which uses interviews and physical examinations to assess the health and nutritional status of adults and children in the United States, is updated periodically and is also reflective of the large variety of food consumption patterns in the Canadian population.

Results of the acute dietary risk assessment

An acute dietary exposure assessment was not required as there were no acute health effects of concern observed in the oral toxicity studies relevant to dietary exposure. **This means that acute exposure to cyprodinil will not affect your health.**

Results of the chronic dietary risk assessment

The results of the most recent chronic dietary exposure assessment for cyprodinil are shown in [Table A1-2](#), where the PDI is less than 100% of the ADI. There are no dietary risks of concern when the PDI is less than the ADI (see Section 3.0). The DEEM-FCID (NHANES) analyses estimate the dietary exposure of the general population and various population subgroups. The results reported in Table A1-2 are for the general population (all ages), all infants (<1 year old), children 1–2 years old, children 3–5 years old, children 6–12 years old, youth 13–19 years old,

adults 20–49 years old, adults 50+ years old, and females 13–49 years old. When including the use of cyprodinil on the various food commodities and levels of cyprodinil found in drinking water, the estimated dietary exposure to cyprodinil for all population subgroups is less than 72% of the ADI. **This means that chronic exposure to cyprodinil will not affect your health.**

Table A1-2 Summary of chronic dietary risk for cyprodinil

Population subgroup	Intermediate assessment food and drinking water ^{1,2} – previous assessment	Intermediate assessment food and drinking water ^{1,2} – Updated to include the proposed MRL
	% ADI ^{3,4}	% ADI ^{3,5}
General Population	14.6	42.4
All Infants	22.3	71.8
Children 1–2 years old	43.9	59.8
Children 3–5 years old	30.6	52.8
Children 6–12 years old	15.8	37.8
Youth 13–19 years old	9.1	31.6
Adults 20–49 years old	12.2	42.2
Adults 50+ years old	14.1	43.3
Females 13–49 years old	12.9	43.3

Bolded values indicate updated risk assessments.

¹ “Food and drinking water” represents all Canadian-grown and imported foods that could be treated with cyprodinil, as well as the dietary contribution from consuming water that may be impacted by Canadian agricultural uses of cyprodinil.

² Estimated Environmental Concentrations (EECs) of cyprodinil have been calculated for drinking water at 226 µg a.i./L from groundwater.

³ Values are below 100% ($PDI \div ADI \times 100$), therefore, there are no dietary concerns for any segment of the population.

⁴ Previous assessment is from 2017-3384 and 2017-3385. Published documents can be accessed in the link by choosing “Application Number” in the “Filter” field, and entering the submission number in the “Value” field.

⁵ Updated assessment is from 2024-2663. Published documents can be accessed in the link by choosing “Application Number” in the “Filter” field, and entering the submission number in the “Value” field.

For more information

REG2006-08 – available upon request