Safe Food Matters Inc.

Comments on Proposed Registration Decision PRD2026-12

Deltamethrin, Ultratec 5SC MUP and Raid Bug Defense

Submitted to Health Canada's Pesticide Regulatory Directorate

Consultation closes: 16 August 2026

Table of Contents

Table of Contents 2

1. Introduction and Summary 3

2. Ground 1: PRD2026-12 Fundamentally Changes Deltamethrin's Risk Profile in Canada Without Assessing That Change 4

3. Ground 2: The Point of Departure Is Insulated From the Literature the Directorate Itself Uses to Justify a More Stringent Assessment Factor 5

3.1 The point of departure has not changed since 1994 5

3.2 The literature used to justify a stricter factor is barred from updating the number the factor multiplies 5

3.3 Several of the stated limitations were addressable rather than final 6

3.4 Independent literature and expert review not reflected in PRD2026-12's hazard characterization 7

3.5 The PAN Europe withdrawal petition and the underlying study record 7

4. Ground 3: Postapplication Exposure Was Not Quantified for Adults or Children, and Aggregate Exposure for Children Was Assumed Away, for a Product Whose Central Hazard Is Pediatric Neurotoxicity 9

5. Ground 4: The Proposed Environmental Mitigation Rests on an Unjustified Assumption That This Use Poses Lower Aquatic Risk Than Every Other Deltamethrin Use on Record 10

6. Ground 5: The PCPA-Mandated Cumulative Health Risk Assessment Has Not Been Conducted, and No Documented Basis Is Given for Proceeding Without It 11

6.1 The reassurance PRD2026-12 does offer does not withstand scrutiny 12

6.2 Without a cumulative assessment, the Directorate cannot make the finding subsection 2(2) requires 13

7. Ground 6: Internal Inconsistency in the Reported Literature-Search Date 14

8. Ground 7: The Value Assessment Does Not Demonstrate a Benefit Sufficient to Justify the New Exposure Pathway 14

9. Requested Actions 15

Appendix A: Sources and Links 16

A.1 PAN Europe materials (Ground 2, Section 3.5) 16

A.2 Independent and PAN Europe-cited literature (Ground 2, Sections 3.4–3.5) 16

A.3 Other regulators and Directorate policy materials (Grounds 2, 4, 5) 17

1. Introduction and Summary

Safe Food Matters Inc. (SFM) submits the following comments in response to Proposed Registration Decision PRD2026-12, in which Health Canada's Pesticide Regulatory Directorate proposes to register Deltamethrin Technical Insecticide, Ultratec 5SC MUP, and Raid Bug Defense for the control of ants, cockroaches, house flies, stable flies, and spiders on and around the home (outdoor use only).

SFM submits that the proposed decision does not establish, on the evidentiary record, that the health and environmental risks of this registration are acceptable within the meaning of subsection 2(2) of the Pest Control Products Act (PCPA). SFM's concerns fall into seven grounds, summarized here and developed in detail below:

- Ground 1: PRD2026-12 introduces, for the first time in this active ingredient's 40-plus year Canadian regulatory history, an unsupervised consumer application pathway — a fundamental change to deltamethrin's risk profile in Canada that PRD2026-12 does not assess as such.
- Ground 2: The Directorate's own point of departure for every toxicological reference value in PRD2026-12 remains a single 1994 study with documented methodological limitations, while a substantial and growing body of published literature — including Canadian pediatric epidemiological data not reflected in the Directorate's own literature review — showing effects at or below that point of departure is systematically excluded from any quantitative role in the assessment.
- Ground 3: PRD2026-12's own text dismisses post-application exposure for both adults and children without quantification, and assumes away child aggregate exposure — for the population (children) for whom the critical hazard (developmental neurotoxicity) is most acute — without quantifying it for this new residential use.
- Ground 4: The environmental mitigation proposed for this use rests on an unjustified assumption of lower aquatic risk, omitting precautionary label language required for this same use pattern by both the Directorate itself since 2018 and by the US EPA in 2020.
- Ground 5: The pyrethroid cumulative health risk assessment mandated by ss. 7, 11, and 19 of the PCPA has not been conducted, the reasoning PRD2026-12 offers in its place does not withstand scrutiny, and without it the Directorate cannot make the "reasonable certainty of no harm" finding subsection 2(2) requires — particularly for children, who are both the most sensitive population and the most likely to face concurrent exposure to multiple household pyrethroid products.
- Ground 6: An internal inconsistency in the stated literature-search date calls into question the completeness of the literature review underlying the hazard characterization.
- Ground 7: The value assessment does not demonstrate that this registration provides any benefit beyond commercial product diversification sufficient to justify the additional exposure pathway it creates.

SFM respectfully requests that Health Canada's Pesticide Regulatory Directorate address each of these grounds before finalizing a registration decision on Raid Bug Defense, and that it decline to finalize the proposed registration until the deficiencies identified below are resolved.

