PSGR

Physicians & Scientists for Global Responsibility

May 13, 2025

Submission

Consultation: Ministry of Primary Industries proposal to increase glyphosate residues on cereals and dried peas.

Submitted to the:

Ministry for Primary Industries
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PSGR would welcome an opportunity to speak to this submission.

Physicians and Scientists for Global Responsibility Charitable Trust (PSGR) works to educate the public on issues of science, medicine, technology (SMT). PSGR work to encourage scientists and physicians to engage in debate on issues of SMT, particularly involving genetics and public and environmental health.

Consultation: Ministry of Primary Industries proposal to increase glyphosate residues on cereals and dried peas. Deadline: 5pm, 16 May 2025

The consultation proposes to amend maximum residue levels (MRLs) across a broad range of pesticides. The consultation has a short time frame which does not provide sufficient time for a reasonable evaluation of the safety of the proposed revised MRLs targeted for revision by MPI.

This submission by PSGR exclusively discusses the proposed increase in MRLs for glyphosate herbicide.

The Ministry for Primary Industries (MPI) have proposed that maximum residue levels (MRLs) for glyphosate in cereals and dried peas are raised following detections that have exceeded the existing MRL.

- Wheat, oats, barley: from 0.1 to 10 mg/kg
- Field peas (dried): from 0.1 to 6 mg/kg

The rationale is outlined in Discussion Paper No: 2025/01:

Proposals to Amend the New Zealand Food Notice: Maximum Residue Levels for Agricultural Compounds. New Zealand Food Safety Discussion Paper No: 2025/01. Ministry for Primary Industries.

MPI have proposed this after the Food Residues Surveillance Programme (FRSP) detected levels in wheat between 0.2 mg/kg to 5.9 mg/kg. These levels exceeded the New Zealand default level.

The 2015/2016 Report on Pesticides in Fresh and Frozen Produce A survey under the Food Residues Surveillance Programme (FRSP) MPI Technical Paper No: 2017/3

We quote:

> *'There were 20 (out of 60) non-compliant wheat samples with glyphosate levels exceeding the New Zealand default MRL of 0.1 mg/kg (as glyphosate has no set MRL the default MRL applies). None of the wheat samples posed any food safety risks. MPI followed up with the 20 wheat farmers. As a majority of the wheat farmers were following label instructions, there could be other external factors and farming practice changes that may have contributed to the detected levels above the default MRL. MPI is now* ***proposing a review of the residues information*** *for glyphosate.'*

Since this time there is no evidence accessible on the MPI website that a review of residue information was undertaken.

The Discussion Paper No: 2025/01 contains information pertaining to this consultation.

PSGR notes that the scientific information, which seeks to justify that the 60 -100x increase in glyphosate residues is safe for farmers, applicators and the general public, is not based on best practice, as can be found in the scientific literature. It is deficient in detail, not acknowledging the "probable carcinogen" status of glyphosate and is therefore broadly unsuitable and outdated.

The information in the discussion paper does not try to procedurally, ethically or scientifically justify the safety of glyphosate and it fails to approximate any form of transparent and accountable regulatory convention using any form of up-to-date guideline or methodology. The underlying data and the methods of arriving at data are not disclosed.

It is very evident that officials have a casual disregard for the toxicity and carcinogenicity of glyphosate. Officials at both responsible agencies, MPI's New Zealand Food Safety and the New Zealand Environmental Protection Authority (NZEPA) have regarded glyphosate as generally safe, biasing organisational beliefs to favour the safety of glyphosate for two decades.

Our government agencies have failed to include glyphosate testing in total dietary studies, do not test for glyphosate, it's co-formulants and breakdown products in water and surrounding environments, in agricultural soils, particularly in cooler climates where bioaccumulation is much more likely. These agencies have failed to fund biomarker testing in humans and livestock, and assess dietary and occupational exposures.

There is a paucity of data on occupational use with no clear funding channels in New Zealand. Occupational exposures present the most risks, as farmers and sprayers are frequently exposed to both acute, higher dose events, and low dose chronic exposures from general use. Occupational disease from glyphosate can present as a complex range of symptoms and pathologies.

The absence of published data on exposure levels and risks to farmers and applicators, suggests that the authorities hold farmers and applicators in very low regard.

New Zealand agencies are blithely ignorant of the risk that glyphosate presents, in particular, to babies, children and adolescent from chronic dietary exposures, which are primarily derived from cereal and oilseed crops.

