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## **Perception of and Public Trust in the Canadian Agricultural Sector**

Submission to the Standing Committee on Agriculture and Agri-Food

Submitted via E-mail: [Agri@parl.gc.ca](mailto:Agri@parl.gc.ca)

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We thank the Committee for studying public perceptions of Canadian agriculture, and are pleased to provide our perspectives on the Canadian Agricultural Sector.

### **Introduction**

The current Committee study was initiated following a study of mental health among farmers. In the era of climate chaos, and international refusals of Canadian commodities – be it in Europe for excessive pesticide residues, or recent refusal of canola by China ostensibly due to pests – farmers certainly have reasons for distress.

*Prevent Cancer Now* is keenly aware of the tremendous importance of nutritious food to maintain health and to prevent cancer, and we are grateful to Canadian farmers who share these goals and provide a great diversity of delicious, healthy foods.

Public perception of the agricultural sector is mixed. It is coloured by interconnected concerns over sustainability of agriculture, food security and quality, transparency, and multiple environmental considerations including pesticides, biodiversity and human health.

### **Sustainability**

#### ***Food Security***

Canadians share grave concerns as we all – and farmers in particular – stare down floods and droughts, and worry about ruinous outcomes with increasing climate chaos. What will be the availability and sustainability of diverse, nutritious food supplies for Canadians, beyond commodity crops for export? Ontario orchards have been bulldozed because farmers could not compete with cheap apple juice or tinned peaches from China. In search of transitory economic benefits, clearly security has been compromised by globalization. This highlights the federal imperative to support, build and maintain complete nutritional food supplies by and for

Canadians. This food should transparently meet the standards touted, to be “the best in the world.” Canada falls short, both on meeting this high bar, and on transparency.

**Recommendation:** Recognize the federal imperative to support and to build and to maintain high quality, complete nutritional food supplies by and for Canadians, and to report transparently on food quality.

Health Canada reports that roughly a third of food is wasted – not consumed – at the same time as poor and marginalized individuals are under-nourished. This waste is a lost opportunity for public health, and reflects poorly on Canadians’ priorities and the value placed on food. The new Canada Food Guide and recognition of the importance of home cooking is a good start.

**Recommendation:** Work toward zero food waste. Advance recognition of the inherent value of food. Optimize public health and minimize adverse impacts of food production while providing a healthy diet.

### ***Environmental Sustainability***

To optimize resiliency, farmers have options to maximize carbon capture in the soil (countering climate chaos) and to foster biodiversity (countering the current sixth great extinction currently underway). Factors both within and beyond farmers’ control are important, including diversity and density of ground cover, shelter belts/hedgerows, water features and availability (e.g., local and regional wetlands and reservoirs), farm design, crop varieties and rotations, and inputs including seeds, nutrients and means of pest control. *Prevent Cancer Now* hears from organic farmers that extension and support services are not provided uniformly, nationally – e.g., local organic dairy and cheeses, as well as fruits and vegetables, are more available in some locales such as in Quebec or BC. This may reflect the culture, but also the priorities of government, research, knowledge and extension services.

**Recommendation:** Support farmers to learn, share and have agency over knowledge, research, locally adapted seeds, and experience to transition to more sustainable practices. These include organic certification, as well as bio-dynamic and agro-ecological approaches.

**Recommendation:** Consider

Reported in April 2019, there is a rapidly evolving crisis today, with the decline of insects, and pesticides are an important factor (more on this topic below).<sup>1</sup> Previous work described a very successful insurance mechanism to reduce reliance on systemic insecticides.<sup>2</sup>

**Recommendation:** Recognize that agriculture has broad adverse ecological impacts, and urgently implement surveillance and measures to eliminate or minimize these effects.