2. Ground 1: PRD2026-12 Fundamentally Changes Deltamethrin's Risk Profile in Canada Without Assessing That Change

The health and environmental risk conclusions in PRD2026-12 are conclusions about a use pattern that has never before existed for this active ingredient in Canada, and PRD2026-12 does not treat it as such.

Deltamethrin has been registered in Canada since 1983. Every proposed and final decision document issued on this active ingredient prior to PRD2026-12 — PRVD2015-07 (2015), RVD2018-27 (2018), RD2017-08 (2017), PRD2019-07 and RD2019-15 (2019), and PRD2023-05 (2023) — confirms that deltamethrin has never been registered for domestic/consumer (homeowner) use in Canada. The 2015 Proposed Re-evaluation Decision states this directly:

> *"There are no domestic class end-use products [of deltamethrin]."*

and, as a condition of continued registration, the Directorate proposed adding the following statement to all commercial-class deltamethrin labels:

> *"Not for use by homeowners or other uncertified users."*

That position was reaffirmed as recently as June 2023, in PRD2023-05 (DeltaGard SC Insecticide, box tree moth use):

> *"There is no potential for residential handler exposure to deltamethrin from the use of DeltaGard SC on boxwood because this use pattern does not involve domestic class use."*

The significance of this history is not procedural. PMRA's own methodology (Science Policy Note SPN2003-04) defines aggregate exposure as total exposure to a single pesticide across dietary and residential/non-occupational sources combined, and PMRA has in fact conducted aggregate assessments for deltamethrin before — PRVD2015-07 aggregated dietary exposure with residential postapplication exposure for members of the public (including children) contacting commercially treated turf, and PRD2023-05 did the same for the public contacting commercially treated boxwood. What the "no domestic class use" restriction specifically avoided was never having to build and validate one particular input: the residential handler exposure scenario, in which an untrained member of the public personally mixes, loads, and applies the product with no PPE, no certification, and no label-enforced restricted-entry or drift-management conditions. That scenario generally carries higher and less controlled exposure potential than a certified commercial applicator's handler exposure, and it simply did not exist in Canada for this compound before PRD2026-12.

Raid Bug Defense changes that. It introduces, for the first time in this compound's Canadian history, an unsupervised consumer handler pathway around family homes. This is a change to the fundamental risk profile of the active ingredient in Canada — not an incremental addition to an existing, validated

exposure envelope. PRD2026-12 evaluates this new handler pathway using the same categories of exposure inputs (Section 3.4, Appendix I Table 5) developed for other domestic pyrethroid products generally, without acknowledging that, for deltamethrin specifically, no consumer-use exposure or incident data exists in Canada to validate that those generic inputs are appropriate for this compound's known hazard profile.

SFM submits that a change of this kind requires the Directorate to affirmatively assess, and disclose its assessment of, why the risk-management position that excluded consumer use for over four decades no longer reflects an accurate risk profile for this compound — not simply to apply standard American consumer-product exposure algorithms as though the use pattern were unremarkable. PRD2026-12 does not do this. It is a defect in the Directorate's characterization of the risk being assessed, not merely a difference in outcome from prior decisions.

3. Ground 2: The Point of Departure Is Insulated From the Literature the Directorate Itself Uses to Justify a More Stringent Assessment Factor

3.1 The point of departure has not changed since 1994

Every toxicological reference value in PRD2026-12 — the ARfD, the ADI, and the dermal, inhalation, and incidental-oral reference values — rests on a single lowest observed adverse effect level (LOAEL) of 1 mg/kg bw/day, derived from reduced acoustic startle response in weanling rats in Sheets et al. (1994; PMRA No. 1857302). This is the same critical study, and the same numerical point of departure, that has anchored every deltamethrin risk assessment since at least PRVD2015-07 (2015).

PRD2026-12 itself discloses significant, unresolved limitations in this study: no validation data were presented for the "time-of-peak-effect" used to assess acoustic startle response in pups; the same research group used a different, shorter time-of-peak-effect (1.5 hours, rather than the 2 hours used in the critical study) in an earlier study of the same endpoint in adult rats of the same strain; the critical study used 21-day-old pups, which may not represent the most sensitive human life stage; and acoustic startle response itself has been characterized in the scientific literature as not the best measure of juvenile sensitivity, because the response varies with age. These are the Directorate's own stated concerns, carried forward largely unchanged from PRVD2015-07 through PRD2026-12 — a period of more than a decade in which the point of departure itself has not been revisited.

3.2 The literature used to justify a stricter factor is barred from updating the number the factor multiplies

In 2015, the PCPA factor for oral and inhalation risk assessment was reduced to threefold (target MOE of 300), specifically because of "residual uncertainty regarding the method of assessment of acoustic startle response in the critical study." PRD2026-12 restores the full tenfold factor (target MOE of 1000) across all scenarios where the young-animal neurotoxicity endpoint applies, citing the accumulated published literature — summarized in Appendix I, Table 2 — as new evidence confirming greater sensitivity of the young to deltamethrin's neurotoxic effects.