Authorities persistently refrain from evaluating the scientific data, and considering the weight of evidence that chronic exposures to glyphosate and glyphosate-based herbicides have genotoxic and cytotoxic properties, induce inflammation and oxidative stress, decreases nutrient absorption, drive cancer risk, and are endocrine disrupting. These drivers lay the foundation for a broad range of related diseases and syndromes. Evidence continues to mount that glyphosate impairs the digestive system and microbiome, impacts glucose and lipid metabolism gene expression, disrupts the gut-brain axis, disrupts the nervous system, induces brain inflammation, is strongly associated with infant neurodevelopmental abnormalities, is toxic to the liver and kidneys, and impairs female and male fertility.

These studies are outside New Zealand's unscientific and self-imposed regulatory protocols. Therefore they will not be considered by government regulators, even though those regulators are legally required to act to protect health.

The self-imposed regulatory protocols and guidelines distinctly undermine the primary legislation, enabling government officials to remain remarkably ignorant about the etiological drivers of health risk, even though this is contrary to administrative law principles.

The agencies decline to address the truth that New Zealand use patterns are not best practice. Applications on food and feed crops, down roadsides and in urban areas where there is public access, is not good practice globally, but only permitted in the weakest regulatory jurisdictions. New Zealand government agencies ignore and dismiss citizen protests when local waterways are sprayed directly with glyphosate with the claim that it is more important to get rid of weed species than express concern about the harm from direct application on waterways.

New Zealand agencies have consequently failed to engage with the reasoning behind Europe's ban of glyphosate on crops. They've failed to engage with the fact that European tolerances do not provide for broadscale spraying on roadsides and in urban environments. We have detailed this in a video presentation

MPI and NZEPA have failed to undertake any form of due diligence to impartially discuss the International Agency for Research on Cancer (IARC) data, to evaluate information that was disclosed via the discovery process and consider judicial findings in prominent court cases, ignored epidemiological data, and distanced themselves from the published and peer-reviewed scientific literature. Since this time the mechanistic evidence that glyphosate is a probably human carcinogen, has continued to mount.

These agencies have systematically ignored information that was presented by plaintiffs in court cases. Problematically, Bayer/Monsanto understood that glyphosate was more toxic than assumed by regulatory agencies. Monsanto knew that dermal exposures presented a far greater health-based risk than had conventionally presumed by global regulatory agencies.

It is very evident that when the International Agency for Research on Cancer (IARC) released the finding that glyphosate was a probable carcinogen, that New Zealand authorities did not act to investigate the reasoning. Instead, they produced a paper that was intended to deflect the findings of the IARC and used exclusively corporate data, rather than the open-published literature that had been used by the IARC scientists. In August 2016, following the IARC finding, the NZEPA released a 'Review of the Evidence Relating to Glyphosate and Carcinogenicity' as well as an accompanying Lay Review. This report was authored by a single author and only peer reviewed by government scientists. No independent scrutiny occurred. This report was heavily criticised in an August 2017 Green Party paper,'Public Health Concern: Why did the NZ EPA ignore the world authority on cancer?, a paper co-authored by Jodie Bruning, before she joined PSGR.

PSGR has documented much of the deficient and haphazard approach to regulation in our 2021 Submission to the NZEPA:

- PSGR - September 22, 2021 Submission New Zealand Environment Protection Authority 'Call for Information on glyphosate'.

PSGR has concluded that the entire regulatory environment for the stewardship of hazardous chemicals to protect human and environmental health is broken, and that no effort has been made by Ministers or chief executives to establish a cohesive, functional, evidence-based framework. The current regulatory culture and framework ensures that New Zealand lags behind other in the regulation of chemicals, particularly when it comes to pesticides.

MPI refused to include glyphosate in the 2024 New Zealand Total Diet Study (Infants and Toddlers):

> *'NZFS reviewed the IARC report in July 2015 (IARC, 2015) and concluded that IARC had done a hazard assessment and not a risk assessment.'*
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> *'A number of countries such as Australia, USA, Canada, and more recently the European Union have either recently reviewed glyphosate, or have undertaken a risk assessment and have concluded that glyphosate is unlikely to pose a carcinogenic risk to humans. In the case of the European Union, it recently renewed its approval for 10 years from 16 December 2023.*

We are concerned that there is no quorum across the responsible agencies of toxicological scientists with expertise in risk assessment. We note that risk assessment is rare, and is therefore not usually carried out. New Zealand's Environmental Protection Authority (NZEPA) has never conducted a comprehensive risk assessment of glyphosate, to balance the claims made by the industry sponsor, and evaluate or triangulate this data in the scientific literature.

