

Toward a Sustainable Agriculture Strategy

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We welcome this initial consultation on sustainable agriculture. The following is respectfully contributed to discussions of a Sustainable Agriculture Strategy for Canada.

Key points

Sustainable Agriculture is among the most important, urgent issues Canada faces today

- Human health depends upon healthy food; this is inseparable from soil health and biodiversity.
- Accelerating climate and biodiversity crises threaten farming success and food security.
- A Sustainable Agriculture Strategy (SAS) must sustain farms and farmers while agricultural practices evolve, to feed the nation and the world as these crises unfold.
- The International Panel on Climate Change (IPCC) suggests many adaptation options (see below).
- Regenerative and organic farming principles and practices are foundational to a SAS. This transition requires a few years for impacts of pesticides to wane and soil health to recover. It is not an instant fix.
- SAS guiding principles should include restoration and maintenance of ecological functions (such as wetlands and natural spaces) for water retention, soil protection, nutrient recycling and fertility.
- Actions to improve farms' sustainability and resiliency also increase carbon capture and biodiversity.
- Sustainable farming requires substantial, rapid scaling back of inputs. In 2022, Canada committed to reduce, by at least half, pesticides and fertilizers (used largely in agriculture), by 2030.
- Reducing inputs is cost-saving for farms, while pesticides reduction supports workers' health.
- Powerful vested interests will dispute these facts, but Canadians are aware and expect governments to maintain independence, rely on independent science, and to meet or exceed international commitments.
- The National Farmers' Union and many other stakeholders state that urgent transformative changes are essential, and that incremental half-measures will fail.

What is missing from the SAS consultation?

- **A Strategy.** This consultation seeks input on goals, obstacles, and measurable targets for a SAS.
- **Organic agriculture.** It entails established farming practices that are codified, regulated and practised by experienced, successful farmers using regenerative agriculture. Organic is Canada's fastest-growing sector.
- **The severe threat to organic farming posed by genetically modified organisms.** This will worsen with removal of regulatory barriers and accountability regarding gene-edited plants. This must be stopped.
- **Seed preservation.** Adapting to accelerating climate change will require use of successful seeds that offer a hope of evolving with the changing times. Genetic diversity in saved seeds is a key to successful adaptation.

Solutions lie in what was omitted

- **A SAS needs "all hands on deck."** Agriculture and Agri-Food Canada must team up with Environment and Climate Change Canada (climate), Health Canada (pesticides, and diet/food quality), as well as provincial and territorial ministries, conservation authorities and municipal partners (regarding pesticides, land use for agriculture and ecological protection) and successful leaders in organic, regenerative farming.
- **Protection from genetic and pesticide pollution** is central to resilience and sustainability.
- The National Farmers' Union proposes a **Canadian Farm Resilience Agency** to "lead climate adaptation and emissions reduction, hire and train hundreds of independent agrologists, and create a network of demonstration farms where low-emission practices could be refined and showcased."
- **Data collection and accessibility** are essential for farming to navigate oncoming environmental crises.
- **Transparency re. participants' interests and competencies** should restrict roles of vested interests (e.g., agrochemical and genetically modified seeds industries) to provision of scientifically robust data.

Introduction

Healthy food is a fundamental, essential need. Food supply is increasingly a national and global security concern. Food comes from farms, and in reciprocal ways farming shapes local environmental health. For example, the quality and productivity of agricultural operations depend on water maintained on the landscape with wetlands, biodiversity including pollinators and other flora and fauna in refuges, and regenerative practices to develop and maintain rich, absorptive soil.¹

In 2023, agriculture and food systems are at risk from anthropogenic crises of climate chaos and biodiversity losses. Canada urgently needs concerted efforts across federal ministries, with provinces, municipalities, agencies and affected sectors, to take the strongest steps not only to slow adverse processes, but actually to turn them around. We must *improve* soil health, biodiversity and resilience against extremes of precipitation/drought and temperatures, for agricultural capacity to provide Canadians (and international markets) a healthy diet. This requires substantial reductions in inputs of pesticides and fertilizers, consistent with the International Panel on Climate Change (IPCC) and Convention on Biodiversity findings and commitments (see below). Agents of agricultural inputs will nevertheless persist in their efforts to influence farmers and decision makers, to increase their profits by maintaining and potentially expanding sales of pesticides, synthetic fertilizers and genetically modified seeds. We must adhere to and act upon the existing and emerging science being reviewed and relied upon by international expert bodies and agreed to by Canada.