SFM does not dispute that a fully protective factor is warranted, and applauds application of the factor. SFM's concern is with the asymmetry in how that same literature is treated. Several of the studies PMRA relies upon to justify the stricter factor report adverse effects at dose levels at or below the existing 1 mg/kg bw/day point of departure:

- Pitzer et al. (2019; PMRA No. 3470523) reported decreased locomotor activity in young rats at doses as low as 0.25 mg/kg bw/day — four times below the current point of departure — with effects on body weight, learning, and neurotransmitter levels persisting into adulthood at 0.5 mg/kg bw/day.
- Williams et al. (2019; PMRA No. 3686295) reported neurotoxic clinical signs and mortality in pups at doses starting at 1 mg/kg bw/day, with effects of increasing severity at higher doses, and provided evidence that clinical signs of neurotoxicity and mortality occurred at lower brain concentrations in pups than in adults.
- Multiple additional studies (Curtis et al. 2023 and 2024; Huang et al. 2025; Hao et al. 2024) report neurodevelopmental, behavioural, and neurochemical effects in young animals at or near the existing point of departure, using endpoints (operant conditioning, dendritic morphology, hippocampal architecture) that are arguably more directly relevant to neurodevelopmental harm than acoustic startle amplitude.

Every one of these studies is classified in PRD2026-12 as "acceptable with limitations" and excluded from quantitative use in setting the point of departure. SFM's concern is structural: the cumulative weight of this literature is treated as sufficient to justify tightening the multiplier applied to the point of departure, but no individual study, and no accumulation of these studies, is treated as sufficient to revisit the point of departure itself — even though several report effects below it, using a more sensitive population and, in some cases, more direct measures of neurodevelopmental harm than the 32-year-old critical study.

3.3 Several of the stated limitations were addressable rather than final

SFM further submits that a number of the limitations PRD2026-12 cites to exclude these studies from quantitative use were not inherent defects requiring exclusion, but gaps that were addressable through ordinary regulatory information-gathering tools the Directorate did not appear to use before finalizing its classification of the studies as merely "supplemental."

Several studies are discounted in part for lacking historical control data (for example, Pitzer et al. 2019, Huang et al. 2025, Hao et al. 2024). Historical control data is a useful contextualizing tool, but it is not a uniform requirement for study acceptability under standard toxicological guidance, particularly where a study employs a concurrent, contemporaneous control group dosed and tested under identical conditions to the treatment groups, as each of these studies did. Excluding a well-controlled dose-response study from quantitative use solely because historical control ranges were not separately reported overstates the significance of that omission.

Other limitations cited — data presented only in graphical form, unclear methods, results grouped by sex rather than reported individually, lack of clarity on time-of-peak-effect — are precisely the kind of

gaps that a request for underlying data or methodological clarification, addressed to the study authors or, where the study was registrant-connected, to the registrant, could resolve. PRD2026-12 does not indicate that any such request was made for any of the studies in Appendix I, Table 2 before they were excluded from quantitative use. SFM submits the Directorate should have exhausted reasonable data-clarification avenues before treating these studies as incapable of informing the point of departure itself.

3.4 Independent literature and expert review not reflected in PRD2026-12's hazard characterization

A review of the published and grey literature on deltamethrin for these comments identified relevant material that does not appear in Appendix I, Table 2 of PRD2026-12:

- Ntantu Nkinsa et al. (2023), "Childhood exposure to pyrethroids and neurodevelopment in Canadian preschoolers," Neurotoxicology 99:120–128 (PMID 37802189). This study used the Maternal-Infant Research on Environmental Chemicals (MIREC) Child Development cohort — children aged 3 to 4 years in six Canadian cities — and found associations between urinary pyrethroid metabolite concentrations and both lower IQ and poorer adaptive skills scores, particularly in boys. This is a Canadian, child-specific epidemiological study directly on the endpoint class (neurodevelopment) at issue in PRD2026-12's hazard characterization, and it is absent from a literature review that otherwise reaches back to include animal mechanistic studies with far more attenuated relevance to human risk.
- Oulhote and Bouchard (2013), "Urinary Metabolites of Organophosphate and Pyrethroid Pesticides and Behavioral Problems in Canadian Children," Environmental Health Perspectives 121:1378–1384, using Canadian Health Measures Survey data and reporting associations between pyrethroid exposure and parent-reported behavioural problems in Canadian children. This study is also absent from Table 2.

3.5 The PAN Europe withdrawal petition and the underlying study record

On 26 February 2025, Pesticide Action Network Europe (PAN Europe) wrote formally to the European Commission (DG SANTE) and to the members of the Standing Committee on Plants, Animals, Food and Feed, requesting an emergency ban of deltamethrin under Article 21 of Regulation (EC) 1107/2009. SFM sets out the substance of that letter here because its annexed literature review identifies a body of evidence that materially overlaps with, but is not limited to, the studies already before the Directorate in Appendix I, Table 2 of PRD2026-12, and because PAN Europe reaches a materially different conclusion than PRD2026-12 from a meaningful portion of the same evidentiary base.

