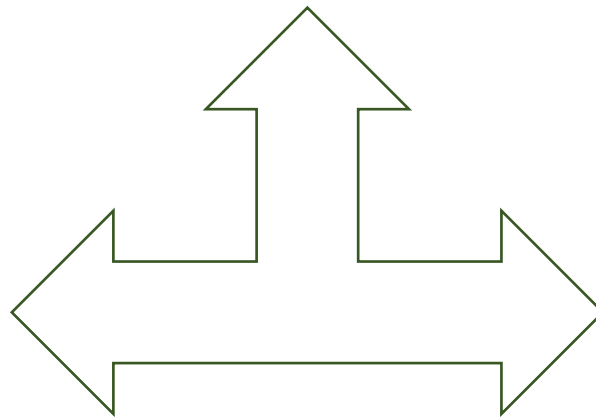


AGRI-FOOD SUSTAINABILITY TARGETS

A SELECTED OVERVIEW



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PARTNERS:

Agriculture & Agri-Food Canada, Arrell Food Institute (U. of Guelph), Bayer Crop Science, Canadian Federation of Agriculture, Canadian Produce Marketing Association, Canadian Wildlife Federation, Chicken Farmers of Canada, Enterprise Machine Intelligence & Learning Initiative, Environment & Climate Change Canada, Fertilizer Canada, Food, Health & Consumer Products of Canada, Global Institute for Food Security, Loblaw Companies Ltd., Maple Leaf Foods Inc., National Research Council, Nutrien, Protein Industries Canada, Pulse Canada, Standards Council of Canada, Statistics Canada, Syngenta, TrustBIX Inc. (*Partnership does not necessarily imply endorsement of this discussion paper.*)

Key abbreviations:

- | | |
|---------|--|
| CSR | Corporate Social Responsibility (often expressed in reports issued by companies/industry on their practices) |
| ESG | Environmental, social, governance factors (non-financial indicators of risk and performance) |
| NGOs | Non-government organizations |
| UN SDGs | United Nations Sustainable Development Goals |

Agri-Food Sustainability Targets

① Purpose and scope of work

Performance targets – and notably environmental sustainability goals – are catalyzing change across the Canadian and global agri-food sector. A canvass of over 50 agri-food organizations, food companies and governments here and abroad reveal that metrics and benchmarks are being increasingly deployed to operate, compete and contribute to economic viability in this rapidly changing agri-food world.

At a time when the resilience and environmental sustainability of the food supply is of increasing concern, Canada ought to be a global leader in demonstrating its leadership on these and other attributes that matter to many consumers, customers and investors. Right now, a consolidated set of metrics is not readily available to show that Canada is among the most environmentally sustainable, safest, reliable and highest quality global food leaders. A diverse group of partners has come together to advance the idea that a National Index on Agri-Food Performance can deliver benefits for Canada, competitiveness, and policy-making. The project will identify a set of key indicators that are relevant for producers, agri-business and food companies, and consumers, inclusive, by initially focusing on metrics relating to environmental sustainability and how these confer societal and economic benefits. This multi-disciplinary and pre-competitive initiative will broadly engage others in the food system and complete its considerations by early 2021.

To inform these discussions, this paper reviews a selection of environmental performance targets across the food system. The entities profiled in this paper (using publicly-available sources) represent agricultural commodity organizations, sector-wide and industry initiatives, agri-business, food processor and retail companies, global institutions, international NGOs, Canadian federal and provincial governments, and foreign governments and related agencies. While not meant to be exhaustive, the analysis forms a clear picture of change taking place across the food system, although at different levels of commitment and breadth. Other organizations may merit being listed (those have set targets, too) but are not included for the sake of brevity and many small and mid-sized companies, other commodity organizations and individual producers are also absent from this analysis simply because they have not gone down this path to publicly express targets. (That said, many producers and related associations have long embraced continuous improvement practices or are measuring farm or sub-sector level environmental impacts; this work did not intend to report on this rather extensive activity.)

② Summary:

1. *Key findings:*

1. **Environmental target-setting is proliferating; verifying stewardship and benchmarking is here to stay:** Setting environmental sustainability targets across the agri-food sector is widespread and outcomes-based measures are increasing. e.g., a variety of companies have set 100% ingredient-sourcing goals and GHG emissions reduction targets are common. Transparency is rising but many players have not set targets.
2. **Companies must engage their supply chains:** Delivering on many targets requires food and agri-business companies to commit their supply chains to verify overall performance. This is increasing collaboration and alignment between producers and food companies.
3. **Producers are key to sustainability:** While on-farm continuous improvement has enhanced ecosystem benefits and improved productivity, producers are looking more to outcomes-based reporting. New data platforms will enable this response provided value is demonstrated.
4. **Managing system risk signals change:** Some companies are considering risk in terms of enhancing “system resilience”, such as reporting on goals to improve watershed health and biodiversity, potentially transforming sustainability actions, measures, targets and reporting.
5. **ESG is going mainstream:** Across capital markets, corporate reporting on environmental, social and governance (ESG) factors is increasing as investors and firms assess materiality of such non-financial risks, catalyzing greater transparency from food companies and supply chains.
6. **Focus on the inter-connectedness of issues will rise:** The Sustainable Development Goals (SDGs), the Paris Accord on emissions reductions and new global biodiversity goals by 2030 will prompt even more scrutiny and benchmarking of countries and agri-food practices. Due to the relentless impact of climate change on the global food system and, now, on questions about food security and sector viability prompted by COVID-19, pressure is mounting to better manage the links between social, health and biodiversity impacts and economic resiliency.

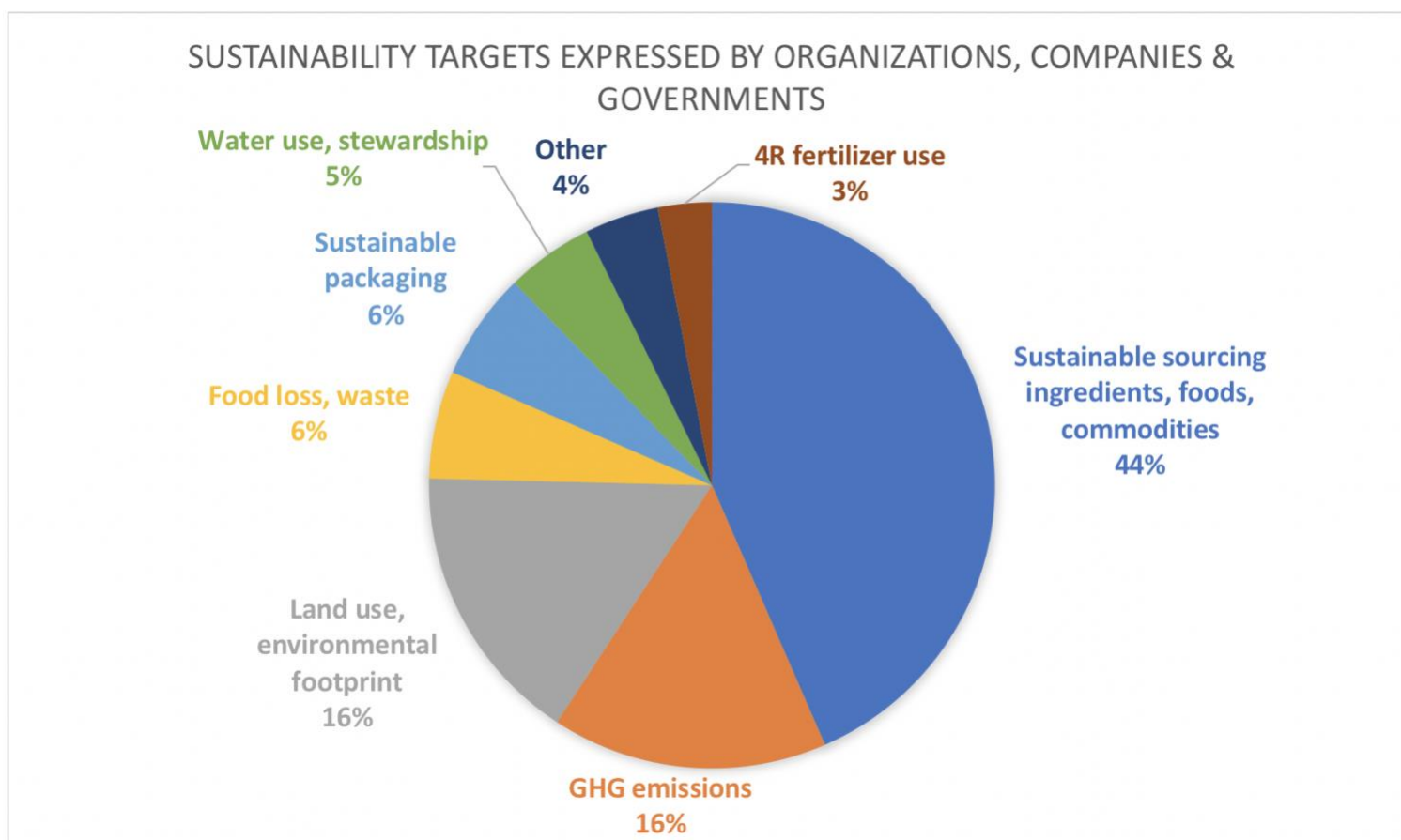
Further below a pie-chart summarizes the target themes flagged in this report.