**Recommendation:** Consider crop insurance mechanisms to encourage transition away from use of pesticides.

## **Pesticides**

Public perception of agriculture inevitably touches on pesticides and genetically engineered crops. *Prevent Cancer Now* has been active, providing scientific input on numerous pesticide consultations, and review of the *Pest Control Products Act* (PCPA).<sup>1</sup>

Pesticides are highly promoted by well-funded vested interests, and there is a history globally of scientific fraud and misrepresentation of safety of pesticides. This was laid bare most publicly in the case of glyphosate, for example, with documents released and during trial proceedings against Monsanto (now owned by Bayer).<sup>3</sup> A vast publicly accessible store of documents, communications between Monsanto employees and both regulators and scientists, and transcripts demonstrating cover-up and denial of knowledge that glyphosate causes cancer, led to a unanimous jury finding against Monsanto for \$298 million US.<sup>3</sup> Punitive damages were reduced upon appeal, but the ruling stands. It is under further appeal.

Pesticide regulation is often piece-meal and fragmented, and *Prevent Cancer Now* observes that confidential industry-sponsored studies are often preferred over public peer-reviewed science.

**Recommendation:** Support the PMRA to conduct modern pesticides registration and oversight, including with data management for systematic review and efficient re-assessment of pesticides. Improve transparency and restrict early input of vested interests on draft documents.

Research linking health and pesticides is hampered by lack of data regarding sales, use patterns, and levels of pesticides and metabolites in the environment, water, food and humans. “Pesticidovigilance” is proposed to provide necessary information.<sup>4</sup> Users and those who control access (the PMRA and provincial regulators) should follow the fate and effects of chemicals spread in the environment with the intention to kill, and provide this data in full granularity to permit research.

**Recommendation:** Sales, and pesticide and metabolite contamination levels in diverse samples (environmental, commodities and as biomarkers) should be routinely collected. Data should be available for research linking health and environmental factors, in a Canadian environmental health information infrastructure.

Regulatory changes can be long-delayed, and may not result in substantial changes on the ground (via changes in labels and enforcement), or in de-registration. When one pesticide is determined to pose an “unacceptable risk,” replacement chemicals are often of similar action and potential toxicity. The industry benefits from a “honey-moon period” of patent protection and an insufficient window of opportunity for evidence to accrue. In support of the above recommendations, we provide two topical examples – the persistent neonicotinoid insecticides, and the herbicide Roundup (containing glyphosate).

### ***Example: Neonicotinoid insecticides***

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<sup>1</sup> See submissions to government consultations here:  
<http://www.preventcancer.ca/main/resources/cancer-prevention-submissions/>

Systemic insecticides (chemicals that infiltrate plants and soil, and kill insects that consume this contamination) are unnecessarily responsible for widespread decline in insects, according to worldwide scientific experts.<sup>2,5,6,7</sup>

The Commissioner for Environment and Sustainability has criticized the Pest Management Regulatory Agency (PMRA) for abuse of “temporary” registrations, up to decades for imidacloprid.<sup>8</sup> For three (imidacloprid, clothianidin and thiomethoxam) of six neonicotinoid-like insecticides, separate reassessments address aquatic insects, as well as bees (other pollinators are not addressed).

Despite claims to protect pollinators, a narrow bee-focus is inappropriate because a vast number of other species (e.g. flies, some of which may look like bees) pollinate plants in Canada.<sup>9</sup>

Biologically active metabolites, combined effects of multiple chemicals, and low-level combined effects of multiple chemicals are not assessed. The bottom line is that apart from technical changes to use of seed coats substantial restrictions are years away, and there are three more similar insecticides already registered.

Finally, lack of a granular public record of pesticides sales and use impedes tracking harm.

### ***Example: Glyphosate based herbicides (GBHs)***

Public scepticism is heightened by secrecy and by the sense that Canadian standards are not as stringent as others'. Glyphosate is the most commonly used herbicide globally, and in Canada, and many concerns have been expressed by international scientists.<sup>10,11</sup>

*How much is used in your region, province or country?* We do not know. Health Canada does not report annual national sales (glyphosate is alone in a category with no upper boundary), let alone regional sales.<sup>12</sup>

*How much is in you?* Glyphosate measurements are finally scheduled for a future Canadian Health Measures Survey. To date we can only surmise that the herbicide is in almost every Canadian, based upon international studies.