PAN Europe's letter identifies two studies published in early 2025 as its immediate trigger: Koff et al. (2025, Molecular & Cellular Proteomics), reporting that deltamethrin exposure in mice at the European Union's current regulatory no-observed-adverse-effect level (NOAEL) altered the brain-derived extracellular vesicle proteome sufficiently to disrupt long-term potentiation at hippocampal synapses — a functional correlate of learning and memory; and Di Re et al. (2025, Journal of Hazardous Materials,

vol. 485), reporting that deltamethrin exposure of pregnant mice at the NOAEL produced synaptic deficits and social memory impairment in offspring linked to developmental vulnerability of hippocampal interneurons, which the study authors characterized as relevant to the exposome of autism spectrum presentations. SFM highlights that both studies report effects specifically at the current regulatory no-effect level, not merely below some historical benchmark — the same structural concern SFM raises in Sections 3.1 through 3.3 above regarding the age and stability of PMRA's own point of departure.

The letter's annex lists close to thirty further studies which PAN Europe characterizes as demonstrating neuroendocrine and developmental effects of deltamethrin in test animals, several at dose levels below the current NOAEL (reported as low as 0.08 to 0.7 ppm). Two of these bear directly on the Directorate's own record: Huang et al. (2025, Ecotoxicology and Environmental Safety, vol. 290) and Zhang et al. (2020, Chemosphere, vol. 241) are the same studies already summarized in PRD2026-12, Appendix I, Table 2 — where the Directorate classifies both as "acceptable with limitations" and excludes them from quantitative use in setting the point of departure. PAN Europe treats the same two studies as part of the evidentiary basis for its conclusion that no safe dose has been demonstrated. This is not a case of two bodies working from different literature and reaching different conclusions; it is the same primary studies, reviewed by two expert bodies, given materially different evidentiary weight — which SFM submits corroborates the concern raised in Section 3.3 above, that the Directorate's study-acceptability screening may be excluding more than the underlying data actually warrants.

PAN Europe's letter also cites Andersen et al. (2022, Environmental Research, vol. 214), a critical review of the epidemiological literature on pyrethroid developmental neurotoxicity, which concludes that pyrethroids are "probably human developmental neurotoxicants" and that adverse impacts on neurodevelopment are "likely at exposure levels occurring currently in the general population." It further cites Viel et al. (2015, Environment International, vol. 82; 2017, Occupational and Environmental Medicine, vol. 74), both drawn from the French PELAGIE mother-child cohort, reporting associations between pyrethroid insecticide exposure and behavioural and cognitive developmental outcomes in children — human epidemiological evidence from a second national birth cohort, alongside the Canadian MIREC-cohort study (Ntantu Nkinsa et al. 2023) identified in Section 3.4 above.

It is evident from the above that a substantial body of independent scientific and public-interest regulatory opinion — drawing in material part on the same primary studies already before the Directorate — has concluded that no safe dose for developmental neurotoxicity has been demonstrated for deltamethrin, at exposure levels the Directorate's own current regulatory framework treats as protective. This directly contradicts PRD2026-12's continued reliance on a fixed, three-decade-old point of departure to authorize an entirely new, unsupervised consumer exposure pathway for this compound in Canada.

SFM further notes one development that corroborates the seriousness with which this pesticide is being treated by regulators outside Canada. The European Commission itself lowered maximum residue limits for deltamethrin on a range of food commodities (including kiwi, potatoes, cabbage, and several other crops, reduced to the limit of determination) effective December 2024 — a precautionary tightening of dietary exposure limits that predates, and is not addressed in, PRD2026-12. Deltamethrin's substantive

EU renewal review, which would resolve the isomer-toxicology data gap discussed above, remains incomplete.

SFM requests that the Directorate conduct, and disclose, a formal benchmark-dose or weight-of-evidence analysis of whether the accumulated literature — including the Canadian and French epidemiological studies identified above, and giving particular attention to Huang et al. (2025) and Zhang et al. (2020) already in the Directorate's own record — supports a point of departure below 1 mg/kg bw/day, rather than relying exclusively on assessment-factor adjustments and study-acceptability exclusions to accommodate that literature. Justification for the discrepancy is required.

4. Ground 3: Postapplication Exposure Was Not Quantified for Adults or Children, and Aggregate Exposure for Children Was Assumed Away, for a Product Whose Central Hazard Is Pediatric Neurotoxicity

Section 3.4.3.2 of PRD2026-12 states that a quantitative risk assessment of potential exposure to adults and children from treated outdoor surfaces was not conducted, on the basis that the proposed uses (edging treatments, foundation perimeter bands, and spot treatments to ant hills) fall within categories that the 2012 US EPA Residential Standard Operating Procedures identify as not requiring postapplication assessment, because human activity in those specific locations is expected to be minimal. This dismissal is not limited to children — PRD2026-12's own text applies it to adults and children alike.