2. *Elaborating on the key findings:*

<p>1. Environmental sustainability target-setting is pervasive & broad in scope.</p> <ul style="list-style-type: none"> ○ Most targets are being set by food companies but vanguard producer-level initiatives are setting targets to align producers. ○ Many food companies have set 100% sustainable-sourcing targets for priority ingredients. Benchmarking is here to stay. ○ Many food companies and some commodity organizations align targets with environmental priorities set out in the UN Sustainable Development Goals and are reducing GHGs in response to the Paris Accord. 	<p>2. Delivering on many targets requires companies to commit their supply chains.</p> <ul style="list-style-type: none"> ○ The bulk of food companies’ footprints are generated within their supply chains. Companies are working with producers to develop metrics, advance BMPs and validate progress. Producer sustainability certifications are often a requirement to ensure supply into companies and foreign market access. ○ Accelerating innovation-adoption will help deliver on targets, enhancing sustainability and improving productivity, alike. But, better data, data collection & sharing is needed, too. 	<p>3. Building on a track record, producer sustainability reporting is ramping up.</p> <ul style="list-style-type: none"> ○ Continuous improvement has delivered impressive sustainability results for Canadian agriculture but the marketplace is shifting to outcomes-based targets. Linking these to producer productivity/profitability benefits is increasing (but concerns remain about the cost of compliance, verification and value). ○ New data platforms are forming to enable metrics development and sustainability reporting for producers, often in collaboration with companies, NGOs, academia and others.
<p>4. The bar on environmental sustainability is rising. System resilience is the priority.</p> <ul style="list-style-type: none"> ○ Some companies are looking beyond their supply chains to ensure future ingredient or commodity supply, e.g., pledging to improve watersheds and restore biodiversity in regions (e.g., zero net tropical deforestation). ○ Some are calling for a food system transformation and new responses are being declared, measured & marketed (e.g., “regenerative agriculture”, “circular economy”). 	<p>5. Capital markets are making sustainability reporting a mainstay of doing business.</p> <ul style="list-style-type: none"> ○ Investors and regulators are seeking materiality assessments of sustainability risks. Companies are reporting on environmental, social and governance (ESG), or non-financial risk factors, in their supply chains. ○ ESG is prompting increasing transparency. ○ Sustainably-linked credit terms are nascent but financial institutions are starting to reward food companies for meeting sustainability targets and performance. 	<p>6. Deeper commitments to sustainability are coming, prompting new targets.</p> <ul style="list-style-type: none"> ○ Global biodiversity targets for 2030 are expected to be announced in 2020. ○ Pressure to meet the SDGs by 2030 (which goes well beyond environmental priorities) is expected to build. The links between social (health), environmental and economic resiliency is rising for countries & companies. ○ Some governments and companies have declared net zero commitments on carbon and the transition to a low carbon economy will surely introduce new targets.

3. *Target-setting by theme:*

The pie chart summarizes the number of mentions of targets listed in section 5, ahead. The UN SDGs are not included to avoid double-counting as they underlie many other targets. In the chart, “other” refers to specific targets with less than two mentions; e.g., crop protection use, fuel use, Dairy Farmers’ ProAction, etc. “Sustainable sourcing” is dominated by sustainable ingredient and seafood goals and includes three targets related to tropical deforestation; the latter is not directly relevant to Canada but is included as indicative of the attention being paid by global companies to sustainable resource extraction.



③ Considering the broader context and implications of the findings:

1. **Social-environmental-economic resilience is becoming the issue.** Prior to COVID-19, many were of the view that economic growth can no longer be decoupled from social and environmental well-being.¹ However, the pandemic is making it clear that societal (and environmental) well-being cannot be decoupled from economic well-being. This paper does not assess the impact of COVID-19 on the food system. However, while priority #1 today is responding to this crisis, the combination of climate change and the pandemic strongly points to resilience and inter-connectedness of social (health), environmental and economic factors as one of the preeminent global food issues.
2. **Environmental sustainability benchmarking is here to stay.** Prior to COVID-19 (when this research was largely conducted), many leading global organizations were questioning the long-term viability of the food system. The reason is stark. The World Economic Forum declared that “Global food systems today are unsustainable for both people and the planet.”² The global climate emergency³ is not waning and its impacts will continue to be relentless for global agriculture, although Canada is expected to cope better than most. As the march to fulfilling bold global goals by 2030 continues (the UN Sustainable Development Goals, the Paris Accord for GHG reductions and new biodiversity goals), environmental target-setting and benchmarking is not only here to stay, it should increase. (That said, for certain market segments, price – not sustainability credentials – continues to be the driver of food and commodity purchase decisions.)
3. **Transparency is paramount.** Scrutiny will rise, too. Advocacy NGOs, regulators and investors already question the efficacy and intent of sector and corporate pledges to improve the environment.⁴ Validating and credibly demonstrating progress against commitments will attract more attention. Improving transparency (albeit at varying levels of detail) can serve multiple uses: for interested consumers, for investors, for regulators, for enabling producer-food company collaborations and for meeting supply chain players’ requirements.

¹ Canada 2020: *Canada Food Brand Project: Is Canada’s Food Reputation a Strategic Priority or Not?*, 2019. UN SDG 8.4: “Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation...”.

² World Economic Forum: *Innovation with a Purpose: The role of technology innovation in accelerating food systems transformation*, 2018.

³ UN Environment Programme: <https://www.unenvironment.org/explore-topics/climate-change/facts-about-climate-emergency>; House of Commons Motion: <https://www.cbc.ca/news/politics/climate-emergency-motion-1.5179802>

⁴ *Ever heard of SDG washing? The urgency of SDG due diligence*, OECD, 2017: <https://oecd-development-matters.org/2017/09/25/ever-heard-of-sdg-washing-the-urgency-of-sdg-due-diligence/>. *Reporting the SDGs: How to get it right*, KPMG: <https://home.kpmg/xx/en/home/insights/2020/01/reporting-sdgs-how-to-get-it-right.html>. *The World’s Largest Protein Companies Are Failing to Address Their Environmental Impacts*, 2019, Forbes: <https://www.forbes.com/sites/jennysplitter/2019/09/09/the-worlds-largest-protein-companies-are-failing-to-address-their-environmental-impacts/#1490b0b340f6>

④ **Canada's opportunity:**

Canada's agri-food sector applauded the economic targets advanced by Canada's Economic Strategy Table (updating the earlier "Barton" work) which declared that the country could achieve \$140 billion in domestic food sales and \$85 billion in exports by 2025.⁵ The attention the agri-food sector received in these high profile reports affirmed the belief that the agri-food sector is vital to Canada's economic future. By presenting a common aspiration, those targets also encouraged a diverse sector and levels of governments to get better aligned on the growth opportunity. This report is not about assessing whether or not those economic targets succeeded in changing such behaviour but setting targets to demonstrate environmental sustainability across the global and domestic food system is catalyzing change, as presented in part 5, ahead.

Developing suitable indicators or a national index of performance would be a key tool for Canada going forward. Demonstrating environmental benefits, food system resilience and productivity improvements, and promoting (and defending) Canada's trusted food brand at home and abroad in doing so, is a potent winning combination that few other countries could match.

By presenting a canvass of sustainability targets, this paper prompts the following key questions to be ultimately addressed over the course of the project by early 2021:

Key questions:

1. **"What"** - Are we adequately documenting Canada's agri-food sustainability leadership and resiliency?
2. **"Why"** - Is measuring Canada's agri-food performance and progress (at a high level) strategically important?*
3. **"How"** - Can developing such indicators or index be done efficiently and confer value to producers and others across the food system?

*A basis to express competitive advantage, attract investment, align policies and food players, and affirm Canada's trusted food brand.

⁵ Barton report: The Advisory Council on Economic Growth: *Unleashing the Growth Potential of Key Sectors*, 2017. Innovation Science and Economic Development: *Report from Canada's Economic Strategy Tables: Agri-Food*, 2018.

⑤ Targets

The following section reports on a selection of target-setting initiatives by different categories:

- | | | | |
|----------------------------------|------------------------|------------------------|---|
| 1. Commodity organizations | 3. Companies | 5. International NGOs | 7. Governments: other countries and related organizations |
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Approach to analysis (and what is out of scope):

- “Sustainability” can refer to economic viability, social responsibility and environmental sustainability. But the vast majority of measurable targets documenting responsible food production relate to the latter, the subject of this paper.
- Despite their importance, declarations about “intending to improve” or continuous improvement practices are not recorded below.
- Environmental factors can affect health and social outcomes. Health and food safety targets could have been included, too, but this paper remains focused on specific environmental sustainability targets.
- This work lists a number of industry, corporate, Canadian and international targets related to environmental sustainability that impact or are impacted by business to business, business to consumer or country to country requirements.
- For brevity, not every target is reproduced for some organizations or are selected to provide a global context.
- This report is indicative of the breadth of targets; suggestions on targets not presented here are welcome: daviddmcinnis@gmail.com

1. Commodity organizations:

While target-setting is not widespread among commodity organizations, it is important to note that many producer organizations not listed below have documented how good environmental stewardship, innovation and technology adoption and best management practices have made significant environmental improvements, often placing Canada as a global leader or among the best.⁶ For example, Canadian chicken has the lowest carbon footprint globally. Canada’s egg industry reduced its environmental footprint by 50% and increased egg production by 50% over the past 50 years (1962-2012). Work in 2018 showed that the Canadian pork footprint was among the lowest in the world and subsequent life-cycle assessment (LCA) research is now underway in that sector for completion in 2021. Beef production in Canada is among the most

⁶ Note: references for this introductory section are noted in the Sources at the end of this report.

efficient globally, with GHG emissions less than half of the global average. No-till farming sequesters carbon and this widespread practice makes a substantial contribution to Canada’s environmental actions. As well, with no-till or minimum till farming, grain farmers do not have to pass over their fields as frequently which has reduced fuel use in Canada by over 170 million litres annually. Innovative greenhouse growers are recycling the carbon they produce as food grade CO₂ for their plants. In the fisheries sector, Fisheries and Oceans Canada determined that 96% of Canadian fisheries harvest fish sustainably. The below list of positive changes could be more extensive but the purpose of this paper is to document performance target-setting.