Organic farming is an established success story in Canada, with a regulated brand founded on science-based, expert consensus Canadian Organic Standards. “Organic farming” is the only agricultural method that is formally defined. Organic farmers have demonstrated “resilience” with regenerative practices. The Canadian Organic Trade Association (COTA) states that organic farming already contributes over \$9.35 billion to the Canadian food economy and provides an important choice to Canadian consumers. The eventual Strategy must support organic farming practices and leverage the experience underpinning the national standards for organic production, as they are based on principles and practices that support improving the quality and resilience of the soil, essential to all agricultural production and the overall environment, through well-established, management and production methods. Organic farming standards also focus on the health and humane treatment of animals.

The future of food and agriculture requires all hands on deck. The present consultation on concepts and components of a Sustainable Agriculture Strategy is an initiative of Agriculture and Agri-Food Canada. It is essential that independent scientists and agriculture experts, including the organic sector and farmers already successfully using regenerative practices, as well as other government bodies be at the table. These include Health Canada (diet/Canada Food Guide, and Pest Management Regulatory Agency for pesticides), Environment and Climate Change Canada (e.g., weather, climate change mitigation, environmental quality of air, water and soil, and biodiversity), as well as appropriate representatives of provincial and municipal governments and relevant agencies.

The International Context

The consultation merely mentions “Canada’s international commitments,” with no clarification. These include commitments for climate and biodiversity, described below. These represent a minimum and are in no way only “nice to have.”

¹ See, for example, <https://preventcancer.ca/sustainable-agriculture-rickclark-guelph/>

Convention on Biological Diversity

Canada hosted the December 2022 meeting in Montreal. The initial position was to decrease pollution by two thirds, but the Parties eventually agreed to halve excess nutrients and pesticides in agriculture by 2030—Target 7.² In contrast, Canada’s portfolio of registered pesticides continues to increase, and includes hazardous, persistent chemicals.

Convention on Biological Diversity TARGET 7

Reduce pollution risks and the negative impact of pollution from all sources, by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including:

- reducing excess nutrients lost to the environment by at least half including through more efficient nutrient cycling and use;
- reducing the overall risk from pesticides and highly hazardous chemicals by at least half including through integrated pest management, based on science, taking into account food security and livelihoods; and
- also preventing, reducing, and working towards eliminating plastic pollution.

Context: The March 2023 IPCC AR6 summary reports and figures³

The following extracts authored by the IPCC pertain to agriculture (emphasis added):

- **Economic damages** from climate change have been detected in climate-exposed sectors, such as **agriculture**, forestry, fishery, energy, and tourism.
- Accelerated climate ... **[a]daptation** can generate multiple additional benefits such as improving **agricultural productivity**, innovation, **health and wellbeing**, **food security**, livelihood, and biodiversity conservation (*very high confidence*).
- Many **agriculture, forestry, and other land use (AFOLU) options provide adaptation and mitigation benefits** that could be upscaled in the near-term across most regions. ... Minimizing trade-offs requires integrated approaches to meet multiple objectives including food security. Demand-side measures (shifting to sustainable healthy diets⁴ and reducing food loss/waste) and sustainable agricultural intensification can reduce ecosystem conversion, and methane and nitrous oxide emissions, and free up land for reforestation and ecosystem restoration.
- **Effective adaptation** options include cultivar improvements, agroforestry, community-based adaptation, farm and landscape diversification, and urban agriculture. These AFOLU response options require integration of biophysical, socioeconomic and other enabling factors. Some options, such as conservation of high-carbon ecosystems (e.g., peatlands, wetlands, rangelands, mangroves and forests), deliver immediate benefits, while others, such as restoration of high-carbon ecosystems, take decades to deliver measurable results. (*high confidence*) (Figure SPM.7)
- Many **mitigation actions** would have benefits for health through lower air pollution, ... and shifts to **sustainable healthy diets**. Strong, rapid and sustained reductions in methane emissions can limit near-term warming and improve air quality by reducing global surface ozone. (*high confidence*) Adaptation can generate multiple additional benefits such as **improving agricultural productivity**, innovation, health and

² <https://www.cbd.int/article/cop15-final-text-kunming-montreal-gbf-221222>

³ https://www.ipcc.ch/report/ar6/s_yr/

⁴ [footnote 53 in IPCC summary report] “Sustainable healthy diets promote all dimensions of individuals’ health and well-being; have low environmental pressure and impact; are accessible, affordable, safe and equitable; and are culturally acceptable, as described in FAO and WHO. The related concept of ‘balanced diets’ refers to diets that feature plant-based foods, such as those based on coarse grains, legumes, fruits and vegetables, nuts and seeds, and animal-sourced food produced in resilient, sustainable and low-GHG emission systems, as described in SRCCL.”

wellbeing, food security, livelihood, and biodiversity conservation (*very high confidence*).