Section 3.5 goes further: aggregate exposure for children is not quantified at all, on the basis that dermal/oral exposure to treated surfaces and dietary exposure "are not expected to co-occur."

SFM submits that both conclusions rest on assumptions about behaviour around treated surfaces, rather than on data specific to this new use pattern. Raid Bug Defense is explicitly marketed for application "on and around the home" — including foundation perimeters and spot treatments to ant hills, areas that are foreseeably within reach of both adults and young children in ordinary residential and yard settings, particularly given that this is (per Ground 1) the first deltamethrin product in Canada intended for application by untrained members of the public rather than certified applicators following restricted-entry and drift-management conditions. The child-specific concern is most acute for the aggregate exposure question in Section 3.5, where the Directorate assumes, without supporting data, that a child's postapplication contact with treated surfaces and their ordinary dietary exposure will not co-occur.

The critical hazard for deltamethrin — as PRD2026-12 itself establishes at length — is developmental neurotoxicity in the young, assessed against a point of departure (Ground 2) that the Directorate's own text describes as carrying residual uncertainty regarding the sensitivity of the underlying endpoint. Declining to quantify postapplication exposure for the population as a whole, and declining to quantify aggregate exposure for the specific population (children) for whom that hazard is most acute, for the one use pattern (unrestricted residential/consumer application) that has never before been assessed for

this compound, is not consistent with the precautionary and protective purpose of the PCPA's hazard-characterization provisions.

SFM requests that the Directorate conduct a quantitative postapplication dermal and incidental oral exposure assessment for both adults and children, specific to the proposed use pattern (perimeter and spot treatments to home exteriors and ant hills), rather than relying on a categorical exemption developed for a different regulatory context (US EPA turf/lawn use); and that it conduct a corresponding quantitative aggregate exposure assessment for children, incorporating that postapplication input, rather than assuming non-co-occurrence with dietary exposure.

5. Ground 4: The Proposed Environmental Mitigation Rests on an Unjustified Assumption That This Use Poses Lower Aquatic Risk Than Every Other Deltamethrin Use on Record

PRD2026-12 confirms that deltamethrin is very highly toxic to fish and aquatic invertebrates, and that beneficial insects, bees, and mammals are also at risk from exposure. The proposed environmental mitigation for Raid Bug Defense consists of generic label statements advising that deltamethrin is toxic to bees, beneficial insects, and aquatic organisms, and that users should avoid contaminating irrigation, drinking water, and aquatic habitats. No basis is disclosed in PRD2026-12 for why this generic language is sufficient here, when it has not been treated as sufficient for any other deltamethrin use.

SFM acknowledges that a specific numerical spray buffer zone is not required for this use under existing Directorate policy: RVD2018-27 (the 2018 final re-evaluation decision for deltamethrin) confirms that "spot treatments using hand-held equipment DO NOT require a buffer zone," and Raid Bug Defense is applied by hand-held trigger sprayer. SFM does not dispute the buffer-zone exemption on that basis.

However, RVD2018-27 also required, on every other deltamethrin product then registered in Canada, label language beyond the generic toxicity statements proposed here — specifically a requirement to avoid application when heavy rain is forecast; runoff-avoidance and vegetative-strip guidance to reduce the potential for deltamethrin to reach adjacent aquatic habitats; and wind-speed and application-timing restrictions tied to drift and runoff control. These requirements were imposed specifically because of the acute sensitivity of aquatic invertebrates to deltamethrin — PRVD2015-07 reports risk quotients for aquatic invertebrates exceeding the level of concern by as much as three orders of magnitude (RQ up to approximately 15,500 for spray-drift exposure) — a hazard profile PRD2026-12 does not dispute and in fact restates.

The same pattern holds internationally. In its September 2020 Interim Registration Review Decision for deltamethrin, the United States Environmental Protection Agency required, for the same class of use (residential and urban outdoor structural/perimeter treatments using the same active ingredient), a package of use-specific mitigation: restrictions on treatable perimeter distance from building foundations, prohibitions on application to impervious surfaces except as spot or crack-and-crevice treatment, restrictions on application during rain or when rain is forecast within four hours, and drain-

contamination warnings — again justified specifically by deltamethrin's high aquatic toxicity and the runoff pathway associated with urban surface-spray use.

PRD2026-12 offers no explanation of justification, grounded in data specific to this use pattern, for why an outdoor residential spray product — applied, per the product directions, to foundation perimeters and spot locations around private homes, exactly the structural/urban use pattern both the Directorate's own 2018 decision and USEPA's 2020 decision determined required rain and runoff mitigation — should be treated as posing materially lower aquatic risk than those other uses. In the absence of such an explanation, the omission of rain-forecast and runoff-avoidance language reads as an assumption rather than a risk-based conclusion, which is inconsistent with a scientifically grounded approach to environmental risk characterization. Spot and perimeter applications around home foundations and yards are, if anything, at least as likely to occur in proximity to residential drainage, downspouts, and stormwater pathways as many of the agricultural use sites for which equivalent mitigation has previously been required.