*How much is in our food?* Some glyphosate data was published, indicating low levels of contamination. Grains were excluded from this report; over 90% of samples indicated presence. Canadian grains have been refused in the EU because of excessive contamination. Indeed, this embarrassment and trade impediment worsened to the point that a “Keep it Clean” website was established to dissuade farmers from using glyphosate pre-harvest, and to test for cadmium before selling grains for export. Canada permits higher levels of glyphosate and has no standard whatsoever for cadmium in foods, so Canadians are not as well protected as citizens in some export countries.

*Does glyphosate cause cancer?* The International Agency for Research on Cancer<sup>13</sup> and independent scientists say “yes.”<sup>14,15</sup> Most recently, in April 2019, the US Agency for Toxic Substances and Disease Registry released a report with multiple analyses linking non-Hodgkin lymphoma and myeloma to glyphosate exposure.<sup>16</sup> Two US courts have said “yes.”<sup>3,17</sup> Indeed

the courts awarded further damages because the manufacturer Monsanto wilfully and maliciously hid information, influenced the US Environmental Protection Agency, and paid for and ghost-written dissenting opinions. Canadian regulatory findings are consistent with the US EPA.

*How else may glyphosate affect human health?* Glyphosate is an antibiotic, and as such chronic feeding shifts the microbiome to a more adverse profile.<sup>18</sup> This can lead to inflammatory bowel disease, that is increasing at 7% annually in Canadian children aged five and under.<sup>19</sup> Inflammatory bowel disease predisposes to colorectal cancer, that is increasing at 7% annually in Canadian adolescents and young adults.<sup>20</sup>

Late spontaneous abortion was associated with preconception glyphosate in Canadian farming families, reported in 2001.<sup>21</sup> In 2018, an Indiana study reported glyphosate detection in 90% of pregnant women, and that higher glyphosate levels correlated with shorter pregnancy.<sup>22</sup> In 2019, glyphosate interfered with process of implantation in rats.<sup>23</sup>

*Special review of glyphosate.* In January 2019, Health Canada dismissed science-based objections to the registration of glyphosate. Twenty scientists are said to have worked on the response over a year and a half. Responses did not cite scientific reports, apparently did not investigate any topics beyond the citations of civil society scientists and advocates, and did not identify research published during the long interval between objections and responses (including citations herein).

**Recommendation:** Pesticide assessment should be reformed to consider effects on hormone systems (endocrine effects), low dose and cumulative effects, and impacts on individuals of particular vulnerability, using systematic methodologies and in manners comparable to those outlined for amendment of the Canadian Environmental Protection Act.<sup>24</sup>

**Recommendation:** Science-based interventions regarding pesticides should be respected with fulsome responses that cite peer-reviewed science, update the science on identified topics, and make data available for independent analysis.

**Recommendation:** Implement continuous systematic searches, capture of research reports and data assembly for various pesticides, to improve assessments, and to permit in-house triggering of rapid review when new evidence meets a threshold.

**Recommendation:** Support labelling of genetically engineered ingredients and use of key pesticides groups, as outlined by the Canadian Biotechnology Network and others.

**Recommendation:** Support verifiable labelling of foods produced with key pesticides types (e.g., glyphosate-based and phenoxy herbicides, and neonicotinoid and organophosphate insecticides)

## What is in food?

Canadians are concerned and may be confused by pesticides assessments, residues, hazards and risks, and knock-on unintended adverse consequences for the environment and human health. For people who wish to minimize exposures to toxic substances, organic foods not only result in

much lower pesticides exposures,<sup>25</sup> and also lower levels of toxic metals and mycotoxins.<sup>26</sup> All of these contribute to cancer and other adverse health conditions.

Canadians do not know what toxicants are in foods. The market basket surveys of the 1990s and early 2000s are discontinued, and there is no transparent database for Health Canada's measurements of pesticides and other toxicants (e.g. toxic elements such as arsenic, lead, cadmium, mercury, persistent organic pollutants) in single-ingredient and prepared foods. Newly published Health Canada sustainability goals include achieving 100% of pesticide residues tests below the regulatory limit in 2023.<sup>27</sup> Importantly, Canada's regulatory limits for pesticides in foods are often higher than international standards, and to date Health Canada publishes few test results. As well as potential toxicants in raw foods, Canadians want to know what is in prepared foods.