Instead of risk assessments, Regulatory agencies receive updated information from the chemical company sponsor as applications. This can involve completely new pesticides, or new ways to use a

pesticide, such as when the NZ EPA permitted higher strength 600g/L glyphosate products not approved in safer jurisdictions to be released (discussed here on page 10) Regulatory agencies depend on similar submission processes from the industry 'sponsor' - whereby the industry selects and supplies the data for risk assessment.

Permitted levels of glyphosate applications on crops in New Zealand do not align with European practice. Europe has banned glyphosate sprays on wheat, barley, oats and threshing peas - the crops New Zealand seeks to increase residues on. The instructions on labels in New Zealand align with corporate recommendations, but fail to reflect the data on the persistence of glyphosate, which can extend far beyond 7-14 days prior to harvest.

Authorities claim that the 10mg/kg will be safe. However, there is no risk assessment to back up this claim. NZ EPA's regulatory risk assessment methodology does not provide instructions for risk assessment to include the combined risk to humans from dietary, dermal and inhalation exposures. Most scientific evidence presented by the public is not a requirement for consideration in the NZEPA's Methodology document, and is therefore frequently dismissed.

The poor quality of work is evident from the current Discussion paper.

1. Thirty year old guidelines are used: Guidelines for predicting dietary intake of pesticide residues (revised) [World Health Organization, 1997].

2. Dietary exposures are based on thirty-year-old data: regional dietary consumption data derived from the 1997 National Nutritional Survey for adults and the 1995 National Nutrition Survey of Australia for children

3. MPI have created a health based guidance value (HBGV) of 0.27mg/kg without showing the underlying data. PSGR recognise that the HBGV approximates the old European level of 0.3mg/kg, so they are theoretically in a safe zone. However, it is not scientifically reasonable, nor does it follow any convention for good regulatory practice, if the figures enabling the final HBGV are not declared. The public are expected to accept a magical number, which appears to be pulled out of air.

Science on the harm from hazardous substances including pesticides is largely absent, despite New Zealand exporting some $54 billion of export products. Unfortunately, we have a situation where the scientific evidence arises through:

a. reliance on the sponsor to provide data,
b. the use of guidelines, protocols and modelling scenarios, and
c. the absence of requiring feedback from New Zealand scientists.

This work is not funded in New Zealand as it is outside the scope of the science-funding ministry and MPI and the NZEPA fail to set aside funding for this work. There are also no requirements from the NZEPA to receive feedback from scientists who work in the New Zealand environment. In Furthermore, no scientists are charged with reviewing the science on glyphosate, and conducting laboratory studies to verify and triangulate industry claims.

The neurotoxic risk of glyphosate, the risk that it impairs and degrades the human microbiome, and the evidence that hormone-level exposures are harmful and may impact fertility, remain unstudied in New Zealand. Data demonstrating the increased prevalence of inflammatory bowel disease in New Zealand has just been released. Dietary exposures directly impact the health and integrity of the intestinal microbiome and epithelium.

The public increasingly can continue to independently assess and understand the problem, even when authorities display no intention of reviewing the latest scientific evidence. Babies and children, consume more food by body-weight than adults, and are therefore also exposed to a greater burden of dietary toxins. Chronic daily dietary exposures in infancy and childhood plausibly create long-term harms, particularly because children have critical windows of vulnerability where they are particularly susceptible to damage.

We recognise that our authorities hide behind global norms. Instead of following best practice, which, like Europe, would be to ban glyphosate sprays on human food and animal feed crops, and only approve use of glyphosate in highly restricted non-agricultural use patterns, we reflect decisions undertaken in much weaker regulatory jurisdictions. These ignore the risks presented by glyphosate sprayed crops, that are evident from urinary metabolite and biomarker assays.

MPI probably does not know that, as we have discussed, the authorisation of 600g/L glyphosate underscores the NZEPA's global position, as that of a weak regulator. This highest concentration (600g/L) of glyphosate places farmers more at risk, as accidental/unintentional poisoning/contamination is commonplace (see also pages 15-17 on our *Call for Information* Submission). It is difficult for farmers to avoid contamination, even if they take all precautions.

The reliance at the global level on inadequate and outdated evidence is facilitated through the claim that Codex Alimentarius maximum residue levels are safe. Codex Alimentarius MRL levels are derived from the World Health Organization (WHO) and Food and Agriculture Organization (FAO) toxicological assessments. These assessments skew the bias of all ADI levels to data supplied directly by corporations, that is frequently decades old and unpublished for peer review.