SFM requests that the Directorate either disclose the data-specific basis for concluding that this use pattern does not require rain-forecast and runoff-avoidance label language, or add such language consistent with RVD2018-27, Appendix III, Section VI.

6. Ground 5: The PCPA-Mandated Cumulative Health Risk Assessment Has Not Been Conducted, and No Documented Basis Is Given for Proceeding Without It

Sections 7, 11, and 19 of the PCPA require the Directorate to consider available information on the cumulative effects of a pest control product and other pest control products that share a common mechanism of toxicity, as part of new evaluations, re-evaluations, and the establishment of maximum residue limits. This is a legislative requirement, not a discretionary practice. PRD2026-12 confirms that deltamethrin belongs to the pyrethroid class, all members of which share the ability to interact with voltage-gated sodium channels, and states that the pyrethroid cumulative health risk assessment "is currently in the initial planning phase."

The Directorate's own Cumulative Health Risk Assessment Framework (Science Policy Note SPN2018-02) does not require that a full cumulative assessment be completed before every individual registration proceeds. It provides that a cumulative determination can be addressed within the documentation for an individual PRD in one of two ways: either through a qualitative or quantitative cumulative assessment specific to that registration, or through a documented, published finding that a cumulative assessment is not required for that registration — for example, because co-exposure is not expected or a common mechanism is not implicated for the specific use at issue.

PRD2026-12 does neither. It does not present a cumulative assessment for this use, and it does not present a documented, use-specific finding that a cumulative assessment is unnecessary for Raid Bug Defense. It states only that the broader class-wide assessment remains in an early planning stage — a statement about the state of the class-wide project, not a scoping determination about this registration.

As such, PRD2026-12 does not satisfy the cumulative-effects consideration that the PCPA requires, and finalizing this registration on the current record would be in breach of that statutory requirement.

This gap is not new. The pyrethroid class re-evaluation was announced in REV2011-05 (December 2011). PRVD2015-07 (2015) stated that a cumulative assessment would be conducted "upon completion of the re-evaluation of the individual chemicals in the pyrethroid group." PRD2023-05 (2023) repeats the same commitment in substantively identical language. SPN2018-02 itself, in responding to public comments received during its own consultation, acknowledged that cumulative assessments for some pesticide groups "were deferred" and committed to developing "a strategic plan to address those with outstanding cumulative health risk assessments." PRD2026-12, eight years after that commitment and three years after PRD2023-05 repeated the same open-ended language, describes the pyrethroid cumulative assessment as still only in its "initial planning phase," with no strategic plan, target date, or interim scoping determination disclosed on the public record for this or any other pyrethroid registration.

6.1 The reassurance PRD2026-12 does offer does not withstand scrutiny

PRD2026-12 is not entirely silent on this point. Section 3.6 states that the "USEPA completed a cumulative health risk assessment in 2011 for pyrethroid products registered in the United States" and concluded cumulative risks were not of concern, and that "in 2020, the European Food Safety Authority (EFSA) conducted a cumulative dietary risk assessment" and reached a similar conclusion for acute nervous-system effects. PRD2026-12 offers these two foreign assessments as the basis for treating cumulative pyrethroid risk as adequately addressed notwithstanding the absence of a completed Canadian assessment. SFM submits that neither assessment can carry that weight, for four reasons.

- The EFSA assessment's own stated scope — acute acetylcholinesterase inhibition and motor-division functional alterations — reflects a common-toxic-effect grouping, not the common-mechanism-of-toxicity standard the PCPA and SPN2018-02 require. Acetylcholinesterase inhibition is not deltamethrin's mechanism of action; deltamethrin acts on voltage-gated sodium channels. An assessment organized around a shared downstream effect across a broader class of nervous-system-active pesticides is not equivalent to, and cannot substitute for, the common-mechanism cumulative assessment the PCPA specifically require for pyrethroids.
- Both foreign assessments are dietary-only or dietary-dominant in scope. Neither evaluated a residential, unsupervised consumer-handler exposure pathway of the kind PRD2026-12 proposes to introduce for the first time in Canada (Ground 1, above). A cumulative assessment that does not model the specific new exposure pathway at issue cannot stand in for one that does.
- Both assessments substantially predate the literature the Directorate itself relies upon elsewhere in PRD2026-12 to justify restoring the full tenfold PCPA factor. It is inconsistent to treat 2019–2025 literature as current enough to change the assessment factor in Section 3.1.2, while simultaneously treating a 2011 US assessment and a 2020 EU dietary screening assessment as sufficient to dispose of the cumulative question without any update.