**Recommendation:** Routinely measure and transparently report levels of toxicants in foods, including pesticides, metals and mycotoxins.

Country of Origin labelling is essential to promote Canadian foods and ingredients, and to facilitate preferred purchasing. Any scepticism over Canadian foods is dwarfed by scepticism regarding foods from countries with less stringent regulation, and a history of exporting tainted goods such as China.

**Recommendation:** Standardize and require country of origin labelling.

## **The context of the 2019 Canada Food Guide, and the climate crisis**

The new Canada Food Guide and increasing numbers of Canadians understand the importance both nutritionally and ecologically of moderating consumption of meat and animal derived products, and cooking. Unfortunately, the staple grains and pulses that would supplant some meat consumption are more highly contaminated with glyphosate compared with other foods.

**Recommendation:** Undertake transparent initiatives to minimize contamination of foods, and environmental impacts of agriculture, with reporting of effectiveness.

## **Summary**

Public perception of agriculture is complex, for some of the same reasons that Canadian farmers are under stress – e.g., related to the climate crisis, widespread ecological degradation, and toxicants in the environment and foods. Canadians interested in primary cancer prevention seek reliable supplies of high quality foods. Thus we offer the following recommendations:

1. Recognize the federal imperative to support, build and maintain high quality, complete nutritional food supplies by and for Canadians, and to report transparently on food quality.
2. Work toward zero food waste. Advance recognition of the inherent value of food. Optimize public health and minimize adverse impacts of food production while providing a healthy diet.
3. Support farmers to learn, share and have agency over knowledge, research, locally adapted seeds, and experience to transition to more sustainable practices. These include organic certification, as well as bio-dynamic and agro-ecological approaches.

4. Recognize that agriculture has broad adverse ecological impacts, and urgently implement surveillance and measures to eliminate or minimize these effects.
5. Consider crop insurance mechanisms to encourage transition away from use of pesticides.
6. Support the PMRA to conduct modern pesticides registration and oversight, including data management for systematic review and efficient re-assessment of pesticides. Improve transparency, and stop early input by proponents on draft documents.
7. Sales, and pesticide and metabolite contamination levels in diverse samples (environmental, commodities and as biomarkers) should be routinely collected. Data should be assembled and available for research linking health and environmental factors, in a Canadian Environmental Health Information Infrastructure.
8. Pesticide assessment should be reformed to consider effects on hormone systems (endocrine effects), low dose and cumulative effects, and impacts on individuals of particular vulnerability, using systematic methodologies and in manners comparable to those outlined for amendment of the Canadian Environmental Protection Act.<sup>24</sup>
9. Science-based interventions regarding pesticides should be respected with fulsome responses that cite peer-reviewed science, update the science on identified topics, and make data available for independent analysis.
10. Implement continuous systematic searches, capture of research reports and data assembly for various pesticides, to improve assessments, and to permit in-house triggering of rapid review when new evidence meets a threshold.
11. Support labelling of genetically engineered ingredients and use of key pesticides groups, as outlined by the Canadian Biotechnology Network and others.
12. Support verifiable labelling of foods produced with key pesticides types (e.g., glyphosate-based and phenoxy herbicides, and neonicotinoid and organophosphate insecticides)
13. Routinely measure and transparently report levels of toxicants in foods, including pesticides, metals and mycotoxins.
14. Standardize and require country of origin labelling.
15. Undertake transparent initiatives to minimize contamination of foods, and environmental impacts of agriculture, with reporting of effectiveness.

## **About Us**

Prevent Cancer Now is a national civil society organization focused on primary cancer prevention, by eliminating preventable, potentially carcinogenic exposures. We are volunteer concerned citizens, including scientific experts and clinicians.

Respectfully submitted,

M.E. Sears PhD

[Meg@PreventCancerNow.ca](mailto:Meg@PreventCancerNow.ca)

613 297-6042

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