FAO and WHO toxicological reviews fail to be updated using methodological reviews, which take into account a weight of evidence in the scientific literature. Such reviews include risks from direct, acute exposures to low-level hormonally relevant concentrations that affect the endocrine system.

This is why the current so-called WHO safe level of glyphosate in drinking water, and the current so-called safe acceptable daily intake of glyphosate are not scientifically justified.

The drinking water ADI level of 0.3mg/kg bodyweight a day is based on a 1981 Monsanto study, first set in 1985, and the dietary ADI level of 1mg/kg bodyweight is based on a 1993 Cheminova study and was set in 2006

1. Bio/Dynamics Inc. (1981a) A lifetime feeding study of glyphosate (Roundup technical) in rats. Unpublished report prepared by Bio/Dynamics Inc., Division of Biology and Safety Evaluation, East Millstone, NJ. Submitted to WHO by Monsanto Ltd. (Project No. 410/77; BDN-77-416).

2. Atkinson, C., Strutt, A.V., Henderson, W., Finch, J. & Hudson, P. (1993b) Glyphosate: 104 week combined chronic feeding/oncogenicity study in rats with 52 week interim kill (results after 104 weeks.). Unpublished report No. 7867, IRI project No. 438623, dated 7 April 1993, from Inveresk Research International, Tranent, Scotland. Submitted to WHO by Cheminova A/S, Lemvig, Denmark.

3. Glyphosate. Joint FAO-WHO Meeting on Pesticide Residues. Pesticide residues in food – 2004: Part II toxicological evaluations. Report No. WHO/ PCS/06.1. Geneva. ISBN 978 92 4 166520 9. WHO published 2006 p. 160

We have also come to the conclusion that for some three decades New Zealand authorities have failed to address the evidence held with health authorities and the ACC on illnesses, including cancer, that result from, or are strongly linked with workplace exposures.

In short, the New Zealand public cannot assume that New Zealand authorities have their best interests at heart.

This is also an equity issue, as those on lower incomes cannot usually afford organic produce, while those with higher disposable incomes can.

PSGR recommends:

- Glyphosate sprayed directly on food crops drives unacceptable health risks, and PSGR do not consent to the increase in residue levels which are associated with direct sprays on crops prior to harvest.

- That MPI, together with the NZ EPA, should take action to align with European agricultural practice and ban the overspray of glyphosate on human food and animal feed crops for pre-harvest desiccation.

- That MPI produces a report on the risks to babies and children from toxic dietary exposures and reviews the evidence on the developmental origins of health and disease.

- Authorities ban the widespread spraying of glyphosate (and herbicide co-formulants) down roadsides and in urban environments.

- That the New Zealand food safety Minister puts pressure on Australia to ban the spraying of glyphosate on human food and animal feed crops in Australia. This is essential, as most wheat used in the North Island of New Zealand is imported from Australia.

- That MPI and EPA publicly acknowledge that they have never conducted a formal risk assessment to assess the human and environmental health risk of glyphosate based herbicides. For the health and safety of people, animals and the environment, they need to stop pretending that glyphosate is safe for consumption if they have never undertaken a comprehensive risk assessment to understand New Zealand usage patterns and responses to glyphosate exposures.

- That agencies fund long-term research and provide resourcing to support farmer and grower shifts away from pesticides dependence, i.e. the pesticides treadmill, particularly from the prophylactic use of pesticides. Authorities can fund long-term basic research to evaluate and update all agricultural sectors on best practice integrative pest management, particularly in countries that have a similar range of regional climates.

- That public policy takes steps to strategically implement integrative pest management (IPM) and sets aside more investment for weed control technologies that will not drive resistance in pest populations. These would include software and robotics to ensure food security, by preventing the long-term accumulation of synthetic chemicals (and their heavy-metal cofactors) in New Zealand soils. They would also play a role in reducing farmer dependence on synthetic chemical inputs and transition away from glyphosate use.

- MPI and EPA must be transparent about the fact that glyphosate-resistance weeds are now an increasing problem in New Zealand (Dr Trevor James and colleagues - wild carrot, ryegrass). This is a global problem. and the 'solution' of using additional herbicides and tank mixtures that are similarly or even more toxic (e.g. glufosinate or dicamba), creates a higher toxicity burden to farmers and consumers.

- Authorities must acknowledge that no matter what technology is adopted to control pest populations, poorly managed agricultural systems will lead to an increase in pest populations. This includes gene editing technologies which have greater potential for persistence in the environment due to gene flow and heritability.

- That New Zealand recognises that Europe has embedded a stronger application of the precautionary principle in European legislation. New Zealand can, and should, do this also.