- The US assessment was conducted under a materially different, and less protective, toxicological framework than the one PMRA itself now applies to deltamethrin: in 2019, USEPA eliminated the FQPA 10X child-safety factor for pyrethroids as a class, on the basis of industry-funded pharmacokinetic data. PMRA reached the opposite conclusion for deltamethrin specifically in this very PRD, restoring the full PCPA factor because of young-animal sensitivity. Relying on a US cumulative assessment built on a safety factor PMRA itself has just declined to adopt is not a coherent basis for confidence in the absence of a Canadian equivalent.

None of the reasoning PRD2026-12 actually offers, in other words, addresses the specific gap it is being offered to fill. SFM submits that PRD2026-12 has not provided a scientifically defensible basis, on its own terms, for concluding that cumulative pyrethroid risk is adequately characterized for this registration.

6.2 Without a cumulative assessment, the Directorate cannot make the finding subsection 2(2) requires

Subsection 2(2) of the PCPA defines an acceptable health risk as one where there is reasonable certainty that no harm to human health will result from exposure to the product under its proposed conditions of registration. SFM submits that this finding cannot be made on the present record for Raid Bug Defense.

PRD2026-12 establishes, in its own text, that: children are the population for whom the critical hazard (developmental neurotoxicity) is most acute, and are the population that drove the Directorate's own decision to restore the full tenfold PCPA factor (Ground 2, above); the product introduces, for the first time in this compound's Canadian history, an unsupervised residential exposure pathway reaching directly into homes where children live and play (Ground 1, above); and deltamethrin is one of numerous pyrethroid-class insecticides already registered for domestic use in Canadian households, creating a realistic potential for children to be concurrently exposed to more than one product sharing deltamethrin's mechanism of toxicity. Against that background, a finding of "reasonable certainty of no harm" cannot rest on an assessment that considers deltamethrin in isolation from the other pyrethroid-class exposures a child in the same household may realistically experience at the same time. That is precisely the gap a cumulative assessment exists to close, and it is precisely the gap that remains open here.

SFM submits that the individual-chemical risk assessment in PRD2026-12, however protective in isolation, does not and cannot answer the question subsection 2(2) requires the Directorate to answer for this registration: whether children exposed to deltamethrin from this new residential use, concurrently with their existing exposure to other pyrethroid-class household products, face a reasonable certainty of no harm. On the current record, that question has not been asked or answered. SFM submits that the Directorate cannot lawfully finalize this registration under subsection 2(2) until it has done so.

SFM requests that the Directorate either complete the pyrethroid cumulative health risk assessment before finalizing this registration, or publish a specific, use-specific scoping determination — consistent with the process SPN2018-02 itself describes — explaining, on a basis that engages with the deficiencies identified in Section 6.1 above, why this particular use does not warrant cumulative assessment prior to

registration. Absent one or the other, SFM submits the registration cannot proceed lawfully and consistently with subsection 2(2) of the PCPA.

7. Ground 6: Internal Inconsistency in the Reported Literature-Search Date

Footnote 6 of PRD2026-12 (page 10) states that the literature search underlying the hazard characterization "was conducted in March 2025." The introductory text to Appendix I, Table 2 (page 29) states that the studies summarized there "were identified following a literature search conducted in November 2025."

These two statements cannot both be accurate as written. This is not a trivial discrepancy: several of the studies relied upon in Table 2 carry 2024 and 2025 publication dates, and the completeness of the literature review — specifically, whether studies published between March and November 2025 were captured — bears directly on the adequacy of the weight-of-evidence analysis underlying Ground 2 above.

SFM requests that the Directorate clarify the actual date(s) on which the literature search was conducted and updated, and confirm whether any studies published after March 2025 and before the close of this consultation period have been, or will be, incorporated into the final hazard characterization.

8. Ground 7: The Value Assessment Does Not Demonstrate a Benefit Sufficient to Justify the New Exposure Pathway

Section 5.0 of PRD2026-12 confirms that Raid Bug Defense "would provide a new product with a new active ingredient, but not a new mode of action," for the control of pests (ants, cockroaches, house flies, stable flies, spiders) that numerous already-registered domestic pyrethrin and pyrethroid products already control.

Subsection 2(1) of the PCPA defines "value" to include not only efficacy, but the product's health, safety, and environmental benefits and its social and economic impact, considered together with its conditions of registration. PRD2026-12's value assessment addresses efficacy alone — that Raid Bug Defense kills the target pests — without weighing that benefit against the incremental health and environmental cost of introducing, for the first time, an unrestricted consumer application pathway for this active ingredient (Ground 1), into a market that SFM submits already offers effective alternatives using registered active ingredients with an established domestic-use history.

SFM requests that the Directorate's value assessment address why the incremental risk associated with a first-ever domestic-class registration of deltamethrin is justified by a product that offers no new mode of action and no efficacy advantage clearly disclosed on this record over existing registered domestic alternatives.