Organization	Target	Comment
<p>Canola Council of Canada</p> <p>and</p> <p>Canadian Canola Growers Association</p>	<p>By 2025, the sector aims to increase canola production by 26 million tonnes and achieve 52 bushels/acre of sustainable production, including:</p> <p>Reduce fuel use per bushel by 18%.</p> <p>Decrease by 40% the land required to produce one tonne of canola.</p> <p>Sequester an additional 5 million tonnes of greenhouse gas emissions (baseline, 2005).</p> <p>Utilize “4R” nutrient stewardship practices on 90% of canola acres.</p>	<p>It is also noted that there is an intent to safeguard over 2,000 beneficial insects in canola fields and surrounding habitats.</p> <p>Its strategy will “Utilize science and innovation to identify and promulgate the best sustainability practices and measurements.”</p> <p>See “4R” under Fertilizer Canada, Sector Initiatives, below.</p>
<p>Dairy Farmers of Canada</p>	<p>100% of dairy farms to meet its <i>proAction</i> standards.</p> <p>Completion of <i>proAction</i>’s environment module is scheduled for validation in 2021 and 100% completion in 2023.</p>	<p>99% of dairy farmers are registered.</p> <p>In the past 5 years, alone, Canadian milk production has seen a 7% reduction in its carbon footprint, 6% lower water consumption and 11% lower land use per litre.</p> <p>See reference to sustainable dairy under Unilever, sub-section 2.</p>

Organization	Target	Comment
Egg Farmers of Alberta	Create the “net zero barn”, one that would produce no net greenhouse gas emissions.	Part of EFA’s sustainability strategy (2014). The barn was built in 2016 and has been operational since then, and has been serving as an educational tool for the industry.
Soy Canada	To be recognized as the global leader in sustainable production of high-quality soybeans by 2027.	Soy Canada notes that it will “identify meaningful metrics and best practices for responsible environmental stewardship.”

2. Sector / Industry Initiatives:

Sector / Industry	Target	Comment
Canadian Roundtable on Sustainable Beef (CRSB)	As of 2020, 86% of the environmental action items outlined in the strategy have been partially or completely addressed. The industry is focusing on filling the gaps before 2023 and exploring the development of a key performance indicator for riparian health (goal 4).	<p>There are ten goals, each with key performance indicators and action items in the 2016 Sustainability Strategy covering the environment, social and economy.</p> <p>Specific industry targets are under-consideration; but its current strategic plan has the goal to reduce the greenhouse gas footprint of Canadian beef per unit of product produced (CO₂ eq./kg; goal 2), through optimizing diets, improving manure management, increasing carbon sequestration, improving feed/forage production, deploying cattle genetics that reduce the GHG footprint of beef production and increasing stakeholder knowledge.</p> <p>Its National Beef Sustainability Strategy also includes enhancing ecosystem services and biodiversity on lands managed by beef producers (goal 3) and reducing post-harvest meat waste (goal 4).</p>

Sector / Industry	Target	Comment
<p>Canadian Roundtable for Sustainable Crops (CRSC)</p>		<p>Among many metrics collected, in 2017, CRSC developed carbon footprints for 10 major Canadian grains and oilseeds crops: barley, canola, corn, durum wheat, flax, lentils, oats, field peas, soybeans and other wheat. The results of these calculations are published on the Canadian Grains Sustainability Metrics Platform: metrics.sustainablecrops.ca</p> <p>The CRSC is also working with the Canadian Roundtable for Sustainable Beef to set targets that would be applicable to all members.</p>
<p>Fertilizer Canada</p>	<p>In partnership with members and grower customers, achieve 15 million validated acres under 4R Agronomy programming by 2025.</p> <p>Fertilizer Canada will survey growers on an annual basis to assess knowledge and implementation of 4R best management practices (BMPs) which supports grower associations and provincial governments in achieving and measuring their 4R sustainability targets (30 million acres) by 2025.</p>	<p>[Note: the former goal is validated; the latter is based on a survey]</p> <p>“4R” is a Canadian-developed standard recognized worldwide for good fertilization practices, a program to promote the efficient use of fertilizer at the Right Source, Right Rate, Right Time and Right Place – “reducing environmental impacts while optimizing crop productivity and on-farm profits”.</p> <p>Fertilizer Canada indicates that future work will include performance indicators for GHG emissions, nutrient runoff and leaching to freshwater, among other objectives.</p>
<p>Potato Sustainability Alliance</p>		<p>Based on earlier work in the sector, the Alliance was formed in February 2020. This North American roundtable was prompted by a major restaurant’s global commitment to decrease pesticide use in its supply chain prompting more sustainable potato production practices and metrics. Producer participation is mandatory (along with a valid</p>

Sector / Industry	Target	Comment
		Environmental Farm Plan) in order to sell to French fry processors. ⁷

3. Companies:

Company	Target	Comment
Agropur	Set a water use reduction target for its plants of 5% per year for three years.	
Bayer	Achieve carbon-neutral production by 2030. By 2030, 30% reduction of field greenhouse gas footprint (per kilogram of yield) of the most emitting cropping systems in regions in which Bayer operates and a 30% reduction of the environmental impact of crop protection everywhere it operates.	Bayer intends to reduce emissions in its supply chains (up- and downstream) in this period. These goals are part of Bayer’s “30-30-100” sustainability commitments by 2030 (the latter being about empowering 100 million smallholder farmers).
Bonduelle	100% recyclable or reusable packaging by 2025. 20% reduction in GHG emissions from its operations by 2035. “Zero loss” by 2025.	Bonduelle’s zero loss target aims to optimize resources throughout the product life cycle and promote the circular economy.

⁷ <https://potatosustainability.org/news-press/>

Company	Target	Comment
Cargill	<p>Achieve a 30% greenhouse gas (GHG) intensity reduction across its North American beef supply chain by 2030 (from a 2017 baseline).</p> <p>Has a science-based commitment to reduce supply chain emissions by 30% by 2030.</p> <p>Source all marine ingredients from MSC-certified fisheries by 2025.</p>	<p>To be measured per pound of product. The <i>BeefUp Sustainability</i> program will benefit from feedback gleaned from the Canadian Roundtable for Sustainable Beef.</p>
Coca Cola	<p>2020 goal to sustainably source 13 priority ingredients.</p> <p>Return 100% of water used to make drinks.</p> <p>Reduce the carbon footprint of the “drink in your hand” by 25% by 2020 (2010 baseline).</p> <p>Collect and recycle a bottle or can for every one sold by 2030.</p>	<p>Certified sustainable products have grown from 8% to 44%, including for apples, corn, grapes, soy.</p>
Danone	<p>Be carbon neutral by 2050.</p> <p>25% reduction in water consumption for its direct farmers in high-risk areas and securing and improving water quality by using fewer chemical fertilizers.</p> <p>Be 100% circular: every piece of packaging—from bottle caps to yogurt cups—to be reusable, recyclable, or compostable by 2025.</p>	<p>57% of Danone’s carbon emissions are linked to agriculture.</p>
General Mills	<p>Sustainably source 100% of its top 10 priority ingredients by 2020.</p>	<p>Includes oats recorded at 90% sustainable (2018) and U.S. dairy (raw fluid), wheat, corn (dry milled). For all ten ingredients, 85% (2019).</p>

Company	Target	Comment
	<p>Reduce absolute GHG emissions across its full value chain by 28% by 2025 and 41-72% by 2050 (% change compared to 2010).</p> <p>Achieve 100% of packaging recyclable by design by 2030 (U.S. data reported, by weight).</p> <p>Reduce production solid waste generation by 3% annually.</p> <p>Achieve zero waste to landfill at 30% of its owned production facilities by 2020 and 100% by 2025 (% of production facilities).</p> <p>Advance regenerative agriculture practices on 1 million acres of farmland by 2030.</p> <p>Goal to champion the development of water stewardship plans for the company’s most material and at-risk watersheds by 2025.</p>	<p>The regenerative agriculture pledge would represent over 20% of its North American sourcing footprint.</p>
High Liner Foods	<p>Source all seafood from sustainable or responsible sources of supply.</p>	
Kellogg’s	<p>2020 goal: responsibly source 10 priority ingredients: corn, wheat, rice, potatoes, sugar beet, sugar cane, fruits, palm oil, vanilla, cocoa.</p> <p>Reduce total waste; 50% reduction in organic waste, including food waste, by 2030.</p> <p>By 2025, 100% reusable, recyclable or compostable packaging and maintain 100% of timber-based packaging</p>	<p>As of 2018, among other ingredients tracked, wheat was 89% sustainably sourced; potatoes, 90% and corn, 96%.</p>

Company	Target	Comment
	<p>sourced from recycled content or certified sustainable resources.</p> <p>By 2050, reduce GHGs by 65% at its operations; help work with direct suppliers to achieve a 50% reduction.</p>	
Loblaw	<p>Reduce carbon footprint 20% by 2020 and 30% by 2030 (baseline: 2011).</p> <p>Reduce or divert waste by 50% by 2025 (baseline: 2016).</p> <p>Source all seafood from sustainable sources.</p>	<p>Loblaw is involved in the Canadian Roundtable for Sustainable Beef.</p>
McDonald's	<p>2020 beef sustainability goals for its top 10 beef sourcing countries, including Canada, which collectively represents over 85% of McDonald's global beef volumes.</p> <p>100% of globally managed beef, chicken, dairy and cheese suppliers to report into the CDP environmental performance platform.</p> <p>Purchase 100% sustainable certified soy by 2020 in Europe (for chicken feed).</p> <p>All the wild-caught fish will be from verified sustainable sources by 2020.</p> <p>100% of coffee to be sustainably sourced by 2020.</p> <p>100% of the palm oil (for restaurants and ingredients) will support sustainable production by 2020</p>	<p>In 2016, McDonald's committed to source a portion of its beef supply from a fully verified supply chain sustainability pilot program in Canada.</p> <p>See note on CDP under "Developments", below.</p>

Company	Target	Comment
	Eliminate deforestation from McDonald’s global supply chain by 2030.	
Maple Leaf Foods	<p>50% environmental footprint reduction by 2025 (energy, water, solid waste and food waste).</p> <p>Science-based greenhouse gas (GHG) emissions targets: Reduce absolute scope 1 and 2 GHG emissions 30% by 2030 from a 2018 base year. Maple Leaf Foods Inc. also commits to reduce scope 3 GHG emissions 30% per tonne of product produced by 2030 from a 2018 base year.</p>	<p>Has declared that it is now (2019) carbon neutral.</p> <p>Vision: To be the most sustainable protein company on earth.</p>
Mars	<p>Climate action: Reduce the total GHG emissions across its value chain by 27% by 2025 and 67% by 2050 (from 2015 levels).</p> <p>Reduce operations’ emissions (i.e., from its factories and offices) 42% by 2025 and reaching net-zero emissions (a 100% net reduction) by 2040.</p> <p>Water stewardship: Eliminate water use in excess of sustainable levels in its value chain by 2050.</p> <p>Circular packaging: Develop packaging that is 100% recyclable, reusable or compostable while decreasing virgin plastic use by 25% by 2025.</p> <p>Land management: Hold flat the total land area associated with its value chain.</p> <p>Beef and soy: By 2025, its aim is to stop deforestation and conversion of natural ecosystems in Mars’ supply chains up</p>	<p>Mars notes that agriculture and land use change emissions make up approximately 80% of its total value chain emissions. In response, Mars is looking at “untapped efficiency opportunities, whether through yield improvement or more precise application of inputs such as fertilizer”.</p>

Company	Target	Comment
	to the direct cattle supplier for its beef and soy ingredients in Latin America – a region with high conversion hot spots.	
McCain Foods	<p>As part of its Sustainability Strategy:</p> <p>For “Smart and Sustainable Farming practices”:</p> <ul style="list-style-type: none"> - Reduce CO₂ emissions by 25% per tonne from potato farming, storage and freight by 2030. - Improve water-use efficiency by 15% in water-stressed regions by 2025. - Invest in three Farms of the Future to showcase regenerative agriculture practices by 2025. <p>For “Resource Efficient Operations”:</p> <ul style="list-style-type: none"> - Zero waste to landfill and 100% potato utilization by 2025. - 100% packaging is recyclable, reusable or compostable by 2025. <p>For “Good Food”:</p> <ul style="list-style-type: none"> - Removing palm oil from its frying operations for its branded products by 2025. 	McCain Foods is also part of the Sustainable Potato Alliance (refer to section 2).
Metro	<p>Reduce food waste from its activities by 50% by 2025 (baseline 2016).</p> <p>Among other private brand packaging goals, 100% of packaging is entirely recyclable and/or compostable (fibres) by 2025.</p> <p>Ensure 100% of private brand tuna is from sustainable fishing and 100% of private brand aquaculture salmon and shrimp are BAP-certified (Best Aquaculture Practices).</p>	

Company	Target	Comment
<p>Molson Coors</p>	<p>2025 sustainability targets include:</p> <p>100% of barley and hops sourced from sustainable suppliers in key growing regions.</p> <p>Improve water-use efficiency in its agricultural supply chain and malting operations by 10%.</p> <p>Reduce carbon emissions across its operations by 50% and throughout its value chain by 20%.</p> <p>Achieve and sustain zero waste to landfill at all its brewing and major manufacturing facilities.</p>	<p>Currently 99% of barley farmers and 24% of hops farmers meet the company’s sustainable requirements.</p>
<p>Nestlé</p>	<p>By 2030, zero environmental impact for its operations.</p> <p>Zero waste for disposal.</p> <p>100% reusable or recyclable packaging by 2025.</p> <p>By 2020, 70% of the volume of 14 priority categories of raw materials have been assessed against the company’s Responsible Sourcing Standard in order to preserve natural capital.</p> <p>No deforestation commitment (2010): no product or packaging would be associated with deforestation by 2020.</p>	
<p>Nutrien</p>		<p>Advancing it’s climate strategy will include long-term reduction targets:</p>

Company	Target	Comment
		<ul style="list-style-type: none"> - Completion of a rigorous inventory of 2018 Scope 1 and 2 GHG emissions baseline,⁸ - Exploring Scope 3 GHG emissions to better understand greatest impacts and opportunities, - Evaluating reduction opportunities and mitigation strategies along its entire value chain. - Assessing how climate-related scenarios can impact the company, and - Developing GHG reduction projects and targets.
<p>PepsiCo</p>	<p>100% sustainably sourced potatoes, whole corn, oats, oranges, palm oil and sugar cane by 2020.</p> <p>Achieve sustainably sourced priority raw materials based on business needs by 2025.</p> <p>Reduce absolute GHG emissions across its value chain by 20% by 2030.</p> <p>Replenish 100% of the water consumed in manufacturing operations located in high-water risk areas by 2025, ensuring that replenishment takes place in the same watershed where the water was extracted.</p> <p>By 2025, make 100% of its packaging recyclable, compostable or biodegradable, use 25% recycled plastic content in its plastic packaging and reduce 35% of virgin plastic use across its beverage portfolio.</p>	<p>Note: These are global goals, so each individual country could be different ahead or behind at any point in time.</p>

⁸ “Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including upstream and downstream emissions.” Greenhouse Gas Protocol: FAQ: https://ghgprotocol.org/sites/default/files/standards_supporting/FAQ.pdf

Company	Target	Comment
Saputo	<p>Among other pledges to deliver by 2025:</p> <p>Reduce carbon intensity of its operations by 20%.</p> <p>Reduce food waste by 50%.</p> <p>Ensure 100% of packaging is reusable, recyclable or compostable.</p>	
Sobeys	<p>Remove plastic grocery bags from all Sobeys grocery stores by the end of January 2020.</p> <p>By 2020 use only Certified Sustainable Palm Oil (to respond to tropical deforestation concerns).</p> <p>Cut food waste generated within its operations by 50% by 2025 against a 2016 baseline.⁹</p>	<p>Sobeys notes that its grocery bag initiative is the first step to reduce plastics in other areas of the store.</p> <p>Sobeys is an associate member of the Canadian Roundtable for Sustainable Beef.</p>
Syngenta	<p>Increase the average productivity of the world’s major crops by 20% without using more land, water or inputs.</p> <p>Improve the fertility of 10 million hectares of farmland on the brink of degradation.</p> <p>Enhance biodiversity on 5 million hectares of farmland by 2020.</p> <p>Reduce the carbon intensity of the company’s operations by at least 50% by 2030 to support the ambitious goals of the Paris Agreement on climate change.</p>	<p>Syngenta will update its targets at the end of June 2020 (after this report was published).</p> <p>Its biodiversity target has been exceeded by 27%.</p> <p>Syngenta’s carbon commitment has been validated and endorsed by the Science Based Targets initiative (SBTi).</p>

⁹ This zero waste goal is part of shared initiative launched by Canada’s National Zero Waste Council and Provision Coalition in January 2019 and endorsed by Heinz, Kraft, Loblaw, Maple Leaf Foods, Sobeys, Save-on-Foods, Unilever and Walmart.

Company	Target	Comment
<p>Sysco</p>	<p>To meet 2025 sustainability targets (set in 2018), Sysco has or will:</p> <p>Expanded its sustainable agriculture program into 5 fresh crops.</p> <p>Sustainably source fish for its Portico Brand.</p> <p>Double the availability of Sysco brand organic produce.</p>	<p>Sysco has established new definitions for “commodities” and “responsible sourcing” and prepared a criteria list for evaluating commodities.</p> <p>Sysco’s Integrated Pest Management program is being used to reduce the use of pesticide and nutrient inputs. The company is part of the Potato Sustainability Alliance.</p> <p>By the end of 2018, Sysco has sourced 93% of its top 15 wild-caught Portico Brand seafood species and 65% of its top five aquaculture species from certified sustainable sources. It points to the challenge of getting shrimp farm suppliers certified.</p>
<p>Unilever</p>	<p>By 2030, halve the company’s environmental footprint of the making and use of its products as the company grows.</p> <p>By 2020, Unilever will source 100% of its agricultural raw ingredients sustainably.</p> <p>By 2025, all of its plastic packaging will be designed to be fully reusable, recyclable or compostable.</p>	<p>Unilever notes that it is working with Bunge in Canada and that, as at the end of 2018, some 200 farmers in Canada were adhering to its Sustainable Agriculture Code, a global initiative to work with producers to reduce on-farm emissions.</p> <p>In 2019, Unilever recognized all (dairy cow) milk produced in Canada as meeting the requirements of their Sustainable Agriculture Code. Says Unilever: “the ice creams we produce in Canada are all being made with sustainable dairy”.¹⁰</p>

¹⁰ Dairy Farmers of Canada: <https://dairyfarmersofcanada.ca/en/dairy-in-canada/news-releases/dairy-farmers-canada-receives-unilevers-international-recognition-its-sustainability-practices>

Company	Target	Comment
<p>Walmart</p>	<p>Avoid 1 billion metric tons of emissions across Walmart value chains by 2030, called Project Gigaton. It engages suppliers where there are opportunities to do so, such as through sustainable agriculture.</p> <p>By 2025, all Walmart U.S. and Walmart Canada (and other) locations' fresh and frozen, farmed and wild seafood suppliers will source from fisheries who are third-party certified as sustainable.</p> <p>Achieve zero waste to landfill from the company's operations in key markets, including Canada, by 2025.</p> <p>20x25 program: More sustainably source 20 key commodities by 2025, including fresh produce, animal agriculture, seafood and row crops.</p>	<p>Walmart notes the challenge of advancing sustainable agriculture "where success requires influencing a disparate set of actors far upstream in the supply chain".</p> <p>Project Gigaton includes encouraging suppliers to develop fertilizer optimization plans.</p> <p>Walmart has introduced a "Sustainability Index", a supplier scorecard; 80% of suppliers are compliant where this index is available.</p> <p>Meeting the zero waste target: Walmart Canada, 87% waste diverted.</p>

4. Global institutions:

Institution	Target	Comment
<p>United Nations Sustainable Development Goals (SDGs)</p>	<p>The 17 Sustainable Development Goals (SDGs) and 169 indicators "are the world's best plan to build a better world for people and our planet by 2030."</p> <p>The Paris commitment on GHG emissions reduction is linked to SDG 13: Take urgent action to combat climate change and its impacts; limit global warming to 1.5° C by 2030.</p>	<p>The SDGs were adopted by all United Nations Member States in 2015 and designed to "promote prosperity while protecting the environment".</p> <p>The FAO declares that: "The evidence available to date for these targets, however, paints a grim picture. The world is not on track to meeting the overwhelming majority of SDG targets related to sustainable agriculture, food security and nutrition." (2019)</p>

Institution	Target	Comment
	<p>While some 15 of the 17 SDGs are relevant to sustainable agriculture in some way,¹¹ the FAO specifically tracks 21 indicators related to SDG goals #2, 6, 14, and 15 that pertain to food and agriculture under its purview:¹²</p> <p>Goal 2: Zero hunger: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.</p> <p>Goal 6: Clean water and sanitation: Ensure availability and sustainable management of water and sanitation for all.</p> <p>Goal 14: Life below water: Conserve and sustainably use the oceans, seas and marine resources.</p> <p>Goal 15: Life on land: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.</p>	
<p>Convention on Biological Diversity</p>		<p>In 2020, this UN organization is setting 2030 targets (known as the CBD COP 15 framework) to halt the biodiversity crisis. These targets will build on the 2020 Aichi targets, an existing initiative aiming to improve global biodiversity conservation. The CBD has three pillars: the conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of benefits arising from genetic resources.</p>

¹¹ Green Budget Coalition: *Recommendations for Budget, 2019*, p. 24: <https://greenbudget.ca/budget2019/>

¹² FAO: <http://www.fao.org/sustainable-development-goals/indicators/en/>

5. International NGOs:

Organization	Target	Comment
<p>Consumer Goods Forum</p> <p>(Representing some 400 retailers, manufacturers & service providers)</p>	<p>Achieve zero net deforestation (in tropical rainforests) by 2020 to responsibly source key commodities such as soy, cattle, palm oil, and paper & pulp.</p> <p>Halving food waste by 2025 (within the operations of retailer and manufacturers), in support of the UN SDGs.</p>	<p>Set in 2010, the goal has prompted companies, national governments, environmental NGOs and banks to find ways to accelerate “deforestation-free supply chains”.</p>
<p>Field to Market</p> <p>(Representing 140 food companies and organizations in the U.S.</p> <p>In Canada, member organizations include Pulse Canada, Grain Farmers of Ontario, Fertilizer Canada and CropLife Canada)</p>	<p>Reduce absolute GHG emissions (accounting for soil carbon sequestration), conserve native habitats and enhance conservation outcomes and overall improve soil health by engaging 20% of U.S. productive acres among target commodities by 2020; a five-year rolling average assessment will be undertaken and reported to measure progress and assess outcomes against these goals.</p> <p>In 2014, announced that its membership would commit to engage 50 million acres in its U.S. program by 2020.</p> <p>By 2021, expand its reach to 65 million acres.</p>	<p>Field to Market, a U.S. multi-stakeholder organization, provides a common framework for outcomes-based sustainability measurements for U.S. agriculture and food industries. It is tracking performance from field to national levels for key commodity crops.</p> <p>Eight environmental (and five socioeconomic) indicators for 10 crops; sustainability metrics: biodiversity, energy use, GHGs, irrigation water use, land use, soil carbon, soil conservation and water quality for barley, corn for grain, corn for silage, cotton, peanuts, potatoes, rice, soybeans, sugar beets and wheat.</p> <p>It announced its launch in Canada, November 2019.</p>
<p>One Planet Business for Biodiversity (OP2B)</p> <p>(Representing over 20 companies, incl.</p>		<p>By June 2020: develop a series of measurable solutions for OP2B members’ value chains.</p> <p>By October 2020: publish “ambitious, timebound science-based and measurable targets” and policy proposals relevant to the Convention of Biological Diversity (see section 4).</p>

Organization	Target	Comment
Loblaw, McCain, Walmart, Danone, Unilever, Mars)		
World Business Council on Sustainable Development (Represents some 200 companies with a combined revenue of over US\$8.5 trillion)	Make 50% more food available by 2030 while producing 50% less GHG emissions.	An initiative of the WBCSD Climate Smart Agriculture project.

6. Governments: Canada:

Jurisdiction	Target	Comment
Canada (federal)	<p>The Pan-Canadian Framework on Clean Growth and Climate Change (PCF) commits Canada to:</p> <p>By 2030, reduce Canada's total greenhouse gas emissions by 30% (baseline, 2005).</p> <p>Develop a plan to achieve net-zero emissions by 2050.</p>	<p>The Canadian agriculture and agri-food sector’s contribution to the PCF will be primarily delivered through the Canadian Agricultural Partnership. The Partnership, launched on April 1 for the period 2018-2023, is a \$3 billion investment supported by three types of programs:</p> <ul style="list-style-type: none"> - Federal-only programs that help support resiliency and sustainability of the sector through science, research and adoption of innovative practices and technologies; - FPT cost-shared on-farm programs delivered by provinces and territories that build producer awareness of environmental risks and accelerate adoption of technologies and practices to reduce these risks; and - Business Risk Management programs that are demand-driven and help farmers manage significant risks threatening the viability of their operations.
	<p>The Federal Sustainable Development Strategy includes a target for sustainable food:</p> <p>By 2030, support improvement in the environmental performance of the agriculture sector by achieving a score of 71 or higher for the Index of Agri-Environmental Sustainability (reflecting the quality of water, soil, air and biodiversity).</p>	<p>The Agri-Environmental Sustainability Index is a unit-less measure of the sustainability of the Canadian agricultural sector.</p> <p>Environmental indicators are reported every five years, last published in 2016.¹³ AAFC is moving toward increased publication frequency.</p>

¹³ *Environmental Sustainability of Canadian Agriculture: Agri-Environmental Indicator Report Series—Report #4*, Agriculture and Agri-Food Canada: <http://www.agr.gc.ca/eng/agriculture-and-climate/agricultural-practices/environmental-sustainability-of-canadian-agriculture-agri-environmental-indicator-report-series-report-4/?id=1467307820931>

Jurisdiction	Target	Comment
British Columbia		<p>A recent report, <i>The Future of B.C.'s Food System</i>, recommended setting a target for growing the agriculture's share of B.C.'s economic base from 10.3% to 15% by 2035.</p> <p>This was accompanied by recommendation #1: Adopt and apply the UN SDGs across all agricultural policies. It calls for the development of KPIs to deliver on this.</p>
Manitoba	15% reduction in carbon intensity per kilogram of animal protein.	As part of its protein strategy, the province also proposes reducing water usage, energy use and waste in production and processing.
Nova Scotia	A Sustainable Development Goals Act was passed in 2019 which included the goals to achieve net zero emissions by 2050 by balancing GHG emissions with greenhouse gas removals and other offsetting measures.	<p>Legislative authority is granted to fulfill goals in this Act to address the creation of conditions supporting a circular economy and conservation and sustainable use of natural assets and support for biodiversity.</p> <p>Citizen feedback from this legislative process also suggested that sustainable food systems and production should also be addressed in the future.</p>
Ontario	Made-in-Ontario Environment Plan (2018): reduce emissions to 30% below 2005 levels by 2030.	While specific targets are not set, goals and plans to make climate change adaptation and mitigation improvements are noted in the province's soil strategy, among other initiatives.
Québec	<p>By 2030, reduce greenhouse gas emissions by 37.5% from their 1990 level.</p> <p>Sustainable agriculture plan (2020-2030) from Quebec's Ministry of Agriculture, Fisheries and Food:</p>	<p>Note, Quebec has identified a series of economic growth targets:</p> <ul style="list-style-type: none"> - Increase Québec's international exports of bio-food by \$6 billion, bringing them to \$ 14 billion by 2025.

Jurisdiction	Target	Comment
	<p>1. Reduce use of pesticides and their risks to health and the environment: 1.1 Reduction of sales of synthetic pesticides by 500,000 kg. 1.2 40% reduction in risks to health and the environment.</p> <p>2. Improve soil health and conservation: 2.1 75% of cultivated lands are covered by crops or crop residues in winter. 2.2 85% of agricultural soils have a soil organic matter content of 4% or higher.</p> <p>3. Improve nutrient management: 3.1 15% reduction in application of nitrogenous fertilizers on cropped lands.</p> <p>4. Optimize water management: 4.1 Improve benthic health index in degraded watercourses by one level or by 15 units. 4.2 15% reduction in total phosphorus levels in watercourses.</p> <p>5. Improve biodiversity: 5.1 Double the agricultural land area managed favorably for biodiversity (widened riparian buffers and shelterbelts).</p>	<ul style="list-style-type: none"> - Add \$10 billion in Quebec-produced bio-food products purchased in Quebec, increasing them from \$24 billion in 2016 to \$34 billion in 2025. - Double the number of hectares (ha) under organic management, from 49,000 ha in 2015 to some 98,000 ha in 2025. - Increase the share of eco-certified Quebec aquatic products from 52% in 2016 to 70% in 2025 on a volume basis.
<p>Saskatchewan</p>	<p>By 2025, 25% of Saskatchewan's cropland under 4R designation.</p> <p>No one crop type to rise above 50% of the cultivated area.</p>	<p>The province outlines continuous improvements to adaptive capacity, such as encouraging continued adoption of zero tillage to sequester even greater carbon dioxide from the atmosphere and delivering on water management objectives, etc.</p>

7. Governments: other countries and related organizations:

Worldwide, governments are reporting on their progress to meet the UN SDGs as well as the Paris Accord, among other global goals and targets.¹⁴ This report is not intended to summarize those extensive efforts by country. That said, it is relevant to note how some jurisdictions abroad are developing targets for or are positioning their respective agri-food sectors.

Note: the National Farmers' Federation is not a government organization.

Jurisdiction	Target	Comment
Australia: National Farmers' Federation (A non-government NGO)	By 2030: Achieve A\$100 billion in farm gate output (baseline 2017). The net benefit for ecosystem services is equal to 5% of farm revenue. Australian agriculture is trending towards carbon neutrality. Halve food waste. A 20% increase in water use efficiency for irrigated agriculture. Maintain Australia's total farmed area at 2018 levels.	This organization is also now developing the "Australian Farm Biodiversity Scheme", including a certification label concept by mid-2021 and farm-level pilot of BMPs by 2022 – a plan to integrate productivity, sustainability and biodiversity on Australian farms. (This is funded by A\$4 million from the federal government's Ag Stewardship Package, part of a broader national biodiversity vision implementation program).
Bord Bia		"Origin Green is Ireland's food and drink sustainability programme" involving the country's farmers, seafood producers, food manufacturers, food retailers and food

¹⁴ The following link reports on how individual countries are addressing the UN Sustainable Development Goals:
<https://sustainabledevelopment.un.org/memberstates>

<p>(Irish Food Board, a state agency)</p>		<p>services sector. It is a business-to-business voluntary program that enables participating firms and farms to set sustainability targets which are independently assessed, verified and benchmarked.</p> <p>Participating companies decide on their targets, including at least one stretch target, and sets the criteria for these requirements.</p> <p>Origin Green participation: companies representing 90% of Ireland’s total food and drink exports; some 90% of beef and dairy farms; 97% of egg production.</p> <p>(Note: The Irish government, separate from Bord Bia, has a national target to have 5% of all arable land devoted to organic production.</p>
<p>European Union</p>	<p>EU 2030 climate and energy framework includes EU-wide targets and policy objectives 2021 to 2030, including: at least 40% cuts in GHG emissions (from 1990 levels).</p> <p>Be climate-neutral by 2050 and each member state must develop national long-term strategies to achieving this.</p> <p>EU Nature Restoration Plan: restore degraded member state ecosystems and address biodiversity loss by 2030. (The ambition aligns with the objective that, by 2050, all of the world’s ecosystems are restored, resilient, and adequately protected.)</p> <p>EU Farm to Fork Strategy: reduce by 50% the use of chemical pesticides and reduce by 50% the use of more</p>	<p>The use of plastics is addressed through the implementation of the European Strategy for Plastics and the Circular Economy Action Plan.</p>

	<p>hazardous pesticides by 2030, in conjunction with the EU Pollinators initiative.</p> <p>At least 25% of the EU’s agricultural land must be organically farmed by 2030.</p> <p>Goal of zero pollution from nitrogen and phosphorus flows from fertilisers through reducing nutrient losses by at least 50%, while ensuring that there is no deterioration in soil fertility. This will result in the reduction of use of fertilisers by at least 20%. An Integrated Nutrient Management Action Plan will be developed in 2022.</p>	
<p>Netherlands</p>		<p>Vision: “To be a leader in circular agriculture by 2030.”</p> <p>However, says the government, “This vision is not a blueprint, but it is not without obligation either. It applies to national government policy, and the government wishes it to function as a benchmark that will also help other decision-makers make their own choices”.</p>
<p>New Zealand</p>	<p>Cut carbon emissions to net zero by 2050.</p> <p>Cut of 10% in biological methane by 2030, and up to 47% by 2050.</p>	<p>The Ministry of Primary Industries has expressed a vision where “New Zealand is the world’s most sustainable provider of high-value food and primary products”. While its 2019 strategic plan outlines its intent to improve sustainable fishing and farming practices, it did not set specific targets to mark progress against this specific vision, although the country more recently passed the Climate Change Response (Zero Carbon) Amendment Act in November 2019 (targets noted at left).</p>

<p>United States</p>	<p>USDA Secretary announces goal (2020) to cut U.S. farming's environmental footprint by 50% and increase sector productivity by 40% by 2050.</p> <p>Water quality: Reduce nutrient loss by 30% nationally by 2050.</p>	
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⑥ The changing landscape of measuring performance

Several observations can be made about environmental sustainability target-setting across the agri-food sector. (Relevant points from this section are captured in the summary and accompanying chart of key findings in part 2, above.)

- 1) Outcomes-based measures are increasing.
- 2) Measuring outcomes is driving-up greater alignment and collaboration across food supply chains.
- 3) Reporting on environmental, social and governance (ESG) risks are becoming more financially material to companies and investors. (This has implications for reporting on the UN SDGs and is influencing capital markets.)
- 4) Companies are increasingly focused on systems-risk which is shaping new business models.
- 5) Supporting all these shifts is the need for better data and verification.
- 6) The scrutiny of food production and supply is accelerating and countries and companies, alike, are being benchmarked.

1. *Measuring practices vs. outcomes:*

Environmental performance can be measured in two ways: practices and outcomes. To date, food and feed production has largely been practice-based; that is, how the farmer produces the commodity to minimize environmental impact (which can also be described as continuous improvement). Standards have also been developed by companies, associations and consortiums of food players to certify producers that follow best practices and are deemed to be environmentally sustainable. The increasing attention to climate change and the environment is prompting interest in outcomes-based measures.

At the farm level, measuring environmental performance in terms of outcomes is rising, although both practice and outcomes-based measures are used. Some commodity organizations have invested in measuring one or more environmental performance outcomes. Measuring outcomes at the farm level requires a significant investment in both time and resources. Outcomes-based measurements used at the farm and food processing level include greenhouse gas emissions, as measured in carbon dioxide equivalents (carbon footprint), water usage, food loss and food waste, wildlife habitat and native grasslands, production per unit input (land, feed), and amount of pesticides used. Companies have been quicker to focus on the outcomes approach for environmental performance measurement, such as setting absolute targets (carbon neutrality) and environmental impacts measurements relative to other production systems or regions. A variety of consumer, investor, regulator and global developments have prompted this response.

Companies are also acknowledging that they are on a journey to better measure and improve sustainability performance and be more transparent. Agropur, for example, took the first steps to calculate its GHG emissions from its operations in 2014 and have included the goal of having their performance audited by a third party (an ISO standard). Sharing data is also a key activity. Molson Coors is collecting sustainability metrics from some 800 barley growers in the U.S. to share best practices and benchmark performance.¹⁵

2. *Aligning supply chains:*

Measuring outcomes necessitates getting aligned. Measuring climate impacts, water and waste, requires companies to engage their suppliers so that the totality of performance can be calculated. The Task Force on Climate-related Financial Disclosures (TCFD) is urging companies to evaluate and disclose their climate change risks across their businesses and supply chains.¹⁶ The reason is clear. Says the CDP, a global standard for reporting on climate-related accountabilities: “For most companies, the majority of their environmental

¹⁵ Molson Coors: <https://www.molsoncoors.com/sites/molsonco/files/OBP-Report-EN.pdf>

¹⁶ TCFD (references both value and supply chains): <https://www.fsb-tcfid.org/wp-content/uploads/2017/06/FINAL-TCFD-Annex-062817.pdf>

impacts and exposures are to be found in their supply chains.”¹⁷ Scope 3 emissions (i.e., those occurring in a company’s supply chains both up- and downstream) make up an average of 89% of food and beverage companies’ total emissions.¹⁸

A number of companies are working differently with producers and commodity groups to assess and reduce emissions and adopt best management practices. This allows food companies to communicate such progress to the marketplace (such as reducing chemical and fertilizer inputs) and to help improve producers’ productivity. Company programs support this effort, such as Unilever’s Sustainable Agriculture Code and High Liner Foods has helped to advance the Global Aquaculture Alliance’s Best Aquaculture Practices.

Meeting commitments require collaboration. For instance, food companies, producers and others (including environmental organizations) involved in the Canadian Roundtable for Sustainable Beef have worked together to assess the environmental, social and economic performance of the beef industry and have implemented a new sustainability program for Canadian beef. The effort “put the Canadian beef industry at the forefront of global beef production as one of the first verifiable sustainable beef programs in the world”.¹⁹

Ensuring sustainability can be a market requirement and be good for producer profitability. McCain’s will only source potatoes from producers with a completed Environmental Farm Plan (EFP). As such, the Potato Growers of Alberta has made EFP completion a membership requirement.²⁰ Pulse Canada put it succinctly in its guide to producers: “Sustainability improves the performance and profitability of your operations” which is also good for meeting customers’ needs and consumer demands.²¹ Viterra encourages its canola producers to be sustainably certified to access the EU.²² (Certified sustainable by the International Sustainability and Carbon

¹⁷ CDP Supply Chain: *Changing the Chain*, CDP Supply Chain Report 2019/20. https://6fefcbb86e61af1b2fc4-c70d8ead6ced550b4d987d7c03fcdd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/004/811/original/CDP_Supply_Chain_Report_Changing_the_Chain.pdf?1575882630

¹⁸ Research conducted on 50 of the largest U.S. food and beverage companies; *Smarter metrics in climate change and agriculture*, WBCSD, March 2020: <https://www.wbcd.org/Programs/Food-and-Nature/Food-Land-Use/Climate-Smart-Agriculture/Resources/Smarter-metrics-for-climate-change-and-agriculture-Business-guidance-for-target-setting-across-productivity-resilience-and-mitigation>

¹⁹ Loblaw: <https://www.loblaw.ca/en/responsibility/sourcing/commodities.html>

²⁰ Alberta Environmental Farm Plan: <https://www.albertaefp.com/sustainable-sourcing>

²¹ Pulse Canada: *Sustainable Business Guide*: http://www.pulsecanada.com/wp-content/uploads/2018/09/PulseCanada_SustainableBusinessGuide_web-low-res.pdf

²² Viterra: <https://www.viterra.com/web/canada/sustainability2>

Certification (ISCC) body enables access to the EU biodiesel market.²³) The company is also advising producers about increasing attention being given by customers for sustainable wheat, pulses and other oilseeds. McDonald's wants its farm suppliers to be efficient, profitable and sustainable. It regards "a farm's carbon footprint is an indicator of its overall efficiency and therefore its profitability".²⁴

3. Reporting "materiality" is changing:

The language of reporting is changing. McDonald's no longer uses Corporate Social Responsibility (CSR) annual reports and has adopted "the more dynamic" platform of reporting on environmental, social and governance (ESG).²⁵ Says the World Economic Forum: "In greater numbers and at greater speed, environmental, social and governance (ESG) issues are becoming financially material."²⁶ Nutrien emphasizes: "ESG is not a trend. It is a systemic shift in the foundations of strategy, and it is fundamentally changing our business model and how we operate."²⁷ There is a growing recognition – made acutely relevant by the COVID-19 pandemic – that business resiliency is intimately tied to the sudden impact of such non-financial factors.²⁸ Climate change and accelerating decline in biodiversity globally is changing the way companies and sectors are measuring the impact of their operations and supply chains.²⁹

Reporting on the UN Sustainable Development Goals (SDGs) is becoming more widespread. The Canola Council of Canada describes these goals as "the language of sustainable food production."³⁰ Countries, companies and organizations, alike, are aligning their environmental (and other) actions around this global 2030 agenda for sustainable development. The response is varied. Walmart links its ESG performance to eight relevant SDGs. Nutrien aligns its sustainability efforts under four priority SDGs;³¹ Cargill, to all 17 goals.³²

²³ Canola Growers of Canada: <http://www.ccg.ca/policy/Documents/Sustainability-201909.pdf>; Canola Council of Canada: <https://www.canolacouncil.org/markets-stats/market-access/>

²⁴ McDonald's: <https://corporate.mcdonalds.com/corpmcd/scale-for-good/climate-action.html>

²⁵ McDonald's Corporation: *Progress and Performance*: <https://corporate.mcdonalds.com/corpmcd/scale-for-good/esg-reporting/progress-and-performance.html>

²⁶ World Economic Forum & Boston Consulting Group: *Embracing the New Age of Materiality: Harnessing the Pace of Change in ESG*, March 2020: http://www3.weforum.org/docs/WEF_Embracing_the_New_Age_of_Materiality_2020.pdf

²⁷ Nutrien: *2020 ESG Report*: <https://www.nutrien.com/sites/default/files/uploads/2020-04/Nutrien%202020%20ESG%20Report.pdf>

²⁸ World Economic Forum, Press Release, March 19, 2020: <https://www.weforum.org/press/2020/03/world-economic-forum-releases-framework-to-help-business-identify-esg-factors-for-long-term-resilience>

²⁹ World Economic Forum: <https://www.weforum.org/reports/nature-risk-rising-why-the-crisis-engulfing-nature-matters-for-business-and-the-economy>

³⁰ Canola Council of Canada: *Canola Digest – Science Edition 2018*.

³¹ Nutrien: <https://www.nutrien.com/sustainability/strategy/supporting-global-goals>

³² Cargill: <https://www.cargill.com/sustainability/sustainable-development-goals>

Fertilizer Canada references eight SDGs and Canada’s Sustainable Development Strategy.³³ The British Columbia Grape Growers Council links its sustainable certification program for members to the SDGs.³⁴

Financial institutions are taking notice. To meet its goal of zero net deforestation, the Consumer Goods Forum, a global organization representing major manufacturers, is working with major banks to leverage sustainable finance options. The Banking Environment Initiative represents a number of global banks which is exploring how to direct capital toward responsible economic development.³⁵ Maple Leaf Foods became the first Canadian company to receive “sustainability-linked” credit terms (reduced interest rate) because its key sustainability targets were met.³⁶ Bunge secured favourable credit terms linked to sustainability targets tied to GHG reductions, increasing traceability for key agricultural commodities and enhancing sustainable practices in soybean and palm supply chains.³⁷

4. *Transforming system-wide performance:*

Some companies are rethinking sustainability of the food system. Unilever declares that “We need fundamental change to whole systems.”³⁸ Mars believes that “...the engine of global business – its supply chain – is broken and requires transformational, cross-industry collaboration to fit it”; it says that meeting the SDGs and Paris Accord “requires widening the focus to include social and environmental impacts far beyond direction operations”.³⁹ Walmart speaks to the need for “whole-system transformation in a number of retail supply chains industry-wide” as it relates to worker rights and dignity, such as in the produce trade in the U.S. and Mexico.⁴⁰

System resilience is at focus. General Mills is committing to improve the health of priority watersheds by 2050.⁴¹ This is driven by the fact that 85% of its water footprint is found in its agricultural supply chains. The One Planet Business for Biodiversity (OP2B) coalition of

³³ Fertilizer Canada: https://fertilizercanada-ksiu6qbsd.netdna-ssl.com/wp-content/uploads/2017/05/DIGITAL-EN-fc_sustainabilityreport2017_en_vf-digital.pdf

³⁴ Sustainable Winegrowing BC: <https://sustainablewinegrowingbc.ca/about>

³⁵ Consumer Goods Forum: <https://www.theconsumergoodsforum.com/initiatives/environmental-sustainability/key-projects/deforestation/>

³⁶ Maple Leaf Foods: *Maple Leaf Foods Secures First Sustainability-Linked Credit Facility in Canada*, Press Release, December 11, 2019:

<https://www.mapleleaffoods.com/news/maple-leaf-foods-secures-first-sustainability-linked-credit-facility-in-canada/>

³⁷ Bunge: *Bunge Limited Closes its First Sustainability-Linked Revolving Credit Facility*, Press Release, December 16, 2019.

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³⁸ Unilever: <https://www.unilever.com/sustainable-living/transformational-change/>

³⁹ Mars: Press release, Sept. 6, 2017: <https://www.mars.com/news-and-stories/press-releases/industry-fix-broken-engine>

⁴⁰ Walmart: <https://corporate.walmart.com/esgreport/about-this-report#esg-priorities-goals-targets>

⁴¹ General Mills: <https://www.generalmills.com/en/Responsibility/Sustainability/water-stewardship>

global companies is developing targets to “take bold action to protect and restore cultivated and natural biodiversity within their value chains” as a means to transform the global agricultural model.⁴² One of its members, Danone, is pushing regenerative agriculture to improve sustainability across its global supply chains – a means to strengthen production resilience and implement low-carbon practices by protecting soil, water and biodiversity, empowering a new generation of farmers and promoting animal welfare.⁴³

The circular economy is building momentum.⁴⁴ Molson Coors seeks to transition to a low-carbon economy.⁴⁵ The Canadian Strategy on Zero Plastics embraces a circular economy for plastics involving a variety of players, including the Canadian Produce Marketing Association (which is exploring opportunities for the produce industry to “identify, prioritize and implement systems-wide changes”).⁴⁶ Loblaw became a founding partner of the Circular Economy Leadership Coalition which promotes closed loop practices to manage waste across product life-spans.⁴⁷ But retooling the system has its challenges. PepsiCo, for instance, has a goal to use 25% recycled plastic content in packaging by 2025 but indicates that there is an insufficient global supply of a form of plastic that can be recycled.⁴⁸ Countries are also positioning themselves for change. The Netherlands has set a goal of being the circular agriculture leader by 2030.

5. *Enabling disclosure & transparency:*

Verifying stewardship is expected. There are a plethora of such programs, such as the Science Based Targets initiative (SBTi) which enables alignment with the Paris Climate Agreement. CDP is a global NGO which scores companies on their progress to assess and respond to climate change, water stewardship and forests.⁴⁹ Over 120 companies with a combined procurement spend of US\$3 trillion require their suppliers (over 8,400 companies) to disclose their information on environmental performance to this body. McDonald’s expects many of its key suppliers to report into CDP, including 100% of its globally managed beef, chicken, dairy and cheese suppliers.⁵⁰ Verification programs can also be consumer-facing, such as the Marine Stewardship Council label for sustainably-sourced fish.

⁴² One Planet Business for Biodiversity coalition includes Loblaw and McCain Foods: <https://op2b.org>

⁴³ Danone: <https://www.danone.com/impact/planet/towards-carbon-neutrality.html>

⁴⁴ ECCC: Circular economy, *Backgrounder*: <https://www.canada.ca/en/environment-climate-change/news/2019/12/circular-economy.html>

⁴⁵ Molson Coors: <https://www.molsoncoors.com/sites/molsonco/files/OBP-Report-EN.pdf>

⁴⁶ CPMA Plastics Packing Working Group: <https://www.cpm.ca/industry/plastics-packaging-working-group>

⁴⁷ Loblaw: https://www.loblaw.ca/content/dam/lccorp/pdfs/Responsibility/Reports/CSRR/en/2018/G_0349_LCL_CSR%20Report%202018_1920x1080_EN_final.pdf

⁴⁸ PepsiCo: In reference to polyethylene terephthalate (PET): <https://www.pepsico.com/sustainability/sustainable-food-system/packaging>

⁴⁹ CDP: <https://www.cdp.net/en/info/about-us/what-we-do>. As well, 920 cities, states and regions worldwide report on environmental performance to CDP.

⁵⁰ McDonald’s: <https://corporate.mcdonalds.com/corpmcd/scale-for-good/climate-action.html>

New organizations are forming. The Canadian Agri-Food Sustainability Index (CASI) is promoting a sectoral method to align with various sustainability codes and standards in agri-food supply chains and to enable discussion on metrics.⁵¹ The Canadian Agri-food Automation and Intelligence Network (CAIIN) is working on leveraging data, analytics, technology and traceability to improve on-farm productivity and meet expectations for the provenance and sustainability of food, among other objectives.⁵² The U.S.-based Field to Market recently announced it was entering Canada. It develops outcomes-based sustainability measurements for the U.S. agriculture and food industries and is now taking a North American approach.

Sustainability targets are a catalyst to improve productivity, resilience and profitability as well as achieve greater environmental sustainability. The World Business Council on Sustainable Development (WBCSD) notes that target-setting can be arranged to systematically do so (see figure).⁵³

Pursuing these outcomes will unleash innovation, whether it is accelerating precision agriculture adoption, leveraging science and genomics, more fully exploiting data and traceability or other assurance programs, and prompting new processes at every stage from field to fork – and that is just the tip of the innovation iceberg.

Figure 2: Target-setting areas covered in the practical guidance section

PILLAR 1: PRODUCTIVITY	PILLAR 2: RESILIENCE	PILLAR 3: MITIGATION
<ul style="list-style-type: none"> • Productivity • Food loss and waste 	<ul style="list-style-type: none"> • Climate risk assessment • Climate resilience building* 	<ul style="list-style-type: none"> • GHG Mitigation • Deforestation and other land use change**

* Climate resilience management for finance providers;
 ** Out of scope for input providers

6. Increasing scrutiny & benchmarking:

Scrutiny is increasing. Many advocacy and research organizations track and benchmark company and sector performance. Periodic or annual scorecards name, shame and encourage change, such as on ethical matters, labour practices, farm animal care, nutritional quality, food safety and, of course, environmental impacts.⁵⁴

Countries are being benchmarked, too. A sampling of those measuring Canada’s performance is shared below (see chart). It is beyond the scope of this paper to assess their methodologies and applicability to Canada’s agri-food sector (and they surely deserve

⁵¹ CASI: <https://www.agrifoodsustainability.ca>

⁵² CAIIN: <https://caain.albertainnovates.ca>

⁵³ WBCSD: *Smarter metrics in climate change & agriculture*, 2020: <https://www.wbcsd.org/Programs/Food-and-Nature/Food-Land-Use/Climate-Smart-Agriculture/Resources/Smarter-metrics-for-climate-change-and-agriculture-Business-guidance-for-target-setting-across-productivity-resilience-and-mitigation>

⁵⁴ For example, NGO scorecards report on sustainable soy from the World Wildlife Fund, child and forced labour from World Vision, farm animal welfare from the World Animal Protection, and rank food companies’ contribution to nutritious foods and health outcomes with the Access to Nutrition Index.

understanding and scrutiny, if not challenge), but it is clear that measuring national performance is extensive. It is also noteworthy that many of these indices do not line-up with Canada’s current view of its own performance and food ambition – to be known as the leading supplier of trusted and sustainable food. Selected benchmarks of Canada:

Canada’s Rank	Focus	Publisher
3 rd	Sustainable food systems global index	CGIAR ⁵⁵
7 th	Country performance on ESG for investors	Robeco ⁵⁶
C-	Average corporate sustainability score	CDP ⁵⁷ (Note: not specific to agri-food)
14 th	Sustainable agriculture	Food Sustainability Index, Economist Intelligence Unit ⁵⁸
79 th	On overall ecological sustainability	Global Innovation Index,
24 th	On the sub-pillar of environmental performance	World Intellectual Property Organization ⁵⁹
20 th	Environmental performance index	Yale & Columbia Universities/World Economic Forum ⁶⁰
20 th	Shipment reliability, customs, logistics, etc.	World Bank’s Logistics Performance Index ⁶¹
20 th	Canada’s overall SDG rank (out of 162 nations)	Sustainable Development Goals index & dashboards ⁶²

⁵⁵ International Centre for Tropical Agriculture, CGIAR, 2019, <https://cgspace.cgiar.org/handle/10568/106313>

⁵⁶ *Country Sustainability Ranking Update, June 2019*, Robeco (environmental, social, governance (ESG) ranking of 65 countries used for sustainable investing): <https://www.robecosam.com/en/key-strengths/country-sustainability-ranking.html>

⁵⁷ CDP assesses performance on climate change, water security and deforestation for companies, cities, states, regions worldwide: https://6fefcbb86e61af1b2fc4-c70d8ead6ced550b4d987d7c03fcd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/004/313/original/CDP_Canada_Scores_2018.pdf?1554976595

⁵⁸ <https://foodsustainability.eiu.com/country-profile/ca>; <https://foodsustainability.eiu.com/country-ranking/> Canada scores 3rd overall based on three components: 14th on sustainable agriculture, 9th on nutritional challenges and 4th on food loss & waste. Sustainable agriculture is based on a weighted sum of water, land and air impact. A number of elements rank Canada highly, such as environmental impact of agriculture on water, on land and on the atmosphere (GHGs) but less so on impact on environmental biodiversity. There are multiple measures per category.

⁵⁹ Global Innovation Index (2019); https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2019/ca.pdf (Canada’s ecological sustainability ranking appears to be driven in part by a high GDP/unit of energy use score; Canada also ranks 76th for ISO 14001 environmental certificates usage within that same category.)

⁶⁰ <https://epi.envirocenter.yale.edu/epi-country-report/CAN>; 2020.

⁶¹ World Bank’s Logistics Performance Index, 2018: <https://lpi.worldbank.org/international/scorecard/radar/254/C/CAN/2018#chartarea>

⁶² *Sustainable Development Report 2019*, Sustainable Development Solutions Network and the Bertelsmann Stiftung: https://s3.amazonaws.com/sustainabledevelopment.report/2019/2019_sustainable_development_report.pdf; note that performance on “sustainable nitrogen management index” is “stagnating”. FAO progress report on SDGs: <http://www.fao.org/sdg-progress-report/en/#sdg-2>

⑦ Conclusion

Three milestone dates stand out from this high-level review of sustainability targets: 2025, 2030 and 2050. Most targets line-up to these dates with the vast majority to the shorter-term horizons. Even more new targets are expected over time. The agri-food sector is being driven by documenting its performance on environmental sustainability (and other metrics). With this context in mind, the key questions for Canada:

Key questions:

1. **“What”** - Are we adequately documenting Canada’s agri-food sustainability leadership and resiliency?
2. **“Why”** - Is measuring Canada’s agri-food performance and progress (at a high level) strategically important?*
3. **“How”** - Can developing such indicators or index be done efficiently and confer value to producers and others across the food system?

(*A basis to express competitive advantage, attract investment, align policies and food players, and affirm Canada’s trusted food brand.)

Answering these questions (and others listed below) is part of a process to help advance a dialogue in this country about the merits of developing a national index on agri-food performance.

Additional questions:

1. **Benefits:**
 - a. How would the development of a national index improve the demonstration of Canada’s agri-food system sustainability to those outside of Canada? Several countries are already claiming to produce the highest quality, most sustainable food in the most environmentally friendly way, so how would this index change or help to address that?
 - b. How will such an index inform policy, research and innovation discussions at home and help advance the country’s trade interests abroad?
 - c. How could an index help drive-up even greater alignment across supply chains and broader collaborations with others?
2. **Scope:**

- a. Which perspective should shape its focus, e.g., sustainable sourcing for global value chains, demonstration of environment, social and governance (ESG) to potential investors, or country demonstration of adherence to the UN SDGs?
- b. Should this index respond to a specific international standard(s) or be designed *in-house* within Canada?
- c. Is this about creating national targets, or simply on measuring outcomes over time?
- d. Should this be about establishing a single index, comprised of several individual indicators, or a suite of indices rolled up and consolidated by commodity, sub-sector or by sustainability issue?

3. *Efficient & practical:*

- a. How can this initiative build on what is currently being done or data that is currently being collected by government and by individual agri-food players?⁶³ That is, how does this effort avoid competing with or duplicating other work?
- b. How can this effort avoid scope-creep that makes this unwieldy and impractical?
- c. How can this work be done pre-competitively and in collaboration with diverse food system partners across the food system?
- d. Who pays for developing, maintaining and publishing an index?
- e. Will any such set of high-level indicators be able to keep up with the pace of change facing the agri-food sector?

4. *Alternative:*

- a. If such an index or similar approach is not favoured, then what is the alternative?
- b. Is the current situation acceptable to meet the needs of fast changing marketplace?
- c. How can the country's agri-sector differentiate itself in the marketplace where it competes against other trusted food suppliers?
- d. How can Canada best respond to the ever-rising bar on agri-food transparency and accountability and leverage this for competitive advantage?

In short, should Canada's agri-food sector develop a credible and consolidated picture of its sustainable agriculture leadership and progress?

⁶³ The Government of Canada publishes a suite of agri-environmental performance indicators, which is referenced further above in part 5.6. These indicators provide trends on soil quality, water quality, air quality and biodiversity as impacted by agriculture. The indicators and information derived from the agri-environmental indicators are already used to help support other industry sustainability claims, either directly or using the data behind the indicators (e.g., CRSB's national beef sustainability assessment, CRSC's metrics platform; and certification of canola to gain access to European and U.S. biofuel feedstock markets).

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