- **Pesticide evaluation must be improved.** For example, the IPCC reports that **the highest relative growth in GHGs were fluorinated gases**, starting from low levels in 1990. A substantial source of fluorinated gases is **breakdown of new pesticides such as tiafenacil**. Numerous new pesticides being registered in Canada are fluorinated. As pests become more resistant to agrochemicals, fluorinated groups are increasingly appearing on drugs and pesticides, to increase persistence and potency. The fluorine-carbon bond is one of the strongest in existence. With this understanding, and with the knowledge that over time every fluorinated carbon-based chemical has been found to be harmful to the environment, **this chemistry should trigger rejection of the registration.**

Responses to the Sustainable Agriculture Strategy consultation discussion questions

Issue 1: What do we want to achieve through a Sustainable Agriculture Strategy?

The discussion section “vision” marketing such as international recognition is out of place.

Areas of focus must include:

- Knowledge, mentoring and support during transition to resilient, regenerative agriculture with less synthetic agrichemical inputs;
- Sufficient incomes to farmers; and
- ***Supplying healthy food to Canadians and internationally.***

Agriculture must also:

- foster crop biodiversity, including maintaining genetic profiles in the public domain, and bio-banking in the public domain, so superior variants may be used for agile adaptation without putting at risk organic production (e.g., organic canola production was virtually abandoned because genetic contamination meant that crops could not meet organic standards).
- improve environmental values (e.g., water quality, soil quality, biodiversity) in landscapes, and
- achieve substantial progress on Canada’s international commitments on climate and biodiversity.

Data-driven full-cost accounting will assist farmers to make strategic decisions.

Values being returned to the environment may be estimated by authorities/governments, academia and the farming community.

Lower input farming will:

- lower input costs for farmers;
- improve farm workers health and safety by reducing potentially harmful exposures; and
- help to address climate and biodiversity commitments.

Successes should be replicable, with data-driven agricultural methods and knowledge be synthesized and available for learning and replication.

Issue 2: Approaches to overcome barriers and advance environmental outcomes in the sector, and Issue 3: Targets and data on environmental performance

Reliable, understandable knowledge is essential to navigate increasingly challenging times for agriculture. We would like to highlight the successes of Rick Clark, as presented to the Guelph Organic Conference, Feb. 2023. **Sustainable Agriculture Strategy – Ambitious success, from the Guelph Organic Conference. 2023.**

<https://preventcancer.ca/sustainable-agriculture-rickclark-guelph/>

As described in the above post, informed decisions and progress require high-quality data. Like bees to honey, scientists and students will be drawn to data regarding sustainable agriculture. Thus, it is essential that this data be readily accessible and usable. Scientists and the Government of Canada maintain that data should be **FAIR**⁵ or **FAIRER** (Findable, Accessible, Interoperable and Reusable, as well as Ethical and Revisable⁶).

The “all hands on deck” approach must include the many Canadians with interests and competencies with data. Secrecy will only hinder progress, and could severely hamper and delay nimble responses to implement successful strategies.

Important research questions could be investigated with systematic enriched data collection, including methods and sampling that may be replicated by farms participating in a crowd-sourced data/research nexus. This might be advanced by existing funded Canadian research groups with additional, complementary expertise, including in “big data.” Open public access, somewhat like the now-archived “Data Cubes” from the Public Health Agency of Canada, would aid public and student engagement and knowledge, while specialized data access and assistance to answer specific questions could be a service.

Canadian pesticides data meets none of these standards, and our experience is that Health Canada is dysfunctionally over-protective of data needed for rational, rapid progress in sustainable agriculture.

What we would like to share — Prevent Cancer Now online resources include the following:

Sustainable Agriculture Strategy – Ambitious success, from the Guelph Organic Conference. 2023.

<https://preventcancer.ca/sustainable-agriculture-rickclark-guelph/>

Organic growing and pest control. 2022.

<https://preventcancer.ca/organic-growing-and-pest-control/>

Ending glyphosate is a virtuous goal, and reducing pesticides is essential. 2022.

<https://preventcancer.ca/ending-glyphosate-is-a-virtuous-goal-but-pesticides-reduction-is-essential/>

Data and analyses to detect harms from toxic exposures in Canadians. 2022.

<https://preventcancer.ca/data-and-analyses-to-detect-harms-from-toxic-exposures-in-canadians/>

Healthy landscapes. 2022.

<https://preventcancer.ca/healthy-choices/lawn-and-garden/>

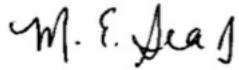
⁵ Statistics Canada. <https://www.statcan.gc.ca/en/wtc/data-literacy/catalogue/892000062022002>

⁶ Spatialized. <https://www.spatialised.net/fairer-data/>

Conclusion

Prevent Cancer Now is grateful for the launching of attention to this extremely important topic. We look forward to next steps, welcome queries and would be pleased to share further information, analyses and discussion of research capabilities.

Sincerely

A handwritten signature in black ink, appearing to read "M. E. Sears".

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