9. Requested Actions

For the reasons set out above, SFM requests that Health Canada's Pesticide Regulatory Directorate:

- Decline to finalize the proposed registration of Raid Bug Defense until the Directorate has assessed, and disclosed its assessment of, the changed risk profile described in Ground 1;
- Conduct and disclose a weight-of-evidence or benchmark-dose analysis of whether the full body of relevant literature — including the Canadian epidemiological studies identified in Ground 2 — supports revising the point of departure below 1 mg/kg bw/day, and pursue available data-clarification requests before excluding relevant studies from quantitative use (Ground 2);
- Conduct a quantitative postapplication exposure assessment for both adults and children, and a corresponding quantitative aggregate exposure assessment for children, specific to the proposed use pattern (Ground 3);
- Disclose the data-specific basis for omitting rain-forecast and runoff-avoidance label language, or add such language consistent with RVD2018-27 (Ground 4);
- Either complete the pyrethroid cumulative health risk assessment mandated by the PCPA, or publish a use-specific scoping determination consistent with SPN2018-02 that engages with the deficiencies in the Directorate's current reasoning; absent one or the other, decline to finalize the registration, as the record does not support the reasonable-certainty-of-no-harm finding subsection 2(2) requires (Ground 5);
- Clarify the literature-search date discrepancy and confirm the completeness of the literature review (Ground 6); and
- Supplement the value assessment to address the incremental risk-benefit analysis required by subsection 2(1) of the PCPA (Ground 7).

Submitted by Safe Food Matters Inc.

Appendix A: Sources and Links

The following links are provided for the Directorate's convenience in locating the primary and secondary sources referenced in these comments. Journal articles are linked by their Digital Object Identifier (DOI), which will resolve to the publisher's page for the article.

A.1 PAN Europe materials (Ground 2, Section 3.5)

- PAN Europe letter to DG SANTE and SCoPAFF, "Emergency ban for pesticide deltamethrin needed" (26 February 2025), including the annexed literature review — https://www.pan-europe.info/sites/pan-europe.info/files/public/resources/Letters/Stop%20use%20of%20deltamethrin.pdf
- PAN Europe press release, "Pesticide deltamethrin causes brain damage in offspring at 'safe' dose" (4 March 2025) — https://www.pan-europe.info/press-releases/2025/03/pesticide-deltamethrin-causes-brain-damage-offspring-safe-dose
- PAN Europe, "Deltamethrin" campaign page (Save our Brain campaign) — https://www.pan-europe.info/campaigns/save-our-brain/deltamethrin

A.2 Independent and PAN Europe-cited literature (Ground 2, Sections 3.4–3.5)

- Ntantu Nkinsa et al. (2023), Neurotoxicology 99:120–128 — PMID 37802189 — https://pubmed.ncbi.nlm.nih.gov/37802189/
- Oulhote and Bouchard (2013), Environmental Health Perspectives 121:1378–1384 — doi:10.1289/ehp.1306667 — https://doi.org/10.1289/ehp.1306667
- Koff et al. (2025), Molecular & Cellular Proteomics 24(2):100902 — doi:10.1016/j.mcpro.2024.100902 — https://doi.org/10.1016/j.mcpro.2024.100902
- Di Re et al. (2025), Journal of Hazardous Materials 485:136893 — doi:10.1016/j.jhazmat.2024.136893 — https://doi.org/10.1016/j.jhazmat.2024.136893
- Andersen et al. (2022), Environmental Research 214:113935 — doi:10.1016/j.envres.2022.113935 — https://doi.org/10.1016/j.envres.2022.113935
- Viel et al. (2015), Environment International 82:69–75 — doi:10.1016/j.envint.2015.05.009 — https://doi.org/10.1016/j.envint.2015.05.009
- Viel et al. (2017), Occupational and Environmental Medicine 74:275–281 — doi:10.1136/oemed-2016-104035 — https://doi.org/10.1136/oemed-2016-104035
- Huang et al. (2025), Ecotoxicology and Environmental Safety 290:117729 — doi:10.1016/j.ecoenv.2025.117729 (also in PRD2026-12, Appendix I, Table 2, PMRA No. 3826229) — https://doi.org/10.1016/j.ecoenv.2025.117729

- Zhang et al. (2020), Chemosphere 241:125118 — doi:10.1016/j.chemosphere.2019.125118 (also in PRD2026-12, Appendix I, Table 2, PMRA No. 3470524) — https://doi.org/10.1016/j.chemosphere.2019.125118

A.3 Other regulators and Directorate policy materials (Grounds 2, 4, 5)

- US EPA, Deltamethrin Interim Registration Review Decision (September 2020) — https://www.epa.gov/sites/default/files/2020-10/documents/deltamethrin-reg-review-id.pdf
- Health Canada, Science Policy Note SPN2018-02, Cumulative Health Risk Assessment Framework — https://www.canada.ca/en/health-canada/services/consumer-product-safety/reports-publications/pesticides-pest-management/policies-guidelines/science-policy-notes/2018/cumulative-health-risk-assessment-framework-spn2018